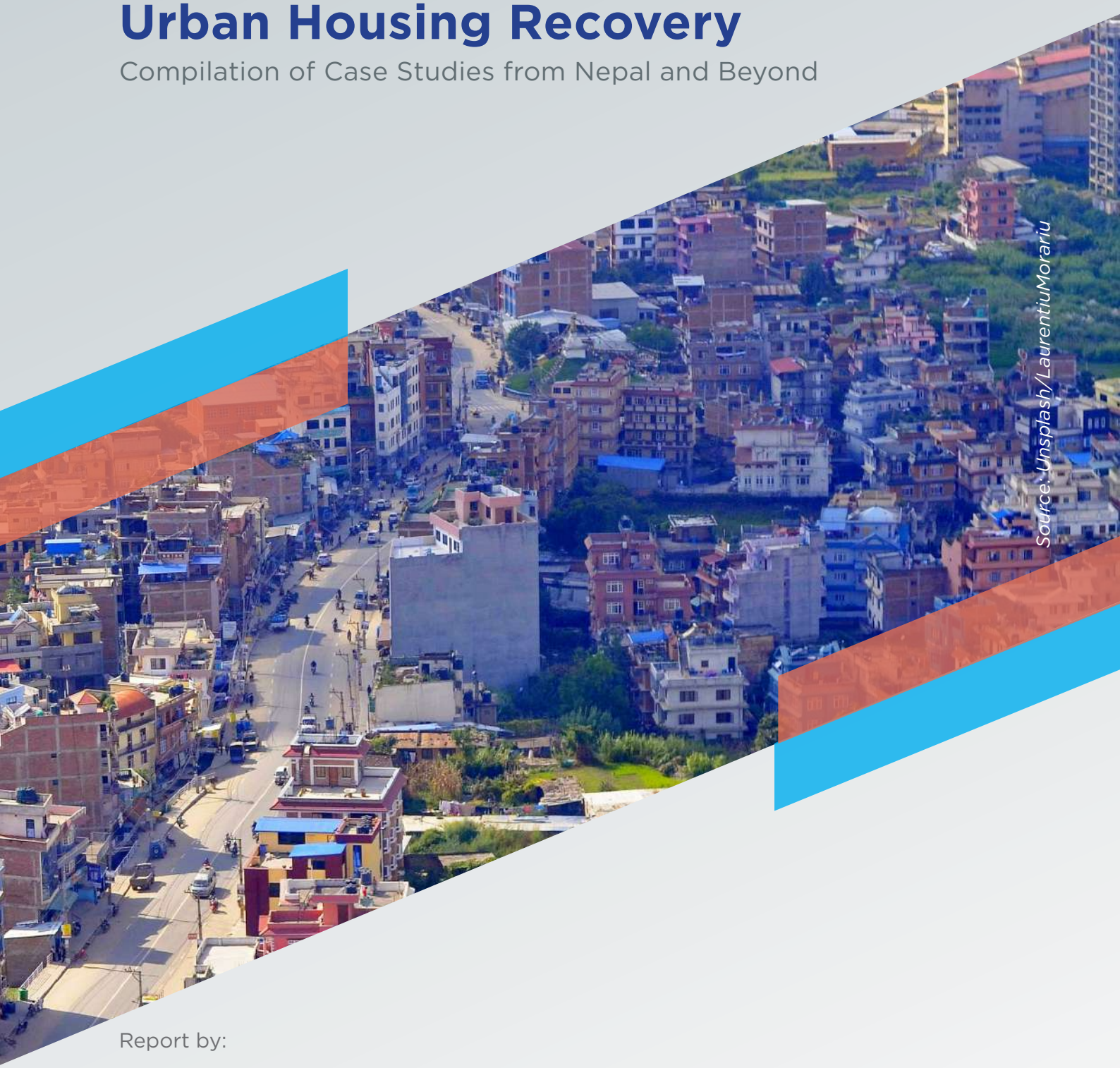
Urban Housing Recovery

Compilation of Case Studies from Nepal and Beyond



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Report by:

HRRP Housing Recovery and Reconstruction Platform

Funded and Supported by:

UKaid from the British people

CRS

July 2020

About HRRP

The Housing Recovery and Reconstruction Platform (HRRP) was established in December 2015 to take over supporting coordination of the post-earthquake housing reconstruction from the Nepal Shelter Cluster, as it returned to the pre-earthquake format as a standard cluster. HRRP provides coordination support services for the National Reconstruction Authority (NRA), Building and Grant Management and Local Infrastructure (GMALI) Central Level Programme Implementation Units (CLPIUs), other relevant government authorities, and Partner Organisations (POs). HRRP is currently in its fourth phase and will continue its coordination services until July 2021. HRRP is primarily funded by DFID Nepal and led by CRS Nepal with technical leadership from NSET.

The HRRP works at municipal, district, sub-national, and national levels, providing support primarily to the 14 districts most affected by the earthquake, as well as roving support to the 18 districts moderately affected by the earthquake.

Areas of Focus

The HRRP's main areas of focus are:

- Monitoring and documenting the housing reconstruction process.
- Facilitating coordination and experience sharing to support improvements in coverage and quality of socio-technical assistance.
- Supporting collective planning and roll out of additional support for vulnerable households.
- Addressing gaps and duplications.
- Advocacy, communications, and research.

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This report has been published from HRRP and supported by UK aid from the UK government and CRS Nepal; however the views expressed do not necessarily reflect the UK government's official policies and do not reflect the views of the agencies listed above.

Acknowledgement

There are many stakeholders whose coordination and insight have supported this compilation. HRRP is thankful to beneficiaries and masons for sharing their housing recovery experiences, and to the HRRP district teams for documenting these case studies from the field. We also thank the HRRP National Team for their support in the preparation of this document. In addition, we thank our partner organizations Lumanti, UNDP, NSET, and The Asia Foundation for sharing their valuable program experiences with us. We are grateful to Arughat Municipality in Gorkha district for sharing their initiative on setting up an effective model of a revolving fund. This document also reflects the research and questions asked by other institutions on global urban housing recovery issues. We extend our thanks to the international organizations whose case studies are featured in the compilation. Finally, we would like to express our gratitude to the National Reconstruction Authority, CLPIUs, DLPIUs, donor and partner organizations for their continued support to this publication, the platform, and the urban reconstruction coordination work. It is with generous financial contributions from DFID and CRS that we are able to contribute to the urban housing recovery efforts.

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Acronyms

ACCA	Asian Coalition for Community Action
ACHR	Asian Coalition for housing Rights
BHADA	Bhuj Area Development Authority
BMM	Brick with Mud Mortar
BOQ	Bill of Quantities
CBO	Community-Based Organization
CDRMP	Comprehensive Disaster Risk Management Program
CGI	Corrugated Galvanised Iron
CRRP	Community Resettlement and Recovery Program (CRS Haiti)
CRS	Catholic Relief Services
CS entry	Census and Survey entry
CTEVT	Council for Technical education and Vocational Training
DFID	Department for International Development
DLPIU	District Level Project Implementation Unit
DLPIU GMALI	DLPIU Grant Management and Local Infrastructure
DPC	Damp Proof Course
DRR	Disaster Risk Reduction
DSE	District Support Engineer
DUHD	Department of Urban and Housing Development (Myanmar)
EQ	Earthquake
ERRRP	Earthquake Risk Reduction and Recovery Programme

Acronyms

GoG	Government of Gujarat
GoI	Government of India
GoN	Government of Nepal
HCI	Housing and Community Infrastructure (Haiti)
HRRP	Housing Recovery and Reconstruction Platform
IDP	Internally Displaced Person
IEC	Information, Education and Communication
IRM	The independent Impacts and Recovery Monitoring Project
LR	Land Readjustment
LRRD	Linking Recovery and Rehabilitation with Development
MIS	Management Information System
MISEREOR	German Catholic Bishops' Organisation for Development Cooperation
MoFAGA	Ministry of Federal Affairs and General Administration
MoUD	Ministry of Urban Development
MUAN	Municipal Association of Nepal
NBC	National Building Code
NDRRMA	National Disaster Risk Reduction and Management Authority
NHRP	Nepal Housing Reconstruction Project
NRA	National Reconstruction Authority
NSET	National Society for Earthquake Technology
NUDS	National Urban Development Strategy

Acronyms

ODR	Owner-Driven Reconstruction
OJT	On the Job Training
PDNA	Post Disaster Needs Assessment
PDRF	Post Disaster Recovery Framework
PA	(NRA) Partner Agreement
PO	Partner Organization
RFOSC	Revolving Fund Operational Support Committee
SMM	Stone in Mud Mortar
SWM	Solid Waste Management
STA	Socio-technical Assistance
TAF	The Asia Foundation
TOKI	Turkey's Mass Housing Association
UNDP	United Nations Development Programme
WASH	Water, Sanitation and Hygiene
WfW	Women for the World
WSDN	Women's Savings Development Network

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Executive Summary

The case studies in this document are set in different scales and geographies, tackling a wide realm of issues connected to urban housing recovery — locally in Nepal and globally. The case studies are categorized into three:

1. case studies from partner organizations
2. case studies from households' perspective
3. global case studies

Five years after Nepal's earthquake, as we are nearing the end of NRA's tenure and amidst the protracted COVID-19 crisis, partners and NRA are exploring NRA's handover and the shift from recovery actors to institutions of development and disaster risk resilience. Considering the progress so far and the challenges and potentials ahead, central themes have been extracted from the case studies in this document on the critical components that have impacted and will continue to impact urban housing recovery.

a) **Effective Governance**

- **Decentralized Decision-making**

  In Chile's earthquake recovery (Chapter 4.3), the centre played a facilitation role and provided resources, but the main authority to implement and set budgets was with the local authorities. In Nepal, local governance systems are evolving, many of them having been set up only 3 years ago. However, they have still played a considerable role in some aspects of the recovery process, in communication and in implementation of provisions such as *Avilekhikaran* and *Sarjamin* as explained in the case studies (3.6, 3.7). More investment in capacity building and granting of more authority to municipalities is required.

- **Linking to long-term development**

  NRA's existing provisions need to be more effectively linked to longer-term development. Example: as joint-ownership is applicable only in heritage housing areas, core-urban areas are left out, which also face issues of multiple ownership and small plots of land. As seen in the Typhoon Haiyan Recovery Program by CRS (4.1), for NGOs to exit a project area in a sustainable way there must be a recipient governance and community system, as a prerequisite to scaling of the impact. At the local level, this has been witnessed in NSET's Baliyo Ghar program which has effectively linked to the municipalities in its implementation areas. In Haiti's Rental Programming (4.4), one of the major drawbacks was its insufficient linkage to a larger urban vision for the city's reconstruction. On the other hand, as seen in the case study from Kabul, Afghanistan (4.5), the success of the integrated shelter approach can be greatly attributed to linking of the project to different governance levels: such as community councils, municipalities and districts.

b) **Socio-technical Assistance (STA)**

- **Customizing Socio-technical Assistance**

  NRA has set up an STA package with 7 components for both urban and rural areas. These components include: community / household orientations; continuous door-to-door technical assistance (mobile technical support); short training for masons, on the job training for masons; helpdesk / technical Resource Centre; demonstration construction; and community reconstruction committees[1].

  NSET's learning from the Baliyo Ghar Program (2.2) is that regular socio-technical assistance is not enough to push forward housing recovery in urban areas. In UNDP's programs (2.3), municipalities were supported through STA on building permits and implementing the National Building Code to align with a longer-term vision for sustainable urban housing recovery. Further, learnings from the integrated shelter project in Kabul (4.5) and housing recovery of the Bhuj Earthquake in India (4.8) state that the differences in rural and urban recovery models must be embedded in the STA provided. In Bhuj, different values of cash grant were provided for rural and urban areas, recognizing the higher cost of construction in urban areas. In addition, the case studies from the field indicate that the needs for reconstruction of households in *guthis*[2] , vulnerable beneficiaries and retrofitting beneficiaries are different in nature. For example: *Guthi* issues are mainly related to land ownership and financial debt of *Tiro*. As of June 2020, 53% (9,839) of NRA identified total 18,505 vulnerable beneficiaries have received the 3rd tranche. Separate technical assistance for vulnerable beneficiaries needs to be facilitated by NRA engineers, social mobilizers, mobile masons and municipalities. The IRM Study from 2019[3] shows that there is a higher interest in urban retrofitting compared to rural, but the progress so far has been very limited. In order to fast-track retrofitting, additional STA focusing on retrofitting barriers could be developed at the municipal level.

- **Scaling Socio-technical assistance**

  As municipalities and wards have primary contact with communities in their jurisdiction, their technical and logistical capacity needs to be increased for effective scaling up of safer building practices. Through NRA's reconstruction progress, efforts have been made to develop skill and capacity at the local level. With NSET's Baliyo Ghar program (2.2) and through UNDP's projects such as Building Permit Studio (2.3), local authorities were trained in areas of building permit, retrofit and DRR. In addition, capacity building of masons and social mobilizers are important aspects in scaling socio-technical assistance through human resources. In Nepal's context, there have been extensive mason-training programs. However,

[1] *HRRP. Core Socio-Technical Assistance Package. 2017.* (https://bit.ly/2D45mrO)
[2] *Guthis are socio-economic/religious institutions in Nepal, either private or state-registered*
[3] *The Asia Foundation. Independent Impacts and Recovery Monitoring (IRM) Project Nepal Early Findings from Round 5. 2020.* (https://bit.ly/39RAVkq)

as seen through Goma's case study (3.1), there is still a sizable gap in access to opportunities between male and female masons, and more efforts at community level are required for further engagement and acceptance of female masons. Adopting these learnings of scaling in future development and disaster frameworks through institutional approaches is required.

c) Recovery Financing

- **Access to Finance**

  Housing recovery finance is the most pressing urban housing recovery barrier based on the qualitative study on prioritizing urban issues by the Urban Recovery Technical Working Group (UR-TWG). Presently, there is a provision of accessing loans with 5% interest subsidy, but these are difficult to access, and only 200 beneficiaries have received this loan so far[4]. There are some positive examples of access to finance seen in the case studies above, such as the revolving fund set up by Arughat Municipality in Gorkha, Nepal. Successful cooperative lending models and savings groups such as by Lumanti in Nepal, and Women for the World (WfW) in Myanmar have been developed through years of relationship-building and participatory practices. Further exploration is needed to scale such models through collaboration between municipalities, local NGOs and communities.

- **Affordability**

  The Asia Foundation's case studies (2.4) reflect on the different dynamics that influence financial decision-making. Badri Narayan from Bhaktapur had to sell his land like many others in order to raise capital to rebuild, thus foregoing his source of livelihood. Similarly, the multiple ownership beneficiaries from Lalitpur (3.2) sold their lands as well, even after receiving separate grants under the joint ownership guideline by NRA. The IRM Study findings from 2019 have found that borrowing for reconstruction has increased over the years. In Düzce, Turkey's cooperative housing program (4.7), affordability formed a key principle along with participation and ecology, and this was achieved through devising innovative techniques by the community and a group of 100 voluntary professionals.

d) Sustainable Knowledge Management

In Maule, Chile (4.3), although the earthquake housing recovery was largely successful, the major challenge was the lack of access to updated information systems and maps to make planning decisions. High-level of coordination was required in the process of urban recovery. In Haiti's reconstruction post the 2010 earthquake, there was no government policy framework for the housing recovery strategy, and thus each agency established its own approach[5]. In addition, there was data on building conditions in general, but until 2012 there was no data on which households should be helped first and in what manner. In Nepal, there has been no

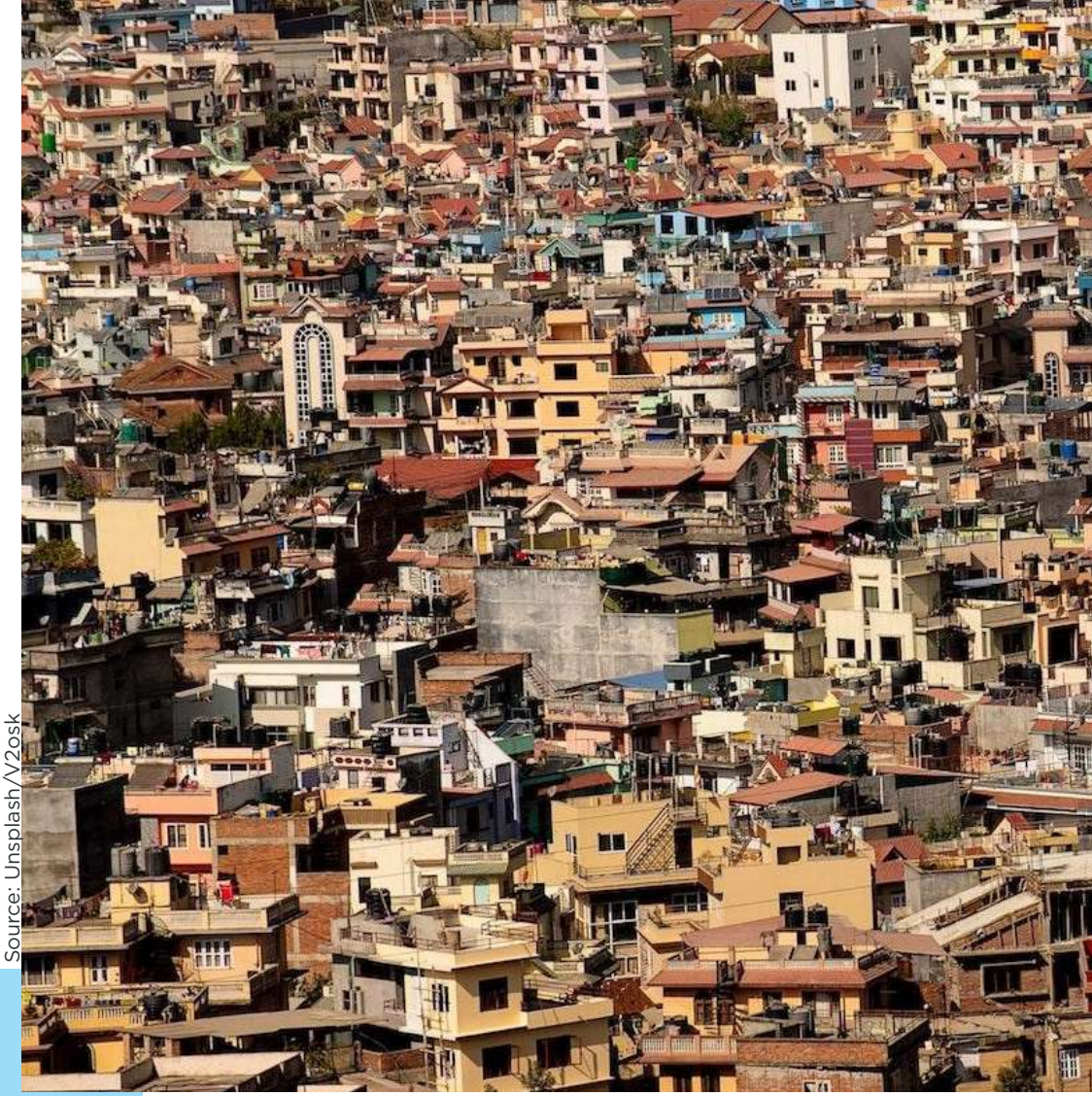
[4] *Interview with an NRA official on June 15, 2020*

[5] *The World Bank. What did we learn? The Shelter Response and Housing Recovery in the First Two Years after the 2010 Haiti Earthquake.2016.* (https://bit.ly/30kqpPA)

separate urban housing recovery strategy developed, which could not only have guided the urban housing recovery, but also provided a strong base for the approaching institutional transfer to the Ministry of Urban Development (MoUD) and National Disaster Risk. Reduction and Management Authority (NDRRMA). With this institutional transfer, the management of the knowledge generated in the last five years is critical to build on the lessons that have been learnt. One of the important aspects to consider is where and how would the lessons learnt, housing data, GIS maps, case studies and more be stored and showcased in order to continue the learning and influence.

e) **Participation**

Lumanti has built a relationship with the communities it works in over a period of many years, by engaging the communities in the housing development/recovery process from the identification of the issue, to the planning and the implementation. Both Lumanti and WfW (2.1, 4.6) have worked particularly with women's groups to form networks of cooperatives and savings groups. The cooperative housing reconstruction project in Düzce, Turkey (4.7), undertook regular participatory sessions with the cooperative and the professional volunteers designing the project. Through this process the cooperative members have gained more confidence in engaging with the government. Nepal's reconstruction program is "owner-driven", instating the beneficiary is behind the steering wheel of his/her reconstruction and retrofitting, within the framework of NRA's guidelines. However, even within this process, through decentralized decision-making at the municipality level, beneficiaries can be more engaged, example: setting tranche deadline, understanding space requirements for the design catalogue, identification of vulnerable beneficiaries and more. Such examples are seen in the practices of Lumanti and WfW, which have facilitated the connection between communities and local authorities over the years through their programs and workshops. These connections need to be further built on and strengthened.



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01.

Introduction & Context

1.1 Urbanization and Housing in Nepal

Urbanization Trend

Nepal is a mainly rural country, with 80% of its population living in rural areas in 2018[6]. However, the country is urbanizing at a great pace, and between 2018 and 2050, Nepal's urbanization trend is growing, and the country is projected to be the world's fastest urbanizing country after Burundi, at the rate of 2% per year[7]. Nepal's municipal structure has witnessed immense change in the past few decades, from just 10 municipalities in 1959, growing every few years to its Federal restructuring in 2017 with 6 metropolitan cities, 11 sub-metropolitan cities, 276 urban municipalities, and 460 rural municipalities[8].

Urban Housing Typology in Nepal:

The spread of urban wards across earthquake affected districts covers a wide range of areas and contexts and the diversity of housing typologies reflects this. Some of the major housing typologies found in urban areas are RCC framed buildings, brick and cement mortar masonry, hollow concrete block and cement mortar masonry, stone and cement mortar masonry, stone and mud mortar masonry, and hybrid structures (HRRP, Urban Status Paper)

Urban Policy

The National Shelter Policy, 1996;

This was the first shelter policy introduced in Nepal. The housing policy was framed as per the Global Strategy for Shelter adopted by the United Nation in 1990. It emphasized the role of the government as an enabler and facilitator and encouraged the private sector, both formal and informal, in the production of adequate dwelling units. The policy does not address disaster response.

The National Shelter Policy, 2012

In 2012, the shelter policy from 1996 was amended to include the socio-political transformation of Nepal. It focused on housing for the landless, deprived and those displaced due to development and disaster[9].

National Urban Development Strategy

The Government of Nepal published the "National Urban Development Strategy[10] in 2017, which is based on five principles of sustainability, inclusivity, resilience, ecology and efficiency. The strategy consists of 3 major milestones:

- 5-year milestone: "policies, plans, guidelines and regulations in place for improved investment and systemic planning for urban development".
- 10-year milestone: "plans, projects and programs operationalized with increased investment in urban development with strengthened inter-urban and urban rural linkages".
- 15-year milestone: "urban centres with improved infrastructure, healthy environment, efficient management and vibrant economy".

[6] *The World Bank. Rural Population. 2018.* (https://bit.ly/2Xn2Pjd)
[7] *UNDESA. World Urbanization Prospects. 2018.* (https://bit.ly/2XlQJXL)
[8] *HRRP. Urban Housing Reconstruction Status Paper. September 2018.* (https://bit.ly/30kcB7F)
[9] *Dipendra Gautam, Hugo Filipe Pinheiro Rodrigues. Impacts and Insights of the Gorkha Earthquake, p. 176. 2017.* (https://bit.ly/33meOkS)
[10] *Government of Nepal. National Urban Development Strategy. January 2017*

In order to reach these milestones, collaboration is required by multiple actors, especially between different government ministries like the Ministry of Urban Development (MoUD) and the Ministry of Federal Affairs and General Administration (MoFAGA). MoUD has the technical lead on NUDS, but implementation at municipal level comes under the jurisdiction of local government. The housing recovery program of Nepal's 2015 Gorkha earthquake has provided an opportunity to contribute to this vision. Further, byelaws for regulating and controlling urban mechanisms are prevalent in many municipalities in Nepal.

1.2 Context of Gorkha Earthquake

On April 25, 2015, Nepal was hit by an earthquake of 7.8 magnitude, followed by hundreds of aftershocks, the strongest one of which occurred on 12th May, measuring 7.3. The two earthquakes caused heavy damage to life and property in Nepal. Hundreds of thousands of schools, homes, institutional buildings and heritage sites were damaged, including 830,000 houses (HRRP), making the Gorkha Earthquake one of the most destructive disasters in the history of Modern Nepal.

The earthquake affected 32 districts out of Nepal's 77 districts, which were categorized as follows by Post Disaster Needs Assessment (PDNA):

14 most-affected districts:

***Severely Hit**: Gorkha, Dhading, Rasuwa, Nuwakot, Sindhupalchok, Dolakha, and Ramechhap.*

***Crisis Hit**: Kathmandu, Bhaktapur, Lalitpur, Kavre, Okhaldhunga, Sindhuli, and Makwanpur.*

18 moderately affected districts:

***Hit with Heavy Losses**: Lamjung, Tanahun, Chitwan, Solukhumbhu, and Khotang.*

***Hit**: Kaski, Parbat, Syangja, Palpa, Gulmi, and Baglung.*

***Slightly Affected**: Myagdi, Arghakhanchi, Nawalpur, Parasi, Bhojpur, Dhankhuta, and Sankhuwasabha.*

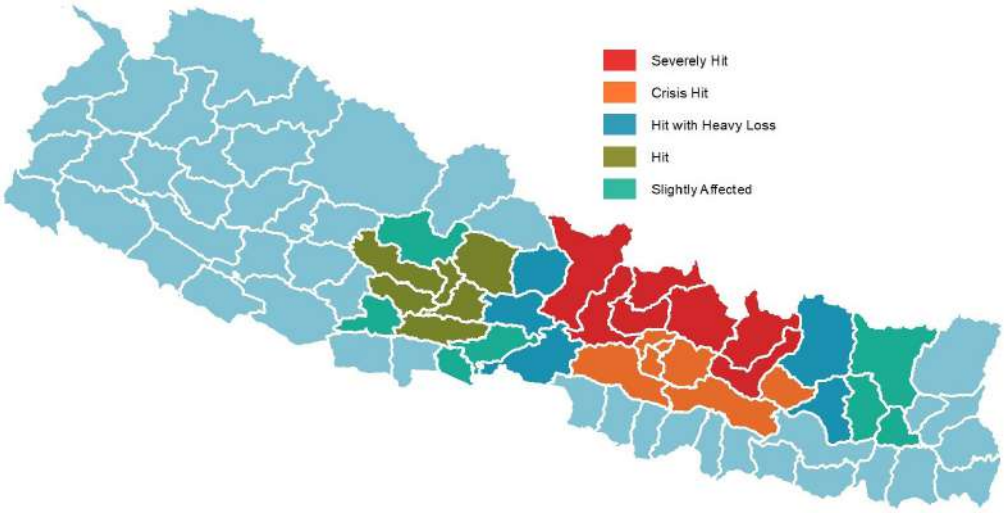


***Figure 1**. Earthquake-affected districts of Nepal. Source: HRRP, July 2020*

National Reconstruction Authority

Nepal's National Reconstruction Authority (NRA) was set up through an Act passed in the parliament in December 2015, 8 months following the earthquake, with the primary objective of rapid reconstruction of the damage caused by the earthquakes[11]. NRA has been implementing the "Earthquake Housing Reconstruction Program", wherein identified eligible beneficiaries have received or are in the process of receiving grants and some socio-technical assistance for reconstruction and retrofitting of their earthquake damaged houses. Out of the 858,190 eligible beneficiaries for reconstruction, 813,2015 have signed the partner agreement and have thus enrolled in the reconstruction program as of July 2020. Out of the 64,477 eligible for retrofitting, 47,233 have signed the partner agreement and enrolled for retrofitting as of July 2020 (HRRP).

The Earthquake Housing Reconstruction Program grant disbursal can be understood as follows:

a) Reconstruction: The reconstruction grant of 3,00,000 NRs (approx. 2,500 USD), is given in three tranches. The first tranche of 50,000 NRs on signing of agreement, second tranche of 1,50,000 NRs on completion of DPC and plinth band, and third tranche of 1,00,000 NRs on completion of roof band.

b) Retrofitting: The retrofitting grant is 1,00,000 NRs (approx. 850 USD). The first tranche of 50,000 NRs is disbursed on signing the partner agreement, and the second tranche of the remaining 50,000 is handed to the beneficiary on completion of retrofitting[12]

1.3 Urban Housing Recovery

More than five years after the earthquakes, as of July 2020, approximately 68.3% of the eligible beneficiaries have received the 3rd tranche of the grant and have thus completed their reconstruction. Urban earthquake recovery has progressed slower than rural recovery, with approximately 41.5% urban caseload (153,961 HH) remaining compared to 24.2% remaining rural caseload (117,708 HH) (HRRP data). It has been acknowledged that urban recovery is more complex and multi-dimensional in nature, requiring holistic solutions on various fronts like land, heritage housing, socio-technical assistance, finance, communication and policy.

Type	Signed Agreements	1st Tranche	2nd Tranche	3rd Tranche	Remaining Caseload	Remaining Caseload (%)
Rural	468,261	461,001	44,215	369,153	117,708	24.2%
Urban	344,944	340,353	251,389	217,368	153,961	41.5%

Table 1. *Reconstruction Progress dated July 2020.*
Source: HRRP, July 2020

HRRP conducted a qualitative study on prioritizing urban recovery issues to understand what the

[11] *Nepal Administrative Staff College. Political Economy Analysis of Post-Earthquake Reconstruction in Nepal. 2018.* (https://bit.ly/2Xlk98k)
[12] *Nepal Housing Reconstruction Multi-Donor Trust Fund. How does the Cash-Transfer Mechanism work?* (https://bit.ly/3gslLU4)

most critical barriers to urban recovery are. The study covered the districts of Ramechhap, Dhading, Dolakha, Kathmandu, Gorkha and Kavrepalanchowk, with a total of 14 Focus Group Discussions (FGDs) with male and female beneficiary groups. In addition, 9 Key Informant Interviews (KIIs) were conducted with Ward officials and NRA engineers, and 2 KIIs were carried out with masons. Through the findings it was established that urban recovery financing is the most critical issue, with construction in urban Nepal being unaffordable, little or no access to low-interest loans and private loans being at a very high interest rate. Next, NRA processes have slowed down recovery with slow tranche disbursal and gaps in communication of NRA guidelines. Further, land issues such as ownership documents, multiple ownership and small plot sizes were found to be critical barriers to urban recovery. Other pertinent issues are seen in retrofitting, heritage housing, communication, assistance to vulnerable beneficiaries, and needs of women in reconstruction.

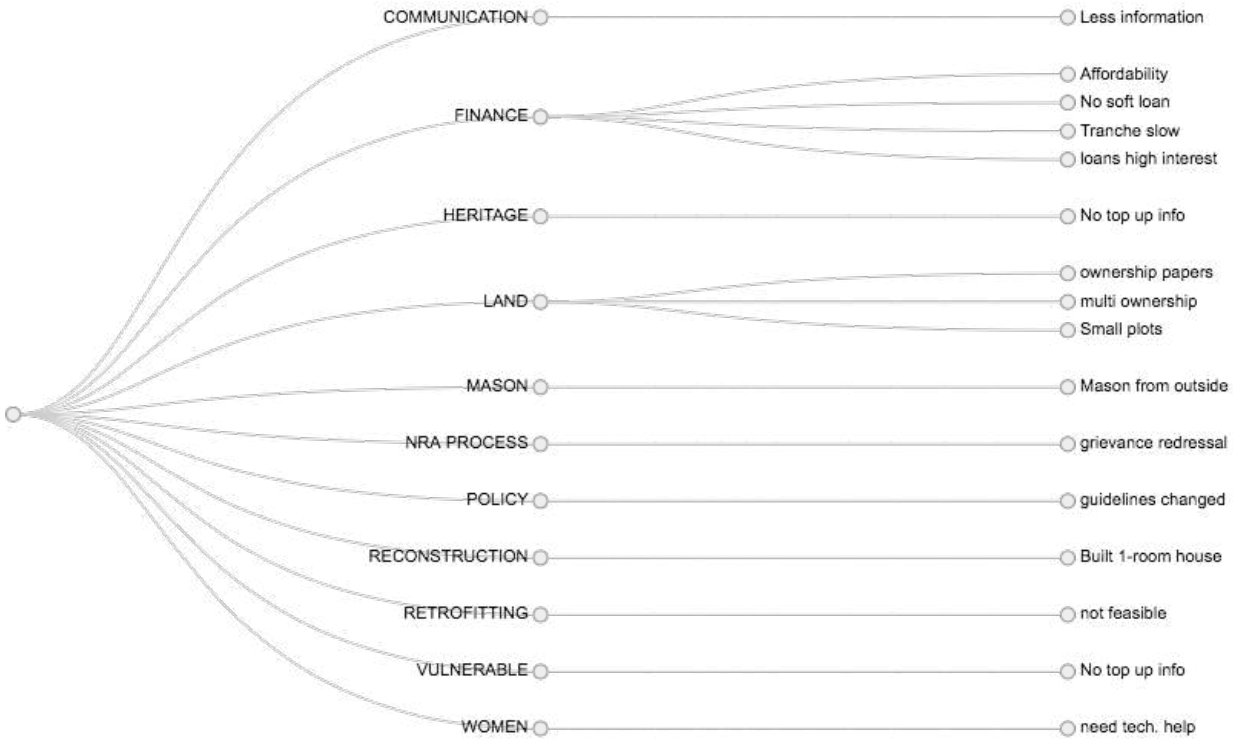


Figure 2: *Representation of prioritized issues from the qualitative study by UR-TWG. Source: UR-TWG, 2020*

1.4 Urban Recovery Compilation

With the unprecedented damage to Nepal's housing stock by the Gorkha Earthquake and the complexity of urban recovery, it is critical to reflect on processes and stories from the field to comprehend the way forward for urban housing recovery. By collating urban recovery experiences from the angle of different stakeholders - primarily the initiatives of partner organizations in Nepal's urban recovery and the stories of beneficiaries themselves - the publication highlights the dynamic components of urban housing recovery through case studies.

In addition, this compilation has also drawn from urban housing recovery from across the globe, to take a closer look at practices that have been successful in other contexts. As we approach the end of the current phase of housing "recovery", after which the remaining caseload will be handed over to other relevant government entities, it is even more critical to learn from the successes and challenges of the recovery process. A lot more research and documentation are required in Nepal's urban housing development and recovery in order to embed effective strategies into the country's long-term urban resilience.

1.5 Case Study Matrix

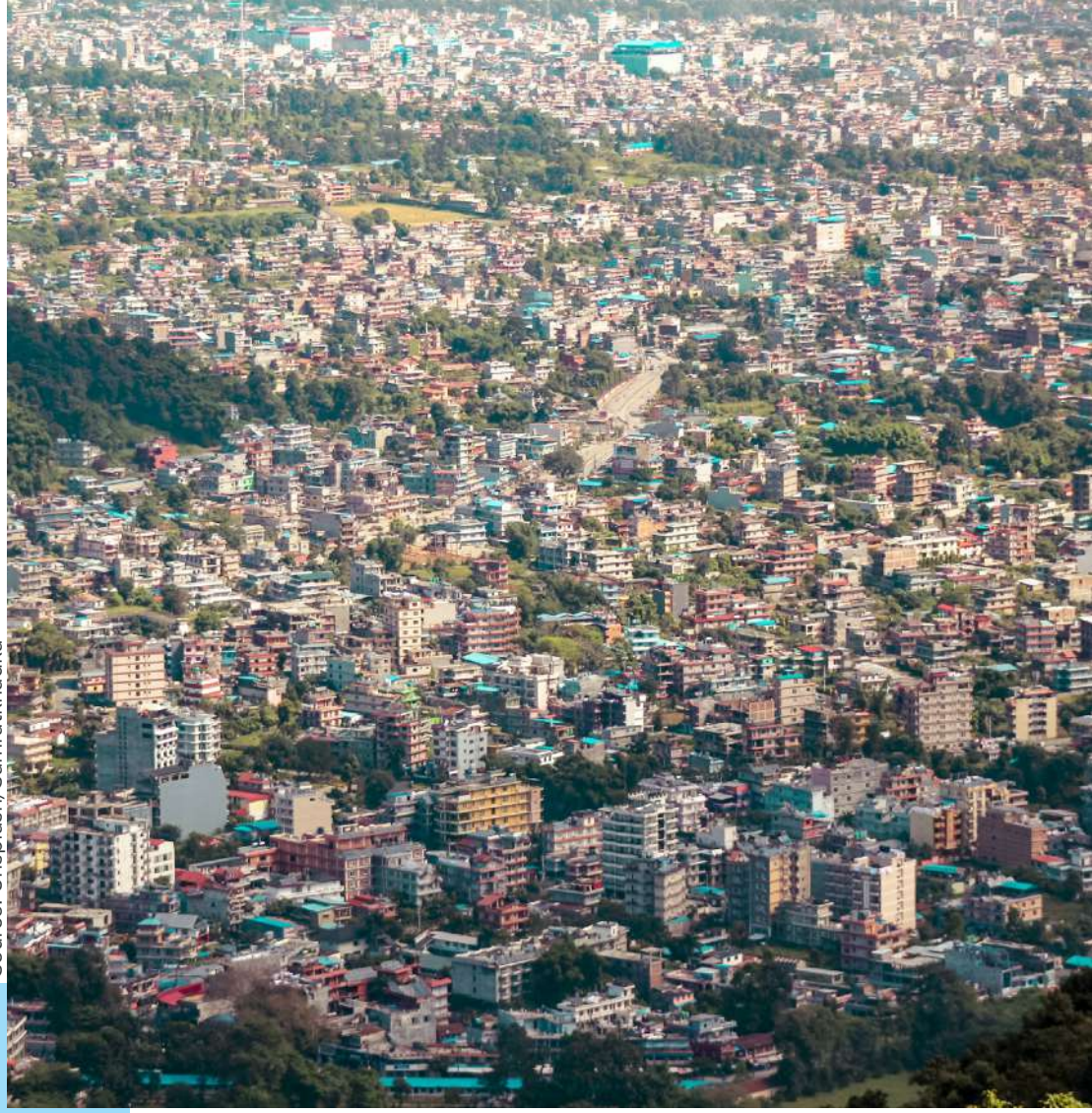
The case studies in this document have been categorized in three types: Case studies by partner organizations, case studies from households' perspectives, and global case studies. A separate matrix for each category elaborates the case study topic, urban recovery issues addressed and keywords. The case studies mainly deal with issues of land, finance, policy, urban STA, heritage, retrofitting, NRA processes, vulnerable beneficiaries and mason training.

CASE STUDIES: PARTNER ORGANIZATIONS												
No.	**Partner Organization/ Municipality**	**Case Study Details**	**Urban Recovery Issues**									**Keywords**
			Land	Finance	Policy	Urban STA	Heritage	Retrofitting	NRA/ Governance	Vulnerable	Mason Training	
2.1	Lumanti	Identifying land issues with communities	■			■						recovery finance, capacity building, community engagement, community workshops
2.2	NSET	NSET Baliyo Ghar Program, case stories from the field				■	■	■			■	retrofitting, model house, heritage reconstruction, capacity building, mason training
2.3	UNDP	National Building Code implementation, Building Permit support				■			■			urban STA, housing compliance, governance, capacity building
2.4	The Asia Foundation	Impacts and Recovery Monitoring Project (IRM)		■					■	■		recovery finance, housing recovery research
2.5	Arughat Municipality	Setting up of a Revolving Fund		■					■			recovery finance, governance, capacity building

CASE STUDIES FROM HOUSEHOLDS' PERSPECTIVE												
No.	**Urban Housing Recovery Initiative**	**District**	Land	Finance	Policy	Urban STA	Heritage	Retrofitting	NRA/ Governance	Vulnerable	Mason Training	**Keywords**
3.1	Livelihood and Reconstruction: Mason Training	Dhading, Bhaktapur				■					■	mason training, gender gap, earthquake resistant reconstruction, women empowerment
3.2	Multiple Ownership Beneficiary	Lalitpur	■	■	■		■		■			heritage reconstruction, NRA guidelines, land ownership
3.3	Retrofitting with Partner Organization Support	Sindhuli				■		■			■	retrofitting, model house, Urban STA
3.4	Self-initiated Retrofitting	Syangja, Bhaktapur				■		■	■		■	retrofitting, urban STA
3.5	Reconstruction in Nepal's "Guthis"	Kathmandu, Bhaktapur	■	■					■			land ownership, urban STA, governance
3.6	Sarjamin: Land Registration through Public Inquiry Deed	Kathmandu	■						■			land ownership, documentation, governance
3.7	Avilekhikaran: Regularizing Already Reconstructed Houses	Lalitpur	■						■			regularization, housing compliance, governance, earthquake resistant reconstruction
3.8	Urban Vulnerable Beneficiaries	Dolakha							■	■		earthquake resistant reconstruction, urban STA, recovery finance

GLOBAL CASE STUDIES													
No.	**Country and Topic**	**Year**	Land	Finance	Policy	Urban STA	Heritage	Retrofitting	NRA/ Governance	Vulnerable	Mason Training	**Keywords**	**In context to Nepal's recovery**
4.1	Tacloban, Philippines: Typhoon Haiyan	2013-2015				■				■	■	community engagement, multi-sectoral, DRR, multi-stakeholder	Integrated approach to either relocate reconstruct or rent
4.2	Port-Au-Prince, Haiti: Housing Repair and Retrofit	2012-2013				■		■	■		■	retrofitting, community engagement, urban STA	Provision of large-scale socio-technical assistance in repair and retrofitting

GLOBAL CASE STUDIES													
No.	**Country and Topic**	**Year**	Land	Finance	Policy	Urban STA	Heritage	Retrofitting	NRA/ Governance	Vulnerable	Mason Training	**Keywords**	**In context to Nepal's recovery**
4.3	Maule, Chile: Recovery Planning	2010-2015			■				■		■	master planning, relocation, governance, speedy recovery	Balancing the speed and quality of recovery
4.4	Haiti: Post Earthquake Rental Support	2010-2012		■		■				■		rental support, neighbourhood approach, livelihood, informal settlements	Providing the option of rental support in the housing recovery program
4.5	Kabul, Afghanistan: Linking Emergency Settlements to Development	2008-2010				■					■	Multi-sectoral, area-based approach, urban development, capacity building	Rural models should contextualize for urban settings instead of being replicated
4.6	Yangon, Myanmar: The Bridging of Scales	2008 onwards				■					■	community engagement, affordable housing, recovery finance, women empowerment, capacity building	Urban housing recovery and development scaled through setting up savings groups and community workshops
4.7	Düzce, Turkey: Cooperative Post Disaster Housing	2003-2014	■	■							■	cooperative housing, community engagement, affordable housing, earthquake resistant reconstruction	Tenants set up a cooperative to demand land and reconstruct affordable housing for their community
4.8	Reconstruction and Land Readjustment, Bhuj, Gujarat, India	2001-2004	■		■	■	■		■		■	land readjustment, core urban area, heritage reconstruction, urban STA	Provision of a minimal shelter for incremental recovery; land readjustment to decongest core urban areas



Source: Unsplash/Samratkhadka

02.

Case Studies:
Partner Organizations

2.1 Lumanti Support Group for Shelter [13]

recovery finance, capacity building, community engagement, community workshops

Lumanti was started in 1994, with the aim to support and **empower poor communities** in Nepal through the lens of shelter. Lumanti works mainly in the areas of housing, WASH, DRR, community finance and capacity building. Lumanti's reconstruction process has been highly people-centric, as can be seen through the flowchart below.

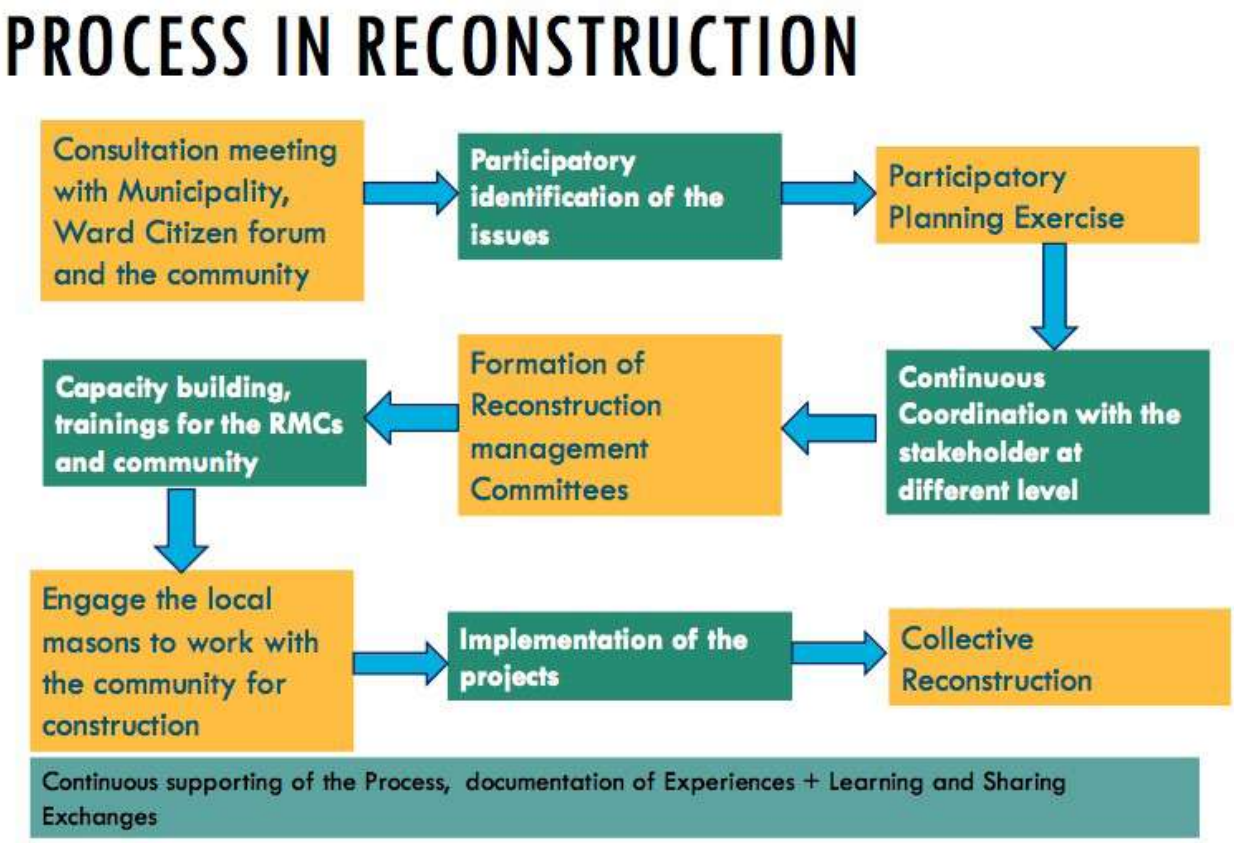


Figure 3. *Lumanti's process of reconstruction. Source: Lumanti*

Category of Projects at Lumanti:

Their initiatives in urban reconstruction have mainly involved

a) mapping and family selection,
b) identifying land Issues with groups,
c) running community information centres,
d) building partnership at local level,
e) supporting the poorest and
f) building community infrastructure.

The case study below details out the process of identifying land issues with communities.

[13] *Lumanti. Annual Report. 2019.*

Case focusing on b) Identifying land issues with groups

Rebuilding Settlements with Communities
April 25th-May 1st, 2016
Thecho and Macchegaun

The workshop on "Rebuilding Settlements with Communities" was a weeklong program (25th April 2016- 1st May 2016) scheduled to begin at the mark of anniversary of the earthquake. It was supported by Asian Coalition of Housing Rights (ACHR) based in Bangkok and MISEREOR with technical support from its international Community Architect's Network (CAN). The workshop brought together international experts-experienced in rebuilding post disaster in their respective countries together with a team of national volunteer architects and technical team of LUMANTI in exercising a participative community led settlement planning process.

Objectives of the workshop were:

- Prepare a model of community driven process in rebuilding settlements.
- To provide training and exposure to community representatives on community driven reconstruction process.
- Share ideas with various organizations participating in rebuilding settlements with communities .

Approach

Considering the short duration of activities, the workshop initially intended to focus on specific themes whose output could be synthesized within the given timeframe of seven days. However, on realizing that such an approach would not be holistic, it was decided to address all the core issues as they would line up during the dialogues.

Workshop Implementation:

Thecho Focus Areas:

- Land and housing: After a brief discussion and a basic visual assessment of the damaged households, the technical team realized that the existing data on damage assessment did not entirely represent the existing scenario. Therefore, the household members were asked to approach the blown-up map of ward no. five and identify their homes and colour as per the existing situation in red, yellow or green representing fully damaged, partially damaged or not damaged respectively. The effect of mapping was that the community could visualize the proportion of issues through a range of colours and discuss them.

Image 1: *community mapping including damage assessments, land title status and mapping of plot sizes. Source: Lumanti, 2016*

- Infrastructure and open spaces: The community, along with a team of architects and engineers, looked around the entire settlement to gather issues and design solutions for better infrastructure and open spaces. They documented the public and private open spaces, along with the built structures, thus identifying the potential for rainwater harvesting, heritage walks and evacuation spaces.

Machhegaun Focus Areas:

- Planning and land Issues: The community identified layers of issues on land such as the case of land swapping without swapping their land titles, non-standard land parcels, land title issues etc. They even mapped the conflict plots i.e. the people who are unwilling to take part in the settlement planning process.
- Housing and community spaces: With the help of architects, the community participated in surveying the damage grade of the houses that survived the earthquake. They also surveyed and measured the existing community spaces like courtyard, rest house and temples, and through this they gathered the collective needs of the community.
- Infrastructure: The community discussed issues on their existing infrastructure such as type of road network, water supply, drainage and fecal sludge/liquid waste line. They surveyed the existing drainage, water supply and sewerage line and marked these along with the problem areas in the map.
- Housing finance: The working team together with the community worked on the estimation of earthquake resistant buildings and based on the focused group discussions with the community proposed a financial mechanism and funding requirement for a cluster in Taukhel, Machhegaun.

Workshop Outcomes:

Largely, one of the biggest outcomes of the workshop was that the community themselves

came up with recommendations to help ease and quicken the process of reconstruction in their settlements. Ideas were developed on cluster managed reconstruction at a neighbourhood level, recommendations were provided to the ward such as regular access to registering land titles (which usually opens only once in a few years), simplifying the process of land readjustment and subsidy on timber for heritage settlements' reconstruction.

Through Lumanti's various projects and initiatives in urban housing, below are the challenges faced by them in supporting urban reconstruction:

- Municipal Design Issues: Prototype design developed by NRA are not suitable for houses in urban areas, problem of Eccentric Footing in core areas; Difficult to apply and follow Settlement Planning Bylaws 2072 (developed a stringent one after the earthquake) in Old settlements.
- Municipal Approval of Drawings tedious due to Lack of appropriate policies and byelaws for Core Area construction and Land issues.
- Land issue: No land title, swapping of land titles, Expensive to obtain land titles, Small land parcels (less than 80 sq.m.) (issues of light, ventilation, structural redundancy, space) and Land without proper road access.
- House owners uncertain about starting construction due to Financial issues, Household division and ownership issues, House owners were reluctant to follow traditional construction system.

Why it Worked:

- Years of investment (money, time, skill, knowledge, confidence, relationship, trust) on building women's cooperatives / groups / network / leadership.
- Years of preparatory activities in building resilience (planning, mapping, training, simulation exercise, stockpiling, livelihood), Infrastructure, deep boring, water treatment system.
- Existence of saving fund with the cooperatives.
- Linkages / partnerships with the support organizations and government agencies.
- Flexibility in adapting the approach that contributed in building women's network and strengthening resilience (mobilization of resource, communal procurement for recovery and reconstruction).

Lessons Learnt:

- Collective approach is effective compared to individual approach; women always play the key role in the process.
- Good relationships with the local stakeholders and government has helped move the process forward.
- Decentralization of decision making is the key for effective reconstruction.
- The values needs of the people have changed; their lifestyles, aspirations have changed.
- The community infrastructure holds the community together which can be an effective way to organize and engage the people in the process.

2.2 National Society for Earthquake Technology-Nepal (NSET) [14]

retrofitting, model house, heritage reconstruction, capacity building, mason training

Project: NSET Baliyo Ghar Program With the core funding support from United States Agency for International Development (USAID), Baliyo Ghar program is a five-year (October 2015–September 2020) Cooperative Agreement for Housing Reconstruction Technical Assistance implemented by National Society for Earthquake Technology-Nepal. The program is being implemented in 4 districts (Kathmandu, Dolakha, Dhading and Nuwakot) out of the 14 quake-most-affected districts. The major goal of the program in shorter-term is to ensure earthquake safer construction of all houses which are in the reconstruction phase and in longer-term the program aims to establish a system of disaster-resilient construction to achieve the goal of disaster-resilient communities in Nepal.

Project Duration: October 2015 - September 2020. At present the project is on the verge of completion with all its output level activities coming to an end.

Stakeholders: Local Beneficiaries, local authorities, partner organizations, academic institutions, government officials and donor agencies.

Project Design: The Baliyo Ghar program was designed with the aim of

a) contributing in developing, improving and standardization of policy level guidelines, manuals and curricula,

b) ensuring that all the construction of houses are done with trained masons and ensuring that technical workforces and stakeholders too were trained and

c) finally raising awareness through radio TV programs, IEC materials, demonstration models and classroom based orientations.

Project Outcome and Impacts:
48,280 households directly supported through door to door technical support. 910 new model houses built as part of 50 days OJT (On the Job Training), 56 retrofitted demonstration houses.1,319 different trainings were conducted where 18,959 participated and out of which 3,164 were female and 15,795 were male.
6,730 orientation programs where 144,693 people participated and out of which 61,591 were female and 83,102 were male.

Baliyo Ghar has been implemented from the initial phase of relief and recovery period until now when the reconstruction is in verge of being completed. The impact of the program can be seen through the improved construction quality and significant raise in awareness level of beneficiaries which have been achieved through comprehensive technical assistantship in the field level and support in policy level. The Baliyo Ghar Program has conducted an end line survey to look at the impacts in depth, however the results are still to be synthesized.

[14] *NSET. NSET's Urban Recovery Case Studies on Housing Reconstruction, Learnings from Baliyo Ghar Program. 2020.*

Project Lessons Learnt:

- Many of the partially damaged houses in urban areas have been left unattended or with cosmetic repairs, such houses can be seismically retrofitted and used for many more years to come. Instead of investing heavily on new construction in urban areas people could save ample amounts while retrofitting their houses.
- Many of the traditional houses which depict the culture and history have been left unattended and can similarly be seismically retrofitted to preserve the vernacular architecture of the community.
- The local authorities have great influence and roles when it comes to development of communities and hence, collaboration and coordination with local authorities in issues related to urban areas is a must. Since, the issues in urban areas are dynamic and unique in their own way, NRA can make further progress on urban issues by collaborating with the municipalities.
- Regular socio-technical assistance is not enough to push forward housing recovery in urban areas. They need to be supported through comprehensive technical support which may encourage them in building their houses. Apart from technical assistance, supporting them in the building permit process is a must, and if any financial subsidy or other schemes can be made focusing on reconstruction of urban areas, the reconstruction can be supported.

NSET Baliyo Ghar Case Stories

BACKGROUND OF DWALKHA

Consisting of heritage monuments, traditional architecture, old-style Newari settlement, Dwalkha is known as the jewel of Dolakha District. This small town established around the 13th century during the Malla dynasty earned its name 'City of temples' as one could cross paths with temples in every bend of the stone-paved alleys. The place that once vouched for its enigmatic era of history and architecture was reduced into rubble by the aftershock of the Gorkha earthquake on 12 May 2015 whose epicentre was just 10km away.

Out of 338 houses in 50 Toles[15] of Dwalkha, 45 were destroyed due to earthquake, 188 had to be demolished and the other 90 were severely damaged, rendering most of the residents of Dwalkha homeless. But taking the havoc as an opportunity to revive the century-long history, Bhimeshwor Municipality with technical support from NSET came up with a plan to conserve and regenerate the settlement. The plan was to promote 'return to the city' which would further help in increasing economic activities and promotion of tourism. Conceptual plans were devised to encourage people to reconstruct houses with traditional architectural façade without compromising on modern amenities. With the pledge of NRA to grant an additional subsidy to houses in heritage settlement areas that have reconstructed houses in the traditional

[15] *Tole is the smallest administrative unit in Nepali*

way, convincing the locals to regenerate Dwalkha became easier.

When the whole nation was building back, Dwalkha too was recovering from the ruins but in turtle-pace. Lack of land in Dwalkha core area became an issue to rebuild there, forcing people to migrate and rebuild in the nearby town, Charikot. The provision of multiple ownership of a building, where more than one person in the family could have ownership of the building divided flat wise, came in as a catalyst to accelerate the reconstruction pace. But urban regeneration was incomplete without preservation of the houses with vernacular architecture. The 105 houses that were still standing amid the cracks were waiting for a revival. Retrofitting them and restoring the beauty was the only way to save its heritage. But the people in Dwalkha, like others in the district, were unaware of the techniques of retrofitting. Thus NSET/Baliyo Ghar in coordination with Bhimeshwor Municipality planned to conduct Retrofitting training of load- bearing houses in Dwalkha to support the Urban Regeneration and encourage people to conserve their inheritance.

RETROFITTING OF TRADITIONAL HOUSES ARE PRESERVING VERNACULAR ARCHITECTURE

Retrofitting of Suresh Shrestha's house

Suresh Shrestha's house was moderately damaged in the earthquake, and having been enlisted as a retrofit beneficiary, he had no idea what retrofit was and how he could save the house he built using his life's savings. He and his family had not even fully settled in the house when the devastating Gorkha earthquake and its aftershocks made them live in makeshift tents. The condition at the temporary living centre was no good. Harsh weather brought many difficulties. The family had to go to sleep in fear during windy nights and the night seemed to be even longer when the wind was accompanied by rain. Due to the degrading health of his 5-year old daughter, he decided to move back into the house after demolishing the attic portion of his three-story house. 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 single storey house near the still-standing building to reside in and plaster, and use the old house as a shed and for storage purpose.

When NSET/Baliyo Ghar approached him with a proposal to retrofit his house, he was hesitant on how a stone mud masonry could resist big quakes. But after watching photos and videos of retrofit procedures and learning about the retrofit conducted before the earthquake, he was convinced about the technique. The designs were prepared and six masons that received the 7-days training were selected to participate in the 25 days mason training on retrofit. Several

neighbours and passers-by questioned and discouraged Suresh Shrestha but the same people praised the technique after the completion of the retrofit. Suresh Shrestha became the first house owner in Dwalkha to preserve the traditional architecture. Though hesitant to the methods before retrofitting, he now gladly shows off his two- storey house to neighbours and encourages them to preserve their houses.

Image 2: *House of Suresh Shrestha which was partially damaged by the earthquake. Source: NSET*

Image 3: *Suresh Shrestha's house after being retrofitted. Source: NSET*

RETROFITTING OF TRADITIONAL HOUSES ARE PRESERVING VERNACULAR ARCHITECTURE

Retrofitting of Ananda Bahadur Shrestha's house

Ananda Bahadur Shrestha, another house owner in Dwalkha whose house still stood strong despite huge shocks, was a reconstruction beneficiary. Having built it in the early 90s with traditional architecture, Ananda Bahadur was not ready to demolish it. He had heard about the techniques of retrofit after the earthquake so he tried to get more information on it through the ward office. But having no programs dedicated to retrofit, he was asked to seek help from private consulting organizations.

In the fourth year of NSET-Baliyo Ghar, the program launched mason training for retrofit of load bearing houses as its major objective. The mobile team in Bhimeshwor Municipality contacted Ananda Bahadur Shrestha who had shifted to Kathmandu post-earthquake. By then he had watched most of the episodes of the Baliyo Ghar TV program and was convinced that his house should not be demolished and retrofit could give it a new life. He was glad that the team notified him of the program and felt lucky that his 30-year-old house could be rejuvenated. Getting to know that the program provided trained masons for 25 days was a cherry on top for him.

Before the commencement of the training, Ananda Bahadur Shrestha was oriented in different phases. From visiting an ongoing retrofit site of Mr. Rabi Neupane in Ramkot to watching the shake table demonstration videos, he became more confident that he should go for retrofitting. The team guided him to convert from reconstruction beneficiary to retrofit beneficiary. "Even though the government had listed the house to be demolished, I am happy that through retrofit, this three- decade-old house has been revitalized and is resistant to earthquakes. This way my house could be an example of traditional architecture of Dwalkha for the next generation.", said Ananda Bahadur Shrestha after completion of the retrofit.

Image 4: *Partially damaged traditional house of Ananda Bahadur Shrestha which lies in Dwalkha traditional settlement area. Source: NSET*

Image 5: *Retrofitted house which depicts the culture and architecture of Dwalkha's traditional settlement. Source: NSET*

These two houses set an example for people in Dwalkha and convinced more people to conserve their heritage. As a saying goes 'It is difficult to create a model. But once a model is created, it is replicated fast', many people have shown interest in preserving their history. "In the district where many people want to transfer from retrofit beneficiary list to reconstruction beneficiary list, Dwalkha has set an example by being able to convince its people to convert from reconstruction to retrofit beneficiary list.", says Ward Chairperson Biraj Man Shrestha.

LOCAL AUTHORITIES PROMOTING RETROFIT AFTER BEING CONVINCED WITH THE TECHNOLOGY

With reconstruction progressing, NRA decided to hand over most of the responsibilities to the local authorities which also included the grievance handling. It was a necessity for the NRA

to take this step as it would ease the work of NRA and furthermore, the reconstruction too would take its desired pace. It was also a necessity to ensure the local authorities were aware and well acquainted about the modus operandi and objectives of NRA and its owner driven reconstruction approach, and hence Baliyo Ghar program came up with series of training to local authorities which would incorporate the reconstruction process, mandate of NRA and also the responsibilities of local authorities. As add on to the packages, several relevant topics were incorporated in the training which were the current issue, and which needed some serious attention. Retrofit, building permit process and DRR were some of the topics which were incorporated in the training for the local authorities. The local authorities were convinced with all the topics, yet they were sceptical about retrofit, its technology, cost and its convenience. This hesitance of the local authority was dissuading people from retrofitting, and instead they converted themselves into full beneficiary. To address this, a demonstration training on retrofit was planned, and a local authorities training was planned, including a field visit for the local authorities to see retrofit progressing themselves. This excursion visit kept the hopes of implementation of retrofit persisting and during time members of the local authorities themselves encouraged retrofitting, even convincing some beneficiaries to retrofit their houses.

After being vocal about not implementing and promoting retrofit in his respective municipal or ward level in the first training, Mr. Gokul Prasad Neupane (ward member of Bhimeshwor- 6) attended the second training to local authorities with the mind-set of not promoting retrofit. However, this time after the training and post witnessing a retrofitted house, he decided to at least implement one training in his ward. He managed to congregate the retrofit beneficiaries and also called the mobile team of Baliyo Ghar to orient them about the retrofitting process, cost and convenience. People were sceptical at the first instance and hence, he convinced one house owner who was his nearest kin to retrofit his house. The house owner at first instance was hesitant about the cost, materials needed and supervision since he worked at Kathmandu, he was more hesitant about the quality of construction. Since the house was being retrofitted as part of training, use of material and supervision was monitored by the Baliyo Ghar team which promised him quality construction and Mr. Neupane frequently visited the site to ensure the retrofit is in par with the quality promised. With frequent visits Mr. Neupane brought more retrofit beneficiaries in the

Image 6: *Baliyo Ghar team member orienting local authorities on retrofitting. Source: NSET*

house which was being retrofitted. By the time the retrofit was completed Mr. Dhurba Khadka who is a schoolteacher, approached Baliyo Ghar to technically support him to retrofit his house. Mr. Khadka's house too was retrofitted as part of training conducted by Baliyo Ghar team and many more retrofit beneficiaries have shown interest in retrofitting their partially damaged house. Initiation of local authorities after they are convinced with the technology has helped in implementation of series of retrofit in many municipal levels where Baliyo Ghar program has been implemented.

THE FINANCES OF PRESERVING THE HERITAGE FACADE DURING RECONSTRUCTION

Prem Bahadur Shrestha, a resident of Dwalkha Bazaar in Bhimeshwar Municipality had a dilemma. Prior to the earthquake, like many other residents of the area, his house was three-storied and had typical vernacular architecture of the area. But it was badly damaged in the earthquake (See image below).

After learning about the reconstruction provisions in his area and hearing that Baliyo Ghar was supporting free drawing and facilitation of the building permit process, he went to the ward with a request letter to have his drawings made. The ward office requested that the Baliyo Ghar team go to his house and take measurements to make the drawings. Prem received detailed drawings, 3D views and a cost estimation for repairs.

Image 7: *Before the reconstruction of Prem's house. Source: NSET*

Image 8: *Reconstructed house before facade treatment. Source: NSET*

But, Prem was still worried. He was worried that he would be overburdened by the immense cost

of both reconstruction and conservation. The Baliyo Ghar team recommended that Prem use the doors and windows of his old house, which would bring significant cost savings. However, by the time Prem received this advice, his old windows and doors were piled haphazardly in the yard and were severely damaged. They were of no use.

Prem's house was a typical brick masonry house, with two sides facing the street. This meant he had to ensure both of these facades met historic preservation guidelines. Had he constructed his house without considering preservation, it would have cost him NRs. 3,170,000. After treating the facade and making the doors and windows to match preservation guidelines it cost an additional NRs. 100,000.

Prem went ahead and reconstructed according to the guidelines, including those that required him to adhere to heritage construction on his two street-facing facades. In doing so, Prem became eligible for the additional top up support of Rs. 50,000 provided by NRA. Additionally, he became eligible for a 50% subsidy of the total cost of the facade treatment; the municipality provided this subsidy to encourage the maintenance of historic facades. With these two sources of support, Prem paid only 25% of the additional cost for facade preservation. His and other homes are showing people in the heritage preservation areas that rebuilding and retaining the old vernacular architecture of the place is possible and will not be an overwhelming financial burden.

Reconstruction is finally beginning to gain traction in Dwalkha Bazaar. After reconstruction, Prem was overwhelmed with how beautiful his house looked and that the cost had been manageable. Passers by praised him for how good his house looked. He is in deep remorse for not preserving his old well carved doors and windows properly. He would have saved significant costs had he removed and stored them safely and he would not have had the additional worry of transporting carved windows all the way from Kathmandu. However, with the NRA top-up payment –something the Baliyo Ghar team worked hard with the NRA to develop – and the municipal subsidy, Prem's reconstruction has given him a safe home. It has also given his community a beautiful house and a continued connection to their cultural heritage.

2.3 United Nations Development Programme (UNDP) [16]

urban STA, housing compliance, governance, capacity building

UNDP has a long-established partnership with the Government of Nepal in formulation of the National Building Code (NBC) in 1992 to building their capacity to promote safer building construction practices through key projects like Earthquake Risk Reduction and Recovery Programme (ERRRP, 2007-2010) and Comprehensive Disaster Risk Management Program (CDRMP, 2011-2015). Through CDRMP, UNDP had supported Kathmandu Metropolitan City and then Lalitpur Sub-metropolitan city in developing and implementing electronic Building Permit System (e-BPS) which allows code compliance building drawings and construction completion certificates. Similarly, 9 municipalities in Kathmandu valley were supported to implement code compliant manual building permit systems. Further post 2015 Gorkha earthquake, UNDP has been a key partner in supporting the government, especially National Reconstruction Authority, in various aspects and sectors of reconstruction and recovery starting from PDNA. UNDP's engagement particularly in urban housing reconstruction and recovery are mainly through two projects, which are summarized below.

Project 1: "Support to Implementation of National Building Code and Safer Building Construction in 3 Earthquake affected Municipalities"

Duration: January 2016 – March 2017

***Image 9:**. Chautara municipality declaring implementation of National Building Code through the permit system. Source: UNDP Nepal*

[16] *Case Studies Received from UNDP Nepal*

The experiences of the April 2015 earthquake highlighted the importance and urgency of improving the structural safety of the buildings that involve two aspects of construction. First, for the reconstruction and retrofitting of damaged buildings, and secondly, for the new buildings. The reconstruction of damaged buildings involves the techniques of 'Build Back Better' methodologies, and for upcoming new buildings, the enforcement of the existing building code is essential to ensure that risks are not re-accumulated.

Municipalities are primarily responsible for the enforcement of safer building construction in the country. However, very few municipalities, especially newly formed municipalities in Nepal, have the technical and logistical capacity to facilitate these practices. The existing building permit process in most municipalities does not ensure the compliance to the national building code for reasons such as lack of the structural experts in municipalities. This could be compounded by the pressure to rebuild the collapsed buildings rapidly in the coming months. Therefore, UNDP realized the urgency to capacitate the local bodies in delivering the services of safer construction techniques to the people. Housing reconstruction programme not only needs to rebuild huge numbers of housing units but also must address these gaps or else harbours the risk of increasing further vulnerabilities.

"*Support to Implementation of National Building Code and Safer Building Construction in 3 Earthquake affected Municipalities*" (January 2016 – March 2017) supported building capacities of the three municipalities severely affected by the earthquakes of 2015 in order to facilitate safer housing construction, namely Chautara municipality, Melamchi municipality (both are in Sindhupalchowk district) and Pachkhal municipality (Kavre district). The project was financed by the Government of Japan through the Japan-UNDP Partnership Fund, and it aimed at contributing to Nepal's overall post-earthquake recovery and resilience building of the target municipalities to the future disasters. The project draws on lessons and experiences from UNDP's CDRMP, which has been supporting safer building construction in Kathmandu Valley and beyond since 2011.

A prerequisite for building code implementation at the local level is the development of a code compliant permit system at the outset. A code compliant building permit system needs to be combined with appropriate technical and functional capacity of the responsible municipality officials to effectively implement, high demand from the house owners on safe construction, supply of appropriate volume of skilled persons on the ground (including the trainers), and strong monitoring of field implementation.

The weekly orientation programs were effective in disseminating information on safer construction techniques, need for implementation of NBC and the procedure of building permit systems. During the project period, 1,246 potential house builders (250 women) benefited from these orientation programs in the three municipalities. Construction of Technology Demonstration Centre established in two of the target municipalities aided the municipalities' efforts in awareness raising and

technology demonstration. Special focus was on raising awareness of women, who usually look after reconstruction in the house, while men are busy at work or abroad. Through the project, 1,082 women were oriented on safer construction practices, which could be achieved through community mobilizers.

By the end of the project period, the issuance of code-compliant permits stood at 190 cases in Chautara municipality, 100 cases in Melamchi municipality, and 150 cases in Panchkhal municipality. This was a remarkable achievement for the one-year capacity building project. The construction of the owner-built houses was supported by the local masons of which 271 (including 12 women) were trained through the project in collaboration with Council for Technical Education and Vocational Training. What is more significant about the project is its long-term effect on the municipalities' ability to undertake the responsibilities to promote safer building construction even beyond the reconstruction period.

Project 2: "Socio-technical facilitation services to Government of India supported Housing reconstruction Project in Gorkha district"

Duration: March 2018 to Feb 2021

'Owner Driven Reconstruction' (ODR) approach requires effective governance mechanisms and facilitation to enable communities to reconstruct their homes in financially viable and disaster resistant manner. Furthermore, this approach requires ensuring access to financial assistance, materials, knowledge, technologies, skills, trained masons, etc.

The Government of India (GOI) has supported reconstruction of 50,000 houses in two districts: Gorkha (26,912 houses) and Nuwakot (23,098 houses). GoI recognized the need to facilitate the housing reconstruction process and enable the owners to undertake reconstruction in an appropriate and timely manner and has engaged UNDP in providing socio-technical facilitation to house owners constructing their houses through Nepal Housing Reconstruction Project (NHRP) in Gorkha.

Through NHRP, and following the approach of ODR, UNDP is working in 6 rural and 2 urban municipalities in Gorkha district. The components of the project, which are to provide socio-technical facilitation to house owners in Gorkha district, are consistent with UNDP's long-term approach in this area and are as follows:

a) Facilitating administrative procedures regarding inclusion, grant release and certification
b) On-site technical advice and guidance to house owners
c) Technical services of design drawings, preparation for building permit process
d) Capacity building of all project participants, particularly house owners and masons:
e) Concurrent monitoring and quality assurance

Of the 26,912 households supported by the project, 14,701 houses are in two urban municipalities areas (Gorkha and Palungtar). This means that the owners need to go through the building permit process for plan approval from the municipality after submission of required drawings. The owners in Gorkha and Palungtar municipalities needed facilitation support to prepare the design drawings of their house for submission and approval. Hence, the municipal capacities to review and approve so many house plans prior to construction was critical and needed support to avoid delays.

Building Permit Support Studio

Building permit is mandatory in both Gorkha and Palungtar municipalities to ensure compliance with building by-laws and building codes. As more than 50% of the project supported households were located in 2 urban municipalities, this essentially meant reconstruction had to incorporate building permit process as per the municipal laws and regulations, which adds a layer of complexity in reconstruction process requiring them to complete the administrative process of design submission to the municipalities and obtain approval prior to construction of the houses. This is key support needed by the house owners, which otherwise had become a bottleneck as most house owners were finding it difficult to initiate construction, were unaware of the permit process and had to spend ten to fifteen thousand just for the drawings.

Image 10: *Building Permit Studio in Gorkha municipality providing services to the house owner Source: UNDP Nepal*

Therefore, a special mechanism to support house-owners with the building permit process was developed to facilitate/expedite this process at both house-owner and municipal level. As part of facilitation to house owners, UNDP established a Building Permit Studio within each of the two municipality premises as an extended service wing of the municipality to provide consultation,

design and drawings at no-cost to the house owners. One studio comprises structural engineers, 2 architects and 4 draftspersons. The house owners are further linked with the field team working under NHRP to provide on-site support during housing reconstruction.

About 3,200 households have benefitted from the services of the studio, and 142 have been exclusively supported for structural analysis needed for both new construction and non-compliant houses. During time, with progress in construction the studio has been flexible in accommodating alteration in designs, revisions as well as further supporting in redrawing for those undertaking extensions.

Lessons Learnt:

- Housing reconstruction programmes must not only focus on the physical quantity of units rebuilt but must also strengthen the local governance systems that through the process ensures physical quality/safety of the building. For sustainability and assurance of compliant construction in future, focus should be equally on supporting the systems in place.
- Socio-technical assistance must be aligned with the needs of the house owners and the context. Urban challenges must be addressed with a tailored approach, focusing mainly on bottlenecks such as access to technical services, associated cost and the socio-economic conditions that impede the reconstruction process.
- Constructing as per the approved drawing, with permit received from the municipality, in the field needs to be ensured through on-site support at critical stages starting from layout.
- The house owner's awareness on the need to take permit before construction, its implication on development (both code and byelaws) and long-term benefit is necessary to confirm their ownership and commitment to follow the process.

Challenges:

- The technical staff in the municipality are assigned to do many other tasks, in addition to the building permit section. With a limited number of staff, it delays the permit process as well as makes regular field inspection a challenge. The technical capacity of the engineers, especially on structural assessment, needs to be strengthened.
- Limited capacity of the contractors and masons to understand the drawings is a challenge, which results in construction of the building not compliant to approved drawings/designs, that result in compromising the structural integrity as well as byelaws set by the municipality.
- Building permit process is often taken as an additional burden by the house owner, that costs both time and money. So, raising their awareness on the need of the permit process is essential to encourage them in taking permit, that checks compliance to both national building code and municipal by-laws, before construction.

UNDP Case story: A father's struggle to reconstruct his house

***Image 11:**. Mr. Arjun Sunar in front of his house under reconstruction. Source: UNDP, Nepal*

Mr. Arjun Sunar, a differently abled man of age 40, came to the Free Design and Drawing Initiative, organized jointly by Palungtar Municipality, Institute of Engineering, Government of India supported Nepal Housing Project in Sera Besi, Palungtar.

Mr. Arjun had kind eyes, wise wrinkles, ragged clothes and snapping slippers, with a red bag containing his valuable documents, carefully placed over his right wrist so that it wouldn't slip, since he had lost his fingers. As he walked in, he sat with a shy gesture placing his sickle on the table. Listening to his story the building permit studio team could feel that the aftermath of the earthquake was well fresh in people's mind even years after the quake.

Mr. Arjun works in a bread factory at Chitwan with a monthly income of Rs. 12,000, which is the only source for his family. This family of 5 (wife, two sons and a daughter) had a house at Kusunde Padhero, which completely collapsed during the 2015 earthquake. His eldest son is also differently able as he cannot move the right part of his body. He is completely dependent and needs support. On a positive note, he enjoys going to school, and is carried to school every day. It is because of his son's physical conditions that Mr. Arjun decided to relocate from Kusunde to Sera Besi, so that his son could go to school, which meant he had to buy a plot to reconstruct his house in Sera.

So, with loan from relatives, he bought a 3 aana (1026 sq.ft.) plot in Sera Besi and started construction of his house, which was at roof level and had spent NRs. 6,00,000 approx. on his house with a total debt of about NRS. 1,000,000, while he ensured that he is building as per the instructions of engineers to be eligible for government's grant. He had only received the first tranche and was confused about the entire process of reconstruction, and for the tranche release he had to get the building permit from the municipality. He came from Chitwan just to build his house and was working in parma (social system of contributing labour) system in the locality to reduce construction cost.

After consultation with Arjun Sunar, the Building Permit Studio team visited his house and measured the already built house and started preparing as-built drawings for him to submit it to the municipality, and simultaneously gave recommendations to process his tranche release. He was glad that there was someone to support him with drawings, which otherwise would have been difficult and costly. People like him specially in the newly formed and urbanizing areas are struggling in getting the drawings ready, which is a major hurdle as they neither know the process, nor have resources to seek for services from the private consultancies that are based in either Kathmandu or other more urban municipalities.

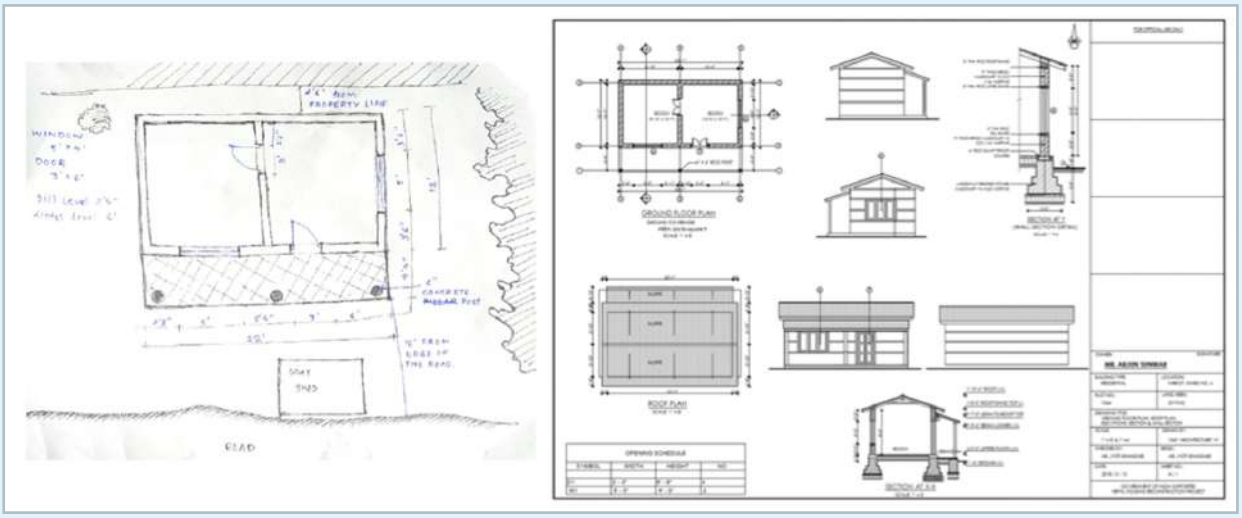


Figure 4: *Drawings prepared by the Building Permit Studio for Arjun Sunar. Source: UNDP Nepal*

2.4 The Asia Foundation [17]

recovery finance, housing recovery research

The Independent Impacts and Recovery Monitoring Project (IRM), led by The Asia Foundation (TAF) and funded by the UK Department for International Development (DFID), was implemented right after the Gorkha earthquake in 2015 and has undertaken four rounds of qualitative and quantitative research every 6 months until April 2017, with an additional fifth round in late 2019. The longitudinal mixed-methods study tracks recovery focusing on five key areas:

(1) aid effectiveness,
(2) economy and livelihoods;
(3) social relations and conflict;
(4) protection and vulnerability; and
(5) politics and leadership.

For more information on the project and reports, visit https://bit.ly/39OzUte.

The mini case studies below are excerpts from the qualitative fieldwork undertaken for the IRM project in November 2019. These case studies navigate the complexities of financing urban housing recovery.

A single woman unable to claim financial support without a land certificate

Name: Bishnu, 60 years old
Surya Binayak Municipality

Bishnu is a single woman living in a temporary house in a village in Suryabinayak Municipality. She is not a beneficiary of the housing reconstruction grant scheme even though her house was completely destroyed in the earthquake. She is missing the land registration certificate needed to enlist as beneficiary. Her husband had left the family many years ago. Bishnu knows that her husband mortgaged the land but is unaware of his current whereabouts.

After the earthquake Bishnu tried to register for the housing grant and also tried to get Rs. 6000 allotted for animal husbandry but she could not receive either without the land registration number.

Five years after the earthquake, Bishnu still lives in a temporary house made of materials from the old house and with the support from her community. She lives there with her 30-year-old son who had taken a loan of Rs. 700,000 to go abroad. He has since returned and is currently unemployed.

[17] *Case Studies received from The Asia Foundation*

A family rebuilt their house successfully with the housing grant and by selling land

Name: Badri Narayan, 72 years old
Bhaktapur Municipality

Badri Narayan's family of eight was living in an old house in Bhaktapur before the earthquake. It was fully damaged during the earthquake. But the family rebuilt faster than others. 'We built quickly; where would we stay if we didn't rebuild?" said Badri Narayan.

The family financed their new house with the housing reconstruction grant and by selling land. Badri Narayan said he spent around Rs. 3,000,000 on rebuilding his house. While he received all tranches of the housing grant, he did not receive the completion certificate because he deviated from the original design by adding one more floor. To receive a subsidy from the municipality, he had to use traditional bricks, traditional windows and tiles.

According to Badri Narayan, local cooperatives are providing loans at low interest rates to those having to rebuild. But he also said that many, like himself, are only able to rebuild only after selling ancestral land. Others cannot rebuild because of family disputes or insufficient financial resources.

Cooperative provides loans for reconstruction

Siddhi Ganesh Cooperative is operated by local people in Bhaktapur Municipality. The cooperative has taken some positive initiatives to support earthquake-affected members in reconstruction and rehabilitation.

After the 2015 earthquake, their office re-opened within days to keep earthquake victims' cash and valuables safe. The cooperative also provided immediate relief of Rs 10,000 for funeral rites.

Later, the cooperative started providing loans at between 8 and 11.5% interest rate – lower than other banks and financial institutions in the area which reportedly charge higher interests at 16% – to help finance reconstruction. Around 95 people have taken a loan for reconstruction purposes from Siddhi Ganesh Cooperative.

A mason unable to rebuild his house due to insufficient financial resources and a family dispute

Dil Bahadur, 40 years old
Bhaktapur Municipality

Dil Bahadur from Bhaktapur Municipality is a mason by profession, earning a small income. The house he lived in at the time of the earthquake got destroyed and was declared unlivable. As the land was in his wife's name, she was the one enlisted as beneficiary for the housing grant. With his wife's permission, Dil Bahadur tried to rebuild a house on some other land they own. He used the first tranche of the housing grant she received to demolish the old damaged house. Demolishing was costly because their house was in a narrow lane. He also took a loan of Rs 3,000,000 (30 lakh) from a local cooperative. He says he spent Rs 800,000 – 900,000 on construction so far but could not complete building a new house because his loan has been discontinued. Dil Bahadur claims his wife, who was a witness for the loan, did not trust him to be able to pay back the loan. Dil Bahadur now lives in a temporary shelter near the construction site while his wife and two children live in a rented house supported by her family.

The IRM research has found that slower housing recovery in urban areas is due to multiple reasons, not all of which relate to access to finance. In core urban areas in particular – such as in Bhaktapur Municipality – family and land disputes, conflicting building codes imposed by the housing grant scheme and the Department of Archaeology, narrow lanes, and small land holdings are frequently cited as reasons why people have not yet rebuilt. Many of those whose houses were partially damaged, have done repairs on their own and continue to live in their old houses, often by removing the upper floors.

However, access to finance is a key concern, especially for the urban poor. Rebuilding in urban areas is more expensive than in rural areas despite good road connectivity. Some have managed to cover the high costs of rebuilding by taking loans and/or selling land. Many others, however, have not been able to access financial resources beyond the housing grant and continue to live in temporary shelters or old, damaged houses. Rebuilding is a significant financial burden for earthquake-affected households and the IRM research revealed that reconstruction related borrowing has increased over the years while debt loads have also increased (https://bit.ly/3hWfsJK). This points to the continued need for better access to finance, especially low-interest loans, for earthquake-affected households.

2.5 Arughat Municipality Revolving Fund [18]

recovery finance, governance, capacity building

Arughat Rural Municipality was formed in February 2017. The Municipality has successfully emulated a financial model for reconstruction which can be helpful in adopting similar models in urban municipalities as well. Arughat Municipality set up a revolving fund in September 2017, with the objective of supporting vulnerable households to get through construction of the foundation of their house and to receive the second tranche of the Government of Nepal (GoN) housing reconstruction grant. Households that receive funds from the revolving fund must return the money they took once they receive the second tranche from the GoN and this money is then available for another household.

The structure of the revolving fund is as follows:

- Aarughat Rural Municipality has placed 1,000,000 NRs (10 lakhs) in the revolving fund
- Households can apply to take up to a maximum of 100,000 NRs (1 lakh)
- Applicants must be recommended by the Ward Chairperson and must meet the selection criteria: single women, elderly, ultra-poor families, disabled headed households, and others that are struggling to get their foundation complete and receive the second tranche of the GoN housing reconstruction grant
- The Ward Chairperson monitor use of the fund and reconstruction compliance
- The Ward Chairperson coordinates with the banks to ensure that recipients of the fund cannot withdraw the second tranche from their bank account without recommendation from the Ward Chairperson

A Revolving Fund Operational Support Committee (RFOSC) was set up and has been responsible for the management of the fund. The coordinator of the committee is the Rural Municipality Vice-Chairman and all 10 Ward Chairpersons are members. The revolving fund will continue throughout the housing reconstruction, and on completion, the funds will return to the Rural Municipality and be used for other development activities. The first loans from the revolving fund in Aarughat Rural Municipality were distributed in February 2018 and to date 30 households have used the revolving fund and 22 households have already returned their loan to the fund.

Scaling up

- The concept needs to be promoted at national level with POs and donors. To develop a common approach, experience sharing workshops should be held at district level with municipalities.
- Other stakeholders like Municipal Association of Nepal (MUAN) to utilise their networks to advocate for and promote this concept for urban municipalities

[18] *HRRP. 2018.*

- Experience from other revolving fund housing projects, such as those carried out by Lumanti, and international examples too can be studied for a better idea and exchange on revolving funds

Influence

- The chairperson of Aarughat Rural Municipality presented the concept of the revolving fund during the 3rd Nepal Earthquake Memorial Day event in Kathmandu hosted by HRRP and NRA and attended by several decision makers and municipal representatives.
- Aarughat Rural Municipality was supported in drafting the guideline and shared through NRA and HRRP website and various events and sessions to promote the initiation.
- 'Scaling up Municipal Revolving Fund Concept in EQ -Affected Rural and Urban Municipalities'; several working sessions were conducted by Vulnerable Support Working Group with several commitments from government and organizations to support other municipalities to adopt the concept.
- The Aarughat Municipality's revolving fund concept was nominated for United Nations Sasakawa Award for Disaster Risk Reduction under the theme 'Building inclusive and resilient societies' by the HRRP in 2019.

Replication/Adoption

- Sahid Lakhan Rural Municipality in Gorkha District allocated 9 lakh funds in its annual budget. 1 lakh per ward in all 9 wards and proposed to double fund next year.
- Gandaki Rural Municipality in Gorkha District is utilizing revolving fund to provide materials through vendors and beneficiaries had to pay back after receiving other tranche for 18 HHs in four wards.
- UNDP promoted and facilitated establishment of revolving funds in other municipalities in Dolakha and Sindhupalchowk districts with European Union funded projects.

Household's Perception Survey

- A Perception survey was conducted with 4 beneficiaries who have returned the subsidized loan. Two beneficiaries saved the 1st tranche whereas one did spend it to celebrate Dashain festival and one had used it to treat cancer of her late husband.
- The average fund return time was 3 months and 3 of them took additional external loans from savings cooperatives at 16% interest rate for reconstruction.They recommended the larger grant for a longer period and suggested the purpose can be expanded to be used for additional recovery activities like agro-industry, farming and other livelihood activities.

Source: Unsplash/Ghanashyamkhadka

Source: Hardy, Jennifer/CRS

03.

Case Studies from **Households' Perspective**

The perspective of the communities' experience in housing recovery has been critical in understanding the trajectory of Nepal's reconstruction and retrofitting program. The cases below have been curated by HRRP's district coordinators and highlight the personal stories of beneficiaries' success in their housing recovery, along with the challenges faced along the way. The case stories cover a range of aspects in housing recovery in peri-urban, dense-urban and core heritage areas of Nepal on various aspects such as mason training, retrofitting, land registration, multiple-ownership, reconstruction on communal lands and urban vulnerable beneficiaries.

3.1 Livelihood and Reconstruction: Mason Training

mason training, gender gap, earthquake resistant reconstruction,women empowerment

Baliyo Ghar Project

The Baliyo Ghar project, has been introduced in case study 2.2 by NSET. It is implemented by the National Society for Earthquake Technology-Nepal (NSET), is a key part of USAID/Nepal's reconstruction portfolio, and has been closely aligned with the Government of Nepal's (GoN) owner-driven housing reconstruction project. Baliyo Ghar works closely with GON counterparts – such as the Department of Urban Development and Building Construction and the Council for Technical Education and Vocational Training – to integrate earthquake-safe construction principles and technology into existing training materials. Courses are conducted at district and local levels for both existing and new construction workers[19].

A key component of Baliyo Ghar is the training of masons, engineers, and other building trades people in earthquake-resistant construction technology and techniques.

With a larger and better trained cadre of construction professionals, earthquake-affected households will have access to the human resources they need to rebuild safer homes.

NSET Baliyo Ghar Project conducted 50 days on-the-job-training (OJT) on Earthquake Resistant Building Construction Technology in its project districts including Dhading, Dolakha, Kathmandu and Nuwakot as per the training guidelines prepared by NRA. OJT is organised to develop new masons that require fulfilling the demand of trained masons required for safer & resilient housing reconstruction at local levels.

[19] *Baliyo Ghar Fact Sheet* (https://bit.ly/2DwN81D)

Trained female mason rebuilds her home

Image 12: Goma shares her experience of working as a mason. Source: HRRP District Team, 2019.

Mrs. Goma Bisunke has a family of five members. On a daily basis, she engages in household chores and some agriculture oriented support together with her husband. Her house was damaged by the Nepal earthquake 2015, and she settled in a temporary shelter after the earthquake. Her family received some relief support from the ward office as being an earthquake-affected household.

Goma was enrolled as a full reconstruction beneficiary through a partnership agreement for housing reconstruction with NRA. Though Goma received the first tranche of the government grant after signing the agreement, the amount was used in clearing her minor debts and in meeting daily households. She was unable to reconstruct her house due to lack of sufficient amount, lack of support and advice, and therefore she continued to live in a temporary shelter and engage in daily-waged agriculture labour. The NSET/Baliyo Ghar Program, provides technical assistance to the house owners and construction technicians in her locality, and they approached her to inquire about her willingness to participate in a 50-day OJT mason training during January 2018. She discussed with her husband and took part in the training with a hope that her involvement as mason would support family income.

She wholeheartedly attended the training session and learnt about different processes of earthquake resistant construction of SMM houses within 50 days of OJT. Before this training, she had never done any mason's work, but at times enrolled in daily wage labour works of various kinds in her neighbourhood. She learnt the importance of adding horizontal and vertical bands in construction of earthquake resistant houses in villages.

As a part of the ongoing OJT at Pipalchap, Baliyo Ghar Team decided to reconstruct the house of Goma. The Baliyo Ghar OJT team employed a total of 7 trainee masons like her under one head mason for 50 full days and reconstructed the house incorporating the earthquake resistant materials. Goma's responsibility was to gather the construction materials needed for the construction and support the trainee masons. The peer groups decided to utilize some of the salvaged materials. On top of that, fellow villagers and local vendors helped her and even provided construction materials on credit, to be returned after receiving remaining tranches.

Goma shares, "I am happy and quite content that my peers' OJT team supported me in rebuilding the house, I would have not been able to construct the house as I couldn't manage the reconstruction materials in time as my family did not have sufficient cash in hand to buy materials,". She moved to her rebuilt house after completion and applied for the second tranche by taking advice from the Baliyo Ghar Team. She repaid back to her helpful neighbours and local vendors from the second tranche, and also accessed the third and final tranche.

Goma managed to utilise the knowledge gained from OJT to rebuild her own house including support from trainee masons like her, but sadly she has not been involved in construction of other houses in her community or in other nearby places except her own house. Goma reveals that in reality female masons like her are not receiving any such opportunities as male masons receive. She would like to work as a mason so that she can earn for her family but in fact female masons are lacking opportunities as their skills are not valued by the contractors who are mostly men. She adds that, house owners too don't prefer female masons as second lead in constructing the houses. Goma further adds that female masons like her would be grateful if some private organizations or government would create opportunities where they can utilise female masons' skills and eventually support the family income.

Trained head mason committed towards building resilient houses

Liwali, Ward No 8 of Bhaktapur Municipality.
Dense Urban

Mr. Krishna Bahadur Gosain, 48 years old, is a head mason and a contractor. He started working as a mason after he received 30-day mason training from Khowpa Engineering College in 1997. Since then, he has been involved in construction of houses, schools, community buildings and temples in Bhaktapur as well as in neighbouring districts like Kathmandu. After the earthquake in April 2015, Krishna again took 3 months mason training from Council for Technical education and Vocational Training (CTEVT) Bhaktapur including the 7- day training provided by the

NRA's DLPIU (District Level Project Implementation Unit) - Building, Bhaktapur. Krishna said these trainings helped him technically build on what he has been practising for the last 20 years or so. In comparison to the previous trainings, these trainings were focused on making each housing element resilient and strong while constructing the house and at the same time complying with the National Building Codes, said Krishna. Although Krishna has been constructing houses, initially, he found some of the theoretical components of the training a bit difficult to understand which, however, were complemented while he started reconstruction of houses. He is currently leading an eight-membered mason team in construction of houses and has completed around twelve houses, including his own.

Image 13: *Mr. Gosain standing in front of his newly reconstructed house. Source: HRRP District Team, 2019*

His two storey BMM house was completely damaged by the 2015 earthquake. Right after the earthquake, he along with his parents, wife & two sons, lived in a temporary shelter which he built using previously owned CGI sheets. He signed a partnership agreement to reconstruct his house and started accumulating the amount of money required for this purpose.

Krishna had reconstructed houses damaged by the earthquake using updated technical knowledge and skills, and thus used his skills to reconstruct his own house. During this time, he took a short break from working as head mason in constructing other houses. When he had cash scarcity, he again resumed his job as head mason to accumulate the required amount. He completed his four-roomed single storey (ground floor) house in a total of 6 months. He moved into the newly reconstructed frame structure house after completion of proper plastering, punning & concreting works. However, he still uses the temporary shelter as a storage place.

Though the building drawing is for a two-storey house, Krishna is hopeful to add the 1st floor after some years when again he has sufficient money saved.

As a head mason, Krishna provides guidance and support to his fellow masons, sharing his knowledge and skills from the training he has received. Krishna, who took his occupation as simply a source of income to support his family, now takes the job seriously, being more responsible and conscious of constructing resilient structures.

Lessons to be incorporated into Mason-training and livelihood

The mason-training program by Baliyo Ghar conducts the same level of training for all kinds of masons, but there is precarity on the employment after the training, and gender bias against female masons.

Mr. Krishna opines that the mason training should be categorized for different groups of people, based on their capability such as beginners, semi-skilled, skilled, head mason and contractor. He also advises that the Government should provide social safety nets such as insurance and medical facilities to the people involved in construction activities so that many will be encouraged to engage in construction-related jobs. He further said the basic first aid training to the masons during the mason training would be useful to manage/overcome any injuries during construction. He believes in providing equal opportunities to female masons as well and engaging them in more numbers in construction. He has been paying equal wages to two female masons in his team.

In urban municipalities, as of April 2020, 5,548 female masons, electricians, carpenters and plumbers have been trained compared to 45,332 males. Thus 8 males have received training per every female trained, a ratio that indicates a large gap between the number of male and female trainees. In principle, the Baliyo Ghar Program has had a focus on gender balance and female mason empowerment. However, there are challenges on the ground that hinder their progress; such as the prejudice by home-owners in hiring female masons, and some female masons with families had restrictions on mobility to work outside their district and required time flexibility which was unwarranted with tight construction schedules for tranche deadlines. There were more existing male masons than female, and to bridge this gender gap, POs engaged female masons in the short-term training. However, these training programs were only to enhance earthquake-resistant building techniques and were insufficient to provide holistic construction training to those with no prior construction experience. Despite these challenges, the Baliyo-Ghar program has had success with many trained female-masons working in reconstruction projects. To ensure more engagement of women, modifications of the training-design and

awareness on female engagement in the construction process must be embedded in the larger training program.

3.2 Multiple Ownership Beneficiary

heritage reconstruction, NRA guidelines, land ownership

Mahalaxmi Municipality-6, Siddhipur, Lalitpur
Dense Heritage Settlement

Mr. Tulsi Bahadur Nemkul and his sister-in-law Mrs. Pancha Maya Nemkul are from Ward no 6, Siddhipur, Mahalaxmi Municipality, Lalitpur district. They both lost their adjoining homes to the 2015 earthquake. Tulsi Bahadur owns a rice mill and lives with his two sons, while his sister-in-law Pancha Maya is widowed, living with her son and daughter-in-law. They lost their ancestral home built in traditional Newari architecture in the earthquake.

Image 14: *Tulsi and Pancha Nemkul in front of their reconstructed house in Mahalaxmi Municipality, Lalitpur*
Source: HRRP District Team, 2020

Prior to the earthquake, the property was housing two families of Tulsi Bahadur and Pancha Maya and they both had equal claims to the property. When the earthquake struck, Tulsi Bahadur was working in his rice mill situated nearby. The earthquake did not harm the family, but completely destroyed their houses. However, a huge ordeal still remained in front of them: they had to build their home from the scratch again. They were struggling financially and

were compelled to live in a makeshift hut built nearby Tulsi Bahadur's rice mill for more than two years. They had heard about the government providing loans to the earthquake-affected beneficiaries with minimal interest, but they could not access it. They personally didn't want to carry the financial burden that comes with taking loans from financial institutions. Mr. Basudev Maharjan, Ward Chair, Ward no. 6 of Mahalaxmi Municipality confirms that a lot of beneficiaries from his ward opted to sell their houses or farmlands to rebuild their houses rather than seeking loans from financial institutions, thus affecting their livelihoods in the long run. Both of them decided to sell each of their ancestral plots of land, where they earlier used to farm, to raise money for reconstructing their house.

They heard from the Ward officials that they were eligible for the government's grant of NRs 300,000 each which is NRs 600,000 total together under the multi-ownership private shelter reconstruction approved by the National Reconstruction Authority, which provides separate partnership agreements and thus grants, to families residing in adjoining houses on a co-owned plot of land. They visited the Ward office regularly for seeking advice on their shelter reconstruction.

During one of their visits, Mr. Basudev Maharjan, Ward Chair of their Ward Cluster advised them to reconstruct in multi-ownership category as earlier, their old house was adjoined, vertically separated by main adjoined wall, same single roof, two staircase, two entrance and individual ownership. They were also advised to share equal cost during the reconstruction as they opted for the same kind of building typology and drawings too. NRA engineers who work in their Ward Cluster advised them to reconstruct their shelter by following multi-ownership structure which made them to draft their building drawings as per multi-ownership guidelines.

The government's grant provided them with much needed respite although it wasn't enough when the Nemkul duo started reconstruction. They submitted all the required documents, including consent form for multi-ownership structure (authentic reference letter from Ward office regarding their status as multi-ownership beneficiary), structural design, land ownership certificates, and citizenship certificate with passport size photo. They hired trained mason/ contractors to carry out all necessary reconstruction work on time, as per technical standards thus enabling them to receive the government tranches within NRA's stipulated time frame. They successfully received all three tranches as reconstruction grants from the government and have happily settled back to their newly reconstructed house too.

They were the first beneficiaries in Ward no 6, Mahalaxmi Municipality to have completed reconstruction and received all government tranches given for earthquake-affected under multi-

ownership private shelter reconstruction procedure. Though there are other people in their community who intend to reconstruct their house, some of them don't exactly have similar favorable conditions like that of the Nemkul duo such as mutual intentions to share private expenses for construction, adjoined vertical walls, same single roof etc. Ward Chair of Ward no. 6 shares that one more multi ownership beneficiary has also approached them. Further Ward Chair proudly commits claims that Ward office is ready to facilitate any categories of beneficiaries to promote owner-driven approach, but they should show mutual consent and abide by the rules & regulations of housing reconstruction.

Today, they can boast of a strong and resilient house that fulfils their need of a secure abode as well as fulfils all government criteria and is mutually shared between both families, though the structure is vertically divided. However, the only minor regret they have today is that their livelihood somehow got affected post-earthquake as they lost not only their houses but also their farmland to the earthquake. But they are still hopeful for the future. "Other earthquake-affected persons who are still in process of building their homes in single or multi-ownership structure should abide by all government bye-laws and criteria to build resistant homes as well as to access government grants in time," Nemkul duo said, they are encouraging other beneficiaries. Currently Tulsi Bahadur gave continuity to his regular work of rice mill enterprise while Pancha Maya lives with her son & daughter in law, whose private job sustains their daily life.

Image 15: *The families sit across the separate entrances to their reconstructed adjoined houses, under the multi-ownership guideline. Source: HRRP District Team, 2020*

Status of Joint Ownership Guideline

NRA's Joint Ownership Guideline gives the provision of applying for two separate reconstruction grants for adjoining houses under multiple ownership of a plot. It is unclear how many beneficiaries across the 32 districts have availed of the joint ownership grant. NSET has shared that in Dolakha district, 27 houses of 62 families have been constructed/are under construction under the joint-ownership guideline. The provision is only applicable for beneficiaries living in

heritage housing. While this limit the possibility of who can avail the benefit of this guideline, another challenge faced is that at times it is hard to demarcate what zones are exactly demarcated as heritage housing.

3.3 Retrofitting with Partner Organization Support

retrofitting, model house, Urban STA

Ward no. 2, Kathajor village, Manthali Municipality, Sindhuli district
Peri-urban

Tolak Bahadur Karki, a farmer by occupation, sustained several cracks during Nepal earthquake 2015 in his stone and mud mortar masonry, 2-storey house. Soon after the earthquake, to safeguard his family members, Tolak Bahadur stayed under tarpaulin shelter immediately after the earthquake and later moved to temporary shelter made of CGI sheets supported by few organizations. He stayed in a temporary shelter for nearly 2 months and later he started

Image 16 (left). *Tolak Bahadur in front of his retrofitted house*
Image 17 (right): *Tolak Bahadur's retrofitted house using the Strongback technique, with support from Build Change*
Source: HRRP District Team, 2019

moving to his quake-damaged house for accessing his daily necessities. His house was kept in the retrofitting category through inspection by engineers. He signed partnership agreement with NRA/Government of Nepal and received 1st tranche of retrofitting grant too.

Tolak Bahadur recalls that there was plenty of confusion regarding retrofitting techniques in his

village though many of his neighbours were also in the retrofitting category. He came to know about Build Change Nepal (with support from Scott Wilson Nepal), that conducts repair and retrofitting of minor damaged houses. One of the local neighbours from his village coordinated with the PO's staff to visit the house of Tolak Bahadur Karki for a technical assessment to check the feasibility of retrofitting. Tolak Bahadur was advised to remove the number of the windows (openings), penetrate the walls to insert the rods, add a column to existing structure, remove some cracks and fill them etc. He was convinced that the columns added to the existing structure would support the structure. The retrofitting technique used in Tolak's house was strongback technique and was started from May 2019. The supervision of the retrofitting process was done by engineers of Build Change/UNOPS and took 2 months to complete.

Build Change agreed to provide technical assistance along with charge of labourers to retrofit the house. Following the owner-driven approach, Tolak Bahadur was advised to procure 700kg of rods, 85 sacks of cement, 2 tractors of sand and 1 truck of aggregate. However, during the course of retrofitting, he was unable to procure all required materials as his ailing wife had kidney failure and there were medical treatment expenses. Therefore, upon knowing about the economic crisis in Tolak Bahadur's family, Build Change later on agreed to bear the cost of the materials as well. The expenses of retrofitting techniques of Tolak's house was completely supported by POs, therefore he did not receive any retrofitting tranche from NRA so as to avoid duplication. After completion of retrofitting, Tolak Bahadur found that his quake-damaged house became much stronger.

Tolak Bahadur is happy that he managed to preserve the ancestral outer structure and design of his house and satisfied with the support and assistance provided by Build Change in retrofitting his house. He expressed gratitude to Build Change to bear the majority of the expenses of materials, which would cost a lot more than the retrofitting grant provided by the government. After the completion of retrofitting of his house, several beneficiaries in his village and from nearby villages have visited to see and understand the technique. However, a majority of them have decided against it knowing that the cost associated with retrofitting is much higher than that supported by the government.

Status of PO initiated retrofitting

POs have supported the urban retrofitting process through the implementation of model retrofitting houses, provision of technical and/or material and labour assistance and on-the-job training programs. There are 3 POs who have primarily worked on retrofitting demo house construction and assistance: Build Change, NSET and UNDP. From the PO contribution section in this publication, there are case stories by NSET (2.2) showing that the interest and trust in retrofitting is slowly growing. Even so, retrofitting has proceeded very slowly compared to reconstruction as it is relatively new

to Nepal, people are not convinced of the cost and technique of retrofitting, and there has been misinformation or lack of information around retrofitting—as witnessed on the field that there has been confusion between repair and retrofitting. As of July 2020, 158 houses (out of 43,109 eligible houses) have been retrofitted in rural municipalities under NRA's retrofitting program, compared to 106 in urban municipalities (out of 24,083 enrolled).

3.4 Self-Initiated Retrofitting

retrofitting, urban STA

Advice from DSE and engineers influenced Hari Bahadur to retrofit his house

Ward no 13, Bahun danda,
Putalibazar Municipality,
Syangja district
Peri Urban

Mr. Hari Bahadur Thapa, a 44-year-old resident of Syangja district had worked as a chef in a Kathmandu hotel for many years. Some years back he quit his job, moved back to Syanga, and has been engaged in agriculture activities of his own. The Nepal earthquake damaged his two-storey load bearing stone in mud mortar house. In earlier days of aftershocks, Hari Bahadur along with his six family members stayed in the courtyard of their house and later moved to live back in the partially damaged house.

Image 18: *The old layer of plastering being chipped off for retrofitting. Source: HRRP District Team, 2019*

Image 19: *Chicken wire mesh "Jacketing" technique being applied. Source: HRRP District Team, 2019*

His house was listed into the partial damage category by NRA engineers through inspection. After he signed the partnership agreement with the Nepal Government as a retrofitting beneficiary, he was confused and unaware of what retrofitting measures he could undertake. The site visit by DSE and engineers from DLPIU Building office of Syangja district encouraged Hari to retrofit

the house. As per advice from DSE and by using locally trained masons, he successfully retrofitted his house with his own effort and using technical support from the DLPIU -Building. He has received the first tranche of Government retrofit grant and has been further recommended for the second tranche as well. He is probably the first beneficiary in the 18 moderately earthquake-affected districts and definitely the first retrofit beneficiary in Syangja district who has completed the retrofitting of his house without any assistance from POs.

Image 20: *Mr. Hari Bahadur Thapa in front of his retrofitted house. Source: HRRP District Team, 2019*

DSE and NRA engineers did a detailed technical assessment of Hari's house during site visit and suggested that he apply a chicken wire mesh jacketing method to retrofit his house. He also received retrofitting design and detail cost estimation for the retrofitting of his house, which was started from November 2019. The total cost of retrofitting is NRs 332,000, out of which materials cost incurred around NRs 232,000 and NRs 100,000 was spent in labour charges for masons involved. Before retrofitting, some of the parts like a heavy gable wall was dismantled and the openings in the upper storey were closed. There are three rooms in the lower storey and one room in the upper storey which will be used for storage purposes. The retrofitting of the house started in November 2019 and was completed in 28 days.

Hari Bahadur shares, "Now my house is much stronger, and I am hopeful that even a single crack would not be seen in the future earthquakes". He also wishes that he would be awarded by Syangja district/DLPIU GMALI as he is the first retrofitting beneficiary to complete without any POs support, so that people would be more willing to retrofit their houses.

Retrofitting of the Thapa brothers' homes

Image 21: Narendra Thapa's retrofitted house. Source: HRRP District Team, 2019

Ward no 5, Katunje,
Suryabinayak Municipality,
Bhaktapur District
Dense Urban

1) Mr. Narendra Thapa resides with his wife in a 25-year old, two and half storey load bearing house of brick masonry and cement mortar, while his 2 sons live away. The house was built incrementally over the years and had some structural discrepancies. It was damaged by the earthquake, estimated to be damage grade 3 with plenty of hairline cracks in some of the rooms and the staircase block. He enrolled as a reconstruction beneficiary but he was in a dilemma about technology and processes to be followed in earlier days. He was advised to conduct retrofitting for his earthquake-damaged house by one of his neighbours, who is a structural engineer. Narendra was advised to retrofit the house instead of reconstructing it from scratch.

The neighbour prepared retrofitting drawings as per the measurement of Narendra's house, and also connected him with a certified retrofitting agency. The technique applied was jacketing from outside with reinforcement and micro-concreting, and splint and bandage from inside. Once retrofitting started, Narendra was supported by his neighbour in site supervision, monitoring and even in providing necessary technical guidance to the masons' team. Total cost of retrofitting as revealed by Mr. Narendra himself is NRs 2,633,000 including finishing such as painting. The retrofitting costs excluding finishes based on the engineer's estimate is about NRs 500,000. The retrofitting was done in mid of 2016, at that time engineers were just recently deployed in Bhaktapur district, so the reconstruction unit of Suryabinayak Municipality also does not have proper PA details of Mr. Narendra in their MIS or in CS entry. After completing full retrofitting, he applied to shift his reconstruction category into the retrofitting list during 2017 and has received both the retrofitting grants.

2) Mr. Kanchan Thapa is Narendra Thapa's brother and lives in the same neighbourhood with his wife and 2 kids. He was influenced by the retrofitting of Narendra's house, and thus

Kanchan also consulted the same neighbour to retrofit his house with a lesser damage grade of 1. His house is 20 years old, with 2-storey plus attic load bearing brick and mud mortar on ground floor, and brick with cement mortar on upper floors. Kanchan followed the advice of his neighbour; he requested the Reconstruction Unit of Suryabinayak Municipality to conduct resurvey and reverification of his house to remain in the retrofitting category during the January 2019. Kanchan's neighbour, the structural engineer, took measurements and prepared a retrofitting drawing. He was also connected with a certified retrofitting agency that provided trained masons. The retrofitting started in March 2019 and was similarly executed with jacketing on the outside and splint and bandage technique on the inside. It took 4 months to complete the retrofitting with 14 masons working for 9 hours every day, along with some degree of supervision from the neighbour.

The total expenses incurred by Kanchan totals around NRs 2,500,000 including other finishes such as painting. Out of this cost the engineer estimates NRs 500,000 went for retrofitting. He is happy that his house is strong, and he feels safe living in an earthquake resilient house now. First tranche of retrofitting grant (NRs 50,000) has been accessed by Mr. Thapa. During inspection District Support Engineer revealed that the house is compliant, followed proper guidelines for retrofitting (certified designs) process and therefore he is eligible for final tranche of retrofitting grant too.

Image 22: *Mesh being laid out for external jacketing of Kanchan Thapa's house. Source: HRRP District Team, 2020*

Advantages and Disadvantages of Self-initiated Retrofitting

Self-initiated retrofitting has been ascribed to cases where POs were not involved in supporting retrofitting, such as the cases mentioned above. Retrofitting is still a relatively new concept in Nepal, with one of its biggest challenges being its perception as ineffective or more expensive than reconstruction, along with the prevalent confusion between repair and retrofit. However, with increasing awareness through NRA and PO's efforts, the perception and clarity on retrofitting are gradually shifting. Based on The Asia Foundation's Independent Impacts and Recovery Monitoring Study (IRM), there is a higher level of interest in retrofitting in urban areas compared to rural areas. The advantages of the self-initiated retrofitting cases seen above are that it is aligned with Nepal's "owner-driven" recovery program, it is an indication of acceptance and transfer of retrofitting technology and will be easier to implement further once it is more accepted at the community level. At the same time, self-initiated retrofitting may have structural flaws in the event of improper knowledge transfer and lack of supervision, resulting in non-compliance and compromised stability.

3.5 Reconstruction in Nepal's "Guthis"

land ownership, urban STA, governance

Guthis are socio-economic/religious institutions in Nepal, either private or state registered. For generations, Guthi Trusts have leased their Guthi lands to tenants called "Mohis" for cultivation, living and other purposes. The income from this is used by the Guthi Trust to maintain their temples or public spaces. The *mohis* possess temporary ownership of the land they reside. The reconstruction for the *Mohis* whose houses were damaged in the earthquake has been complex. As they do not have land ownership documents, they have not been able to access building permits, access finance etc.

NRA has developed a provision for this: that Guthi Trusts can provide a letter to the *Mohis* granting the right to build on their leased land. For this, the *Mohi* who intends to get a government reconstruction grant and to rebuild their house, has to submit an application letter to their concerned Ward office with all other necessary documents such as citizenship certificate, a receipt of land revenue tax (*tiro*) paid annually to concerned Guthi, earthquake beneficiary relief card etc. The ward office then writes a reference letter to the Municipality office which will be further submitted to Guthi Sansthan. It is then up to Guthi Sansthan to give permission letter to the concerned beneficiary to reconstruct the house on the Guthi owned land.

On the basis of the permission letter provided by Guthi Sansthan which is termed as one kind of land ownership certificate for *Mohis* residing on Guthi land, the concerned beneficiary goes on to prepare the drawing for building permit approval. Although this provision has helped some reconstruction to go forward, the reconstruction in Guthis land has been slow. Below, a few cases

outline successes and challenges.

Reconstruction in Guthi's Land in Kageshwori, Kathmandu

In Kageshwori-Manahara Municipality, Kathmandu, the local leaders and the Municipality convinced the Pashupati Development Trust to allow earthquake affected households to reconstruct on the land once they had paid the land revenue. People residing on 'Guthi' (trust) land must pay land revenue tax annually at a rate fixed by the government. There are 1,120 households in ward no. 1 of the municipalities that are on trust land and are eligible for the GoN housing reconstruction grant. Since people have not paid this tax for years, the amount to be paid is quite large, more than NRs 600,000 (approx. USD 5,400). Hence a mutual agreement has been signed specifying that by initially paying a minimum of NRs 5,000 (approx. USD 45) households can proceed with the reconstruction process and apply for the GoN housing reconstruction grant. The remainder of the land revenue can be paid off in instalments over time[20].

Community park at Guthi land, Nandikeshar Garden, Kathmandu

One hectare (19 Ropani, 3 Anna) of land lay abandoned for many years at Nandikeshar Garden in Naxal, Kathmandu. The land was owned by Guthi Sansthan, with talks of building a temple or leasing it to private individuals. An NGO called Community Service Centre proposed to create a community park in the area, and approached different stakeholders like the municipality, police, banks and the Kathmandu Valley Development Authority (KVDA), to get funds from multiple sources and create the park. The park is maintained by the locals and was useful for emergency evacuation after the earthquake. It is a striking example of cooperation to convert derelict spaces into usable public space[21].

Guthi reconstruction issues at Ward no. 7, Bageshwori, Changunarayan Municipality, Bhaktapur

Peri urban

HRRP visited a settlement in a peri urban part of Bhaktapur, consisting of land owned by different private Guthis like Jangam Math and Bishweshwor Guthi. The earthquake-affected beneficiaries living in the Guthi land have to pay a certain amount of grains as tax, "Tiro", to the owners of their Guthi annually. They also have a tenant, "Mohiyani", right on the land. Almost all of the earthquake affected persons have been living in the Guthi land since generations with most of their temporary ownership papers in the name of their grandfathers or fathers. If a beneficiary has paid tiro in the form of goods, he/she can receive guthi land in his or her name subject to verification or confirmation. The Tiro amount has been accumulating since many years, and is now well into lakhs of Nepali rupees, proving unaffordable to the Mohis.

Most of the houses were severely damaged by the earthquake in 2015. Many of the Mohis are

[20] *HRRP. Urban Housing Reconstruction Status Paper. September 2018.* (https://bit .ly/30kcB7F)
[21] *Kishore Thapa. Post-Earthquake Urban Reconstruction. Chapter 5, p. 83. n.d.* (https://bit.ly/2EEP9JL)

still living in temporary houses or their damaged homes. Majority of the beneficiaries have signed a partnership agreement and taken the 1st tranche from NRA. However, they haven't proceeded further, as they have been trying to transfer the temporary ownership papers to their name. This is difficult in cases where a high amount of Tiro has yet to be paid, accumulated over a period of many years and amounting to lakhs of rupees. In the absence of temporary land ownership in his name, the beneficiary cannot secure a building permit and hence cannot proceed to receive the next grant and cannot access bank loans. In some cases, those who have managed to secure temporary ownership, have not been able to secure the building permit due to lack of finances and long processing time in the municipality. In this case, it can be seen that financial debt of Tiro and land issues are the main barriers to recovery in Guthi lands.

Image 23: *A family lives in a temporary shelter, but continues to use their damaged house at Bageshwori Guthi Source: HRRP District Team, 2020*

Image 24: *FGD being conducted with Guthi residents at Bageshwori Guthi, Bhaktapur. Source: HRRP District Team, 2020*

Claim of tenure over the Guthi owned land by earthquake-affected beneficiaries

Peri urban

In ward no 9, Salyantar, Godawari Municipality, Lalitpur district, more than 200 households are residing on land owned by Jaynandeshwor Prakasheshwor Guthi for generations, for more than 60 years. The major occupation of most of the households is farming, however the younger generations in recent times have shifted to other occupations such as service in government and private institutions etc.

Image 25: *Mr. Gurung KC's reconstructed house on Guthi Land Source: HRRP District Team, 2020*

All the households own temporary land certificates. The earthquake in 2015 caused severe damage to many houses, and the households settled in temporary shelter made by CGI sheets, tarpaulin sheets, bamboo and also made by dried twigs. After the earthquake, the Nepal Government and then MoFALD (now MoFAGA) made provisions to access government reconstruction grants by those houses having land ownership certificates. This provision left behind entire households in the Salyantar area to access NRA grants. None of the houses were in a position to access reconstruction grants by submitting temporary land ownership certificates as per provision by Nepal Government. However, later NRA made provisions for accessing reconstruction grants by showing temporary land ownership certificates which in fact paved the way forward for Guthi land settlers of Salyantar, Ward no 9, Godawari Municipality.

Mr. Gurung KC, the key informant from Salyantar, Ward no. 9 mentions that many houses have accessed upto 3rd tranche by submitting all required documents including temporary land ownership certificates. Mr. KC, a retired security guard has a wife, two sons, two daughter-in-laws and two grandchildren have settled back in the newly rebuilt house reconstructed on Guthi land by accessing approval from Guthi Corporation Office. Earlier, right after the earthquake, they struggled by living in temporary shelters and also in rented rooms. Mr. KC spent up to NRs 60 lakh in reconstruction of 2 storey plus attic RCC house and has now successfully accessed 3rd tranche from Government.

All the beneficiaries of Ward no 9, Salyantar who were living on Guthi owned land have firstly approached the ward office with all required documents such as receipt of taxation paid to concerned Guthi (tiro), PA card, temporary land ownership certificates, photocopies of citizenship certificate, Nissa card (identification number that were assigned to beneficiary during first time survey) and the amount necessary to prepare building drawings, and submitted at Building Permit Section of Godawari Municipality. In the overall process of submitting documents, nearly about NRs 13,000/- were spent. Guthi Corporation Office (Guthi Trust Office) prepared a reference letter for giving approval of building permit and for the land they are residing per square feet NRs 16/- as tax was charged by the Guthi. Going through this process, until now a total of 55 households have successfully reconstructed houses in the Guthi-owned land and have accessed all three tranches from NRA, while about 10 households have accessed 2nd tranche only. Rest of the houses are also in the process of applying the same procedures of accessing building permit approval from Guthi Corporation Office.

Progress of reconstruction in Guthis

From the above cases it can be seen that the reconstruction progress differs considerably for different Guthis. Although provisions are made for temporary land ownership to access reconstruction grants, there is no overall strategy for it, and it depends on individual Guthi committees. As these solutions are temporary in nature, a guideline needs to be developed to address the housing and recovery issues in Guthis. The central Guthi Corporation can play an important role in devising appropriate mechanisms.

3.6 Sarjamin: Land Registration through Public Inquiry Deed

land ownership, documentation, governance

Process of issuing Sarjamin

Ward no 8, Panga, Kirtipur Municipality, Kathmandu district
Dense urban

As informed by the Ward Chief, Binod Maharjan, nearly 585 houses in Ward no 8, Panga, Kirtipur Municipality, Kathmandu have gone through Sarjamin, a process of land registration through a public inquiry deed. Sarjamin is done when the land resided by any concerned person is not registered or does not fall under any authority or certification of any people, community or organization. In such cases, the ward office facilitates the concerned people by issuing a first public notice of 7 days. The first public notice is to check if the application filed by the concerned person claiming authority over land that he has been legally habituating belongs to anyone, and whether any concerned neighbour or relative wants to raise a claim. Such a public notice means that anybody concerned can claim rights over the land within mentioned dates. If complaints are not found in first public notice, then the second and final public notice of 21 days is issued by ward office. If complaints are received within mentioned days then, the ward office sets committee to resolve disputes over the land. If no one complains or raises claims over the mentioned land within 21 days, then the ward office provides "Bhogchalan Sifaris' ' letter (letter stating tenancy rights of concerned one over the land). The concerned resident takes the Bhogchalan Sifaris letter to the Department of Survey, requesting them for detailed measurements of the land as per blueprint. After the measurement works by the Department of Survey, the concerned person can go on making building drawings. Further to this, the ward office writes a letter to Malpot office (Land Revenue Office) for issuing land ownership certificates. In Ward no 8, Panga, Kirtipur Municipality, nearly 400 earthquake-affected beneficiaries have received Bhogchalan sifaris letter. As of May 2020, Land ownership (lalpurja) issuance task has been halted because of lockdown due to Covid-19 crisis.

Establishing Sarjamin in Kirtipur

Ward no 8, Panga, Kirtipur Municipality, Kathmandu district

Almost all houses i.e. 585 houses in Ward no 8 Panga were damaged severely by Nepal earthquake 2015. Soon after the earthquake, a majority of them lived in temporary shelters

made by tarpaulin sheets/CGI sheets supported by various POs and youth clubs around Kirtipur. Few weeks later when the aftershocks diminished, few beneficiaries continued to live in temporary shelters while some of them made stronger temporary shelters of CGI sheets. Some of them also moved to rental rooms in nearby ward areas.

After local elections in mid-2017, these Ward clusters were taken charge by elected local heads i.e. Ward Chiefs and Ward Members. Thereafter, the earthquake-affected beneficiaries voiced their need of registering their land through Sarjamin processes, as the majority of them were having difficulties in accessing reconstruction tranches from the Government of Nepal. Following this, nearly 585 houses continuously lobbied and advocated with the Ward office of Ward no 8, Panga to register their land through the Sarjamin process as all of them wanted to reconstruct their house. All of them were listed as reconstruction beneficiaries and also accessed the 1st tranche but could not proceed through the reconstruction process due to lack of building permit for which approval from municipality level was necessary. This issue was raised time and again in Board Meetings of municipality level by respective Ward Chiefs. By that time, NRA/GoN were also equipped with various kinds of manuals, guidelines and policies related to resolving land related issues. Addressing the land issues through Sarjamin process was taken as a way forward by the Mayor of Kirtipur Municipality during few of such meetings/ discussions organised at district level by NRA and at the level of DLPIU GMALI. Therefore, under the chairpersonship of Ward Chief, a committee was formed separately at ward office to tackle the land issues, by organising meetings, including three beneficiaries who attended regularly as representatives from beneficiaries' side.

Image 26: *Maharjan's reconstructed house (centre)*
Source: HRRP District Team, 2020

Prem Bahadur Maharjan is one of such beneficiaires among 585 houses of Ward no 8, Panga, Kirtipur Municipality, Kathmandu district. By submitting Sarjamin approval letter from Ward

office, Prem Bahadur has successfully reconstructed a 3-storied house by taking a building permit from Municipality office and has accessed all three tranches from NRA too. There are few other houses that stand on similar lines along with his house that have been reconstructed by taking building permits. They are all yet to take land ownership paper, the issuance of which was scheduled by Ward Office in the month of Baisakh (April 2020) but the process was halted because of lockdown due to COVID-19 crisis.

3.7 Avilekhikaran: Regularizing of already reconstructed houses

regularization, housing compliance, governance, earthquake resistant reconstruction

A large number of beneficiaries have reconstructed houses soon after the earthquake and before deployment of engineers. Inspections by engineers have found many of those houses to be non-compliant to the Building Code, which has been one of the predominant reasons that has kept beneficiaries from claiming 2nd tranche. Similarly, some houses were reconstructed without following proper minimum requirements or not as per the approved building drawings. In such cases the process of Avilekhikaran can be used.

In Nepali, *Avilekh* means to record or document, and so therefore *Avilekhikaran* is a process to regularise the houses that have been rebuilt before deployment of engineers and before NRA's official footings at the district levels. In many earthquake-affected districts, the process of Avilekhikaran has been used to resolve the problems of accessing the 2nd and 3rd tranche.

Process of *Avilekhikaran* - Beneficiary has to apply for the *Avilekhikaran* by submitting many documents such as building plans, building permit, land ownership certificate, citizenship certificate, passport size photo, partnership agreement (PA) card and earthquake beneficiary relief card along with a letter stating reasons of *Avilekhikaran*. After going through all documents applied by the beneficiary, the ward office issues a public notice of 35 days stating whether any person or community that has relation (close family member, close kin, siblings) to the concerned beneficiary has complaints over the *Avilekhikaran* case submitted by the beneficiary. If anybody complains in the ward office within 35 days with documents of legal evidence, then the ward office sets up an investigation committee to discuss and review the complaint and tries to resolve the disputes. If no complaint is filed, the ward office proceeds forward and issues a reference letter providing way forward signals for tranche release process for the beneficiary. That reference letter along with the submitted documents is forwarded to the reconstruction unit of the Municipality office.

The Reconstruction unit of the Municipality office conducts site inspection over the case filed by the beneficiary. NRA engineers verify the documents submitted by the beneficiary, conduct site

inspection and forward the documents to DLPIUs (Building and GMALI office) along with reference letters by the Municipality and Ward office. Firstly, documents are forwarded to DLPIU GMALI office by DLPIU Building office after the engineers' complete inspection. DLPIU GMALI office further cross checks the MIS data of the concerned beneficiary, checks the submitted documents and proceeds for tranche release process by making grant release letter from GMALI Office.

Ram Lal Shahi Ward no 8, Lubhu, Mahalaxmi Municipality, Lalitpur district

Mr. Ram Lal Shahi drives a public vehicle as his profession. His 1 storey plus attic, brick and mud mortar house was damaged completely by the Nepal earthquake. Thereafter he stayed in a temporary shelter made of CGI sheets supported by the community organization of his Ward. Ram's 6-member family stayed there for nearly 3 months and thereafter decided to reconstruct his house, managing to reconstruct a single storey 4-roomed brick and cement mortar house with a flexible roof. When housing reconstruction started in Mahalaxmi Municipality, he also signed a partnership agreement with NRA and received the 1st tranche. During the

Image 27: *Ram Lal Shahi's single storey 4-roomed brick and cement mortar house with a flexible roof*
Source: HRRP District Team, 2020

field inspection visit by an engineer, he was informed that as his house was reconstructed before deployment of engineer, he is not eligible to receive 2nd tranche and other consecutive tranches.

He approached the ward office several times, and the Ward Chief informed him to apply for Avilekhikaran process. He prepared documents for the already reconstructed house and submitted a request letter for Avilekhikaran in the ward office. Ward office issued 35 day's notice mentioning that anybody concerned can apply for a complaint against Ram Lal and the house he has reconstructed. Fortunately, he did not receive any complaints within 35 days and thereafter Ward office issued a reference letter which was further submitted to the Reconstruction Unit of Mahalaxmi Municipality. He received Avilekhikaran authority for the house which he reconstructed before deployment of engineers from the ward office. It has been nearly 8 months that he has received Avilekhikaran authority and his documents were submitted for application of the 2nd and 3rd tranche together. Concerned ward engineers have also done site inspection of his house. Now Ram is eagerly waiting for release of 2nd and 3rd tranches from NRA.

3.8 Urban Vulnerable Beneficiaries

earthquake resistant reconstruction, urban STA, recovery finance

The NRA has published a list of 18,505 vulnerable households based on the following criteria:

- Senior Citizens above 70
- Single women above 65
- Persons living with disabilities (red and blue card holders)
- Children under 16 (living by themselves)

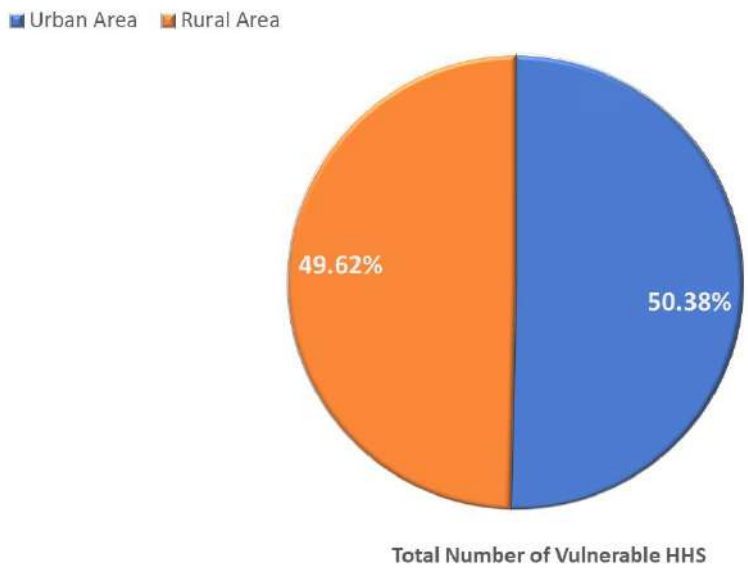


Figure 5: *Vulnerable beneficiaries are almost the same in number in urban and rural areas. Source: HRRP*

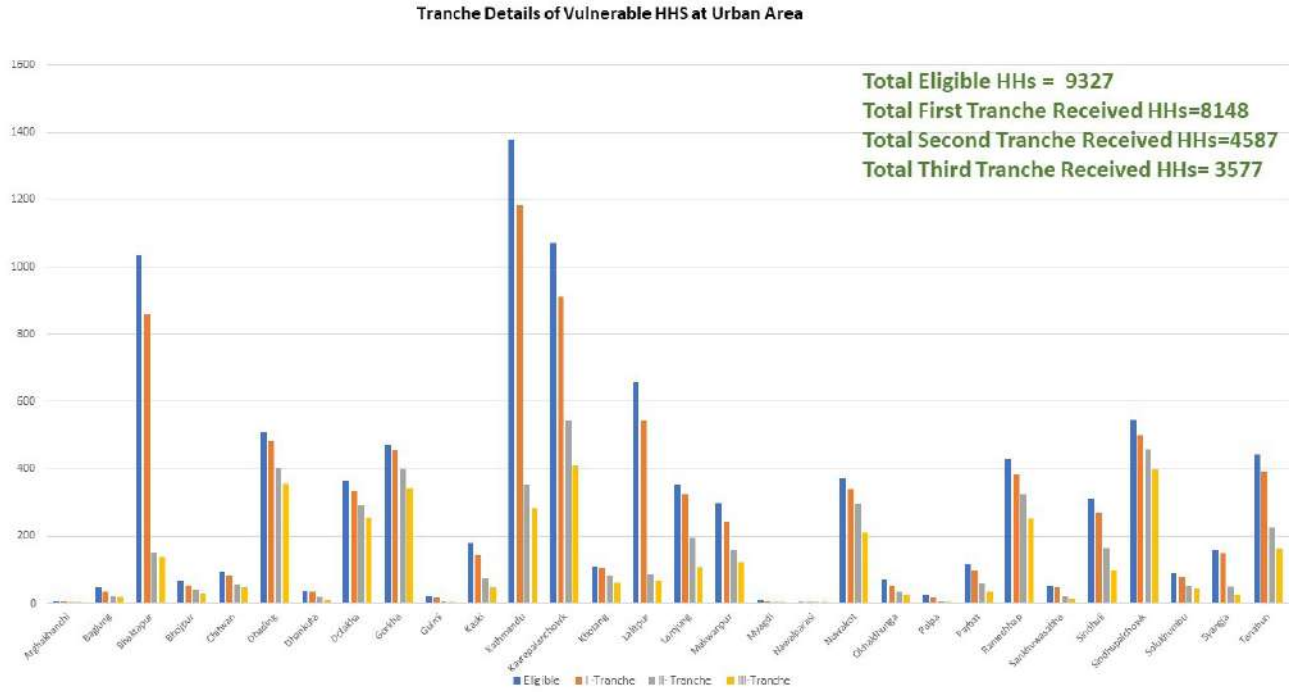


Figure 6: As of April 2020, out of the total urban vulnerable households, 87.3% have received the 1st tranche, 49.17% have received the 2nd tranche, and 38.3% have received the 3rd tranche.
Source: HRRP, April 2020

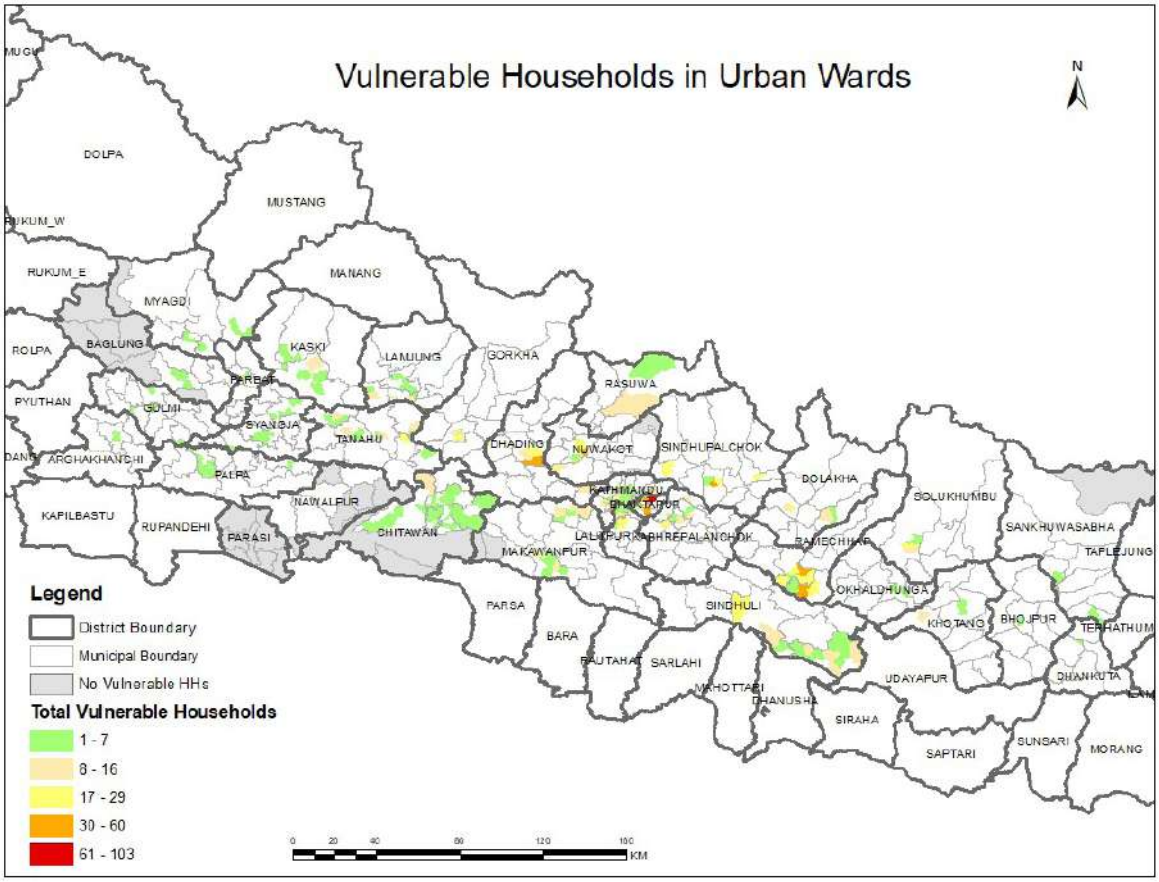


Figure 7: As seen in the map, a higher number of vulnerable beneficiaries are concentrated in the Valley, where density and cost of construction is higher
Source: NRA MIS, adapted by HRRP

A vulnerable beneficiary reconstructs her house four years after the earthquake

Ward no 5, Boch, Mane danda, Bhimeshwor Municipality, Dolakha district.
Peri urban

Mrs. Eet Maya Nepali is a 70-year-old single woman and a permanent resident residing in Ward no 5, Boch, Mane danda, Bhimeshwor Municipality, Dolakha district. She is illiterate and has no concrete source of income for sustaining her daily needs of food and other materials. Eet Maya has been supporting herself by earning a meagre amount through brief agricultural cultivation

Image 28: *Eet Maya in front of her under-construction home. Source: HRRP District Team, 2020*

and animal farming at her own land to sustain her livelihood. Her relatives also support her in case of any emergency. Nepal earthquake 2015 damaged her 2-storey stone masonry in mud mortar house and thereafter she was listed as a full reconstruction beneficiary. She stayed with her relatives soon after the earthquake and thereafter moved to a temporary shelter made of CGI sheets which was built by her relatives. She also managed to receive an old age allowance after the earthquake with support from her relatives.

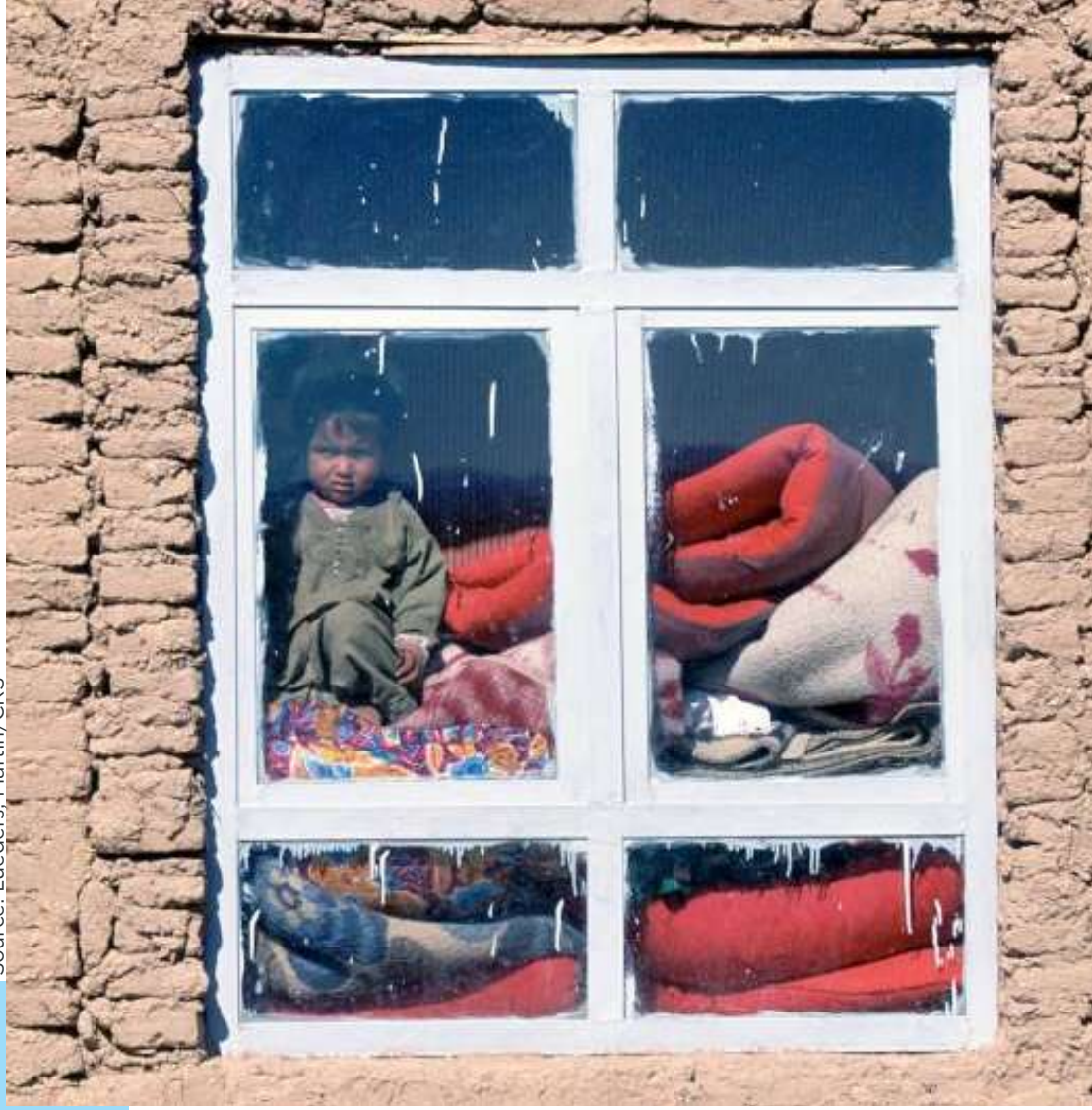
When others were rushing to reconstruct new houses, she was almost unaware about the earthquake reconstruction tranche release process. She was unsure if she could complete her house within the government grant of NRs 300,000. She struggled to get help from the ward, neighbours and relatives but nobody came to her rescue. Given her dire situation, UNDP coordinated with the Ward office in Boch in order to support a vulnerable beneficiary like her with economic difficulties. With support from European Union Civil Protection and Humanitarian Aid, UNDP provided in-kind reconstruction materials like cement and rebars

worth NRs. 50,000 to Eet Maya. In the meantime, UNDP provided 3-day refresher training to local masons who were facilitated in reconstruction of Eet Maya's house.

UNDP provided a link between vulnerable beneficiaries and NRA's concerned technical personnel for socio-technical assistance (STA) provided by NRA and partner organizations. UNDP facilitated the NRA tranche release process for Eet Maya along with filling NRA forms and coordination services with concerned stakeholders.

Reconstruction of 1-storey brick in cement mortar house with 2 rooms started in 1st quarter of 2019. The total cost of reconstruction of Eet Maya's house was NRs 550,000 including NRs 300,000 as NRA's reconstruction grant. With frequent monitoring and coordination with the local concerned stakeholders by UNDP, the reconstruction work gained momentum. It took nearly 5 weeks to complete reconstruction of her house.

Eet Maya has received all three tranches of government grants now after the completion of reconstruction. Now a dream to resettle back in her own house has become true for a vulnerable beneficiary like Eet Maya. She is quite thankful to Ward Office and all other concerned organizations that supported to rebuild her small house. To further support her income and livelihood, Eet Maya is interested in participating in the tunnel agricultural technique which will be supported by UNDP under "Resilient Reconstruction & Recovery of vulnerable communities" in coming months of 2020.



Source: Lueders, Martin/CRS

04.

Global
Case Studies

4.1 Tacloban, Philippines: Typhoon Haiyan Recovery Program [22]

community engagement, multi-sectoral, DRR, multi-stakeholder

"Embrace urban complexity but plan accordingly"

Location:	24 neighbourhoods in Tacloban
Disaster:	Typhoon Haiyan, November 8, 2013
Damage:	6,201 lives lost; 20,000 families in informal settlements affected, severe infrastructure damage
Organization:	CRS and partners: tacloban City Government, Philippines Statistic Authority, All Hands Volunteers
Project Duration:	2013-2015

Project Outline:
The project gives the beneficiaries choice on whether they would like to relocate, reconstruct or rent. Through its flexible approach, the project implemented 3,297 housing solutions in a period of 2 years. The project generated awareness on Building Back Safer. However, one of the drawbacks was that in terms of the housing that was rented and land leased, there was uncertainty regarding the period after the lease would get over.

Project Approach:
The project undertook a multi-sectoral approach with a focus on community engagement and embedded DRR within the recovery program

Project Implementation: Typhoon Haiyan was the strongest tropical cyclone recorded, with a speed of 384 km/h. Before the typhoon, the government had demarcated "No Build/ Dwell Zones" for vulnerable areas where many informal settlements exist, but these were not enforced. The government proposed various relocation sites in North Tacloban, which are too far from the city centre and hampers access to livelihood.

CRS collaborated with the local government and undertook an integrated project engaging in shelter, WASH, protection and DRR. Specific neighbourhoods were identified, and neighbourhood committees were set up to ensure community participation through the process.

[22] *Urban Settlements Working Group. Area-based Approaches in Urban Settings. 2019.* (https://bit.ly/2DtY8Nz)

The shelter options were owner-driven and included either on-site repair or reconstruction, rent subsidies for 2 years or host family support.

Project impact:

Although it was challenging to conduct extensive social mobilizing in the beginning of the project, the project led to a holistic improvement leading to better spatial quality and accountability in the communities.

- Affected families accessed their preferred shelter solution. The project implemented 3,297 solutions in total, with 1,104 repairs, 594 new constructions, 383 land rentals, 1,573 apartment rentals and 384 host families. Four sites were set up for relocating the families that wished to move
- Heightened awareness of Build Back Safer and high commitment to DRR from both, neighbourhoods and Tacloban City government. The project supported 17 neighbourhoods to submit contingency plans to the city DRR office, and 4,000 people participated in 2 evacuation drills.

Image 29: *Many continued to live in a "No-Dwell and No-Build zone" in Anibong due its proximity to the coast. Source: Source: Laura Elizabeth Pohl for CRS*

- Better access to services and thus dignity for dwellers by the establishment of drainage networks, pavements, SWM systems and access to water facilities

Challenges faced:

- Insecurity about long-term occupation of land and rental units faced by landlords in terms of households leaving after the rental contract expires, and by households in terms of where they would live after the two-year subsidy

- Time-consuming process for laying basic services such as electrical works
- Projects by city and national government such as road widening were proposed which could negatively impact the transitional sites and community infrastructure

Lessons Learnt:

- Urban recovery is more complex and requires more planning
- Connect project with the long-term government plans
- Create and convey a clear exit strategy
- Engage in capacity building and participation to generate ownership
- Cultivate relationships with stakeholders

4.2 Port-Au-Prince, Haiti: Housing Repair and Retrofit [23]

retrofitting, community engagement, urban STA

Through housing construction, repair and retrofitting, and improvement of physical community infrastructure, CRS and partners stimulated the local economy, increased social cohesion, and helped the government of Haiti build a resilient community

Location:	Port-Au-Prince, Haiti
Disaster:	Earthquake, January 2010
Damage:	At least 188,383 houses were badly damaged and 105,000 were destroyed heavily/collapsed to the ground. Critical infrastructure services including ports, airports, roads, government offices and all hospitals in the area were either severely damaged or destroyed
Organization:	Catholic Relief Services
Project Duration:	July 2012 to December 2013

Project Outline:

Catholic Relief Services (CRS) had implemented a multi-faceted Community Resettlement and Recovery Program (CRRP) in five communities of earthquake-affected Port-Au-Prince areas. These post-earthquake programs are focusing on rebuilding not only the mental, physical lives of the people, but also the communities. The program addresses the problems of housing,

[23] *Case Study received from CRS Haiti*

community Infrastructure, demolition, WASH, protection and restoration of livelihoods in a sustainable manner. The first 2.5 years had focused on emergency assistance to affected people while after the emergency period, the program has shifted simultaneously to recovery and sustainable development. And this is where the repair and retrofit of 550 houses (all equipped with toilets) came into play which is part of the housing and infrastructure program. The Housing and Community Infrastructure (HCI) program was an initiative that had transformed the challenges of repairing and retrofitting the yellow[24] houses to an opportunity that help people to leave the camps and return to their neighbourhood by encouraging them to participate in the repair/retrofit of their own homes. CRS believes repairing/retrofitting yellow houses in a safe and efficient manner is a quick and cost-efficient way of contributing to Haiti's housing stock to move IDPs back home.

After 1.5 years, CRS had officially completed repairing and retrofitting 550 new homes ready for occupancy. The beneficiaries had manifested their satisfactions not only to the quality of works, but how CRS integrated/involved them during the whole process of the HCI program.

Project Approach:
CRS through the establishment of CRRP program have set-up 5 satellite offices, one in each community where the project has been implemented. Each satellite office is headed by an Area Coordinator who reports directly to the Central Coordinator at CRS Haiti's main office in Port-au-Prince. The presence of CRS offices in the area of intervention has paid off as community access, coordination and response has been implemented in an efficient manner.

CRS Team members invested heavily in coordination with various community-based organizations, community leaders, Ministère des Travaux Publics Transports et Communications (MTPTC), government of Haiti's local agency in-charge in house repair/retrofit and rubble clearance, and office of the Mayor.

CRS through community focus group discussion developed a vulnerability selection criteria. The community themselves debated, proposed and agreed on the type of yellow houses CRS should repair and or retrofit based on the evaluation and marking made by MTPTC. Once the vulnerability selection criteria was finalized, CRS community facilitation team surveyed 10 districts around Port-au-Prince to find the area that best matched the selection criteria. Based on data collected, the CRS engineering and construction team inspected the area to validate and confirm the area of intervention. Once confirmed, a meeting with the Mayor,

[24] *Yellow houses are demarcation provided by MTPTC, government of Haiti public works agency to distinguish the category of houses based on safe for habitation. Green – habitable or safe to live, yellow – with mild to moderate damage which is subject for repair/retrofit and red – heavily damaged, for demolition. After the earthquake, MTPTC engineers have inspected and evaluated each house and provided marking on house front walls and gates with green, yellow and red.*

MTPTC, community leaders, CBO and other local organizations was conducted to confirm details of yellow house repair and retrofit intervention, e.g., number of houses to be repaired/ retrofitted in each community, retrofitting work plan, procedure of implementation, including CRS site organizational structure.

Project Implementation:

Five hundred fifty beneficiaries were selected following the agreed vulnerability selection criteria. Each beneficiary signed an MoU with CRS for the repair and retrofit of their respective houses. Beneficiary participation during retrofitting activities included providing covered materials storage and safekeeping of delivered materials, while the capable household member participated in the retrofitting activities. Prior to the start of the activity, CRS staff, community workers and contractor's staff and workers underwent a 5 days training course from MTPTC tackling the guidelines in repairing/retrofitting damaged houses. Only those staff and workers who attended the training program were allowed to work on the yellow houses. MTPTC had issued a certificate of completion to each participant as proof. MTPTC engineers conducted an inspection during the retrofitting activity and the MTPTC office issued certificates of final inspection upon completion, which served as a signal for the household to occupy their newly retrofitted home. CRS engineers assessed each house and developed a sketch, individual BOQ and repair methodology (technical documents) following MTPTC's guidelines. The sketch and BOQ was then discussed with each beneficiary for transparency and their signature was obtained as proof of their agreement on the scope of work. The technical documents produced by CRS engineers were used by CRS procurement staff to run a tender in hiring contractors. During implementation of construction activities, CRS engineers and site foremen in each community were tasked to provide daily supervision ensuring that quality of workmanship was in accordance with the agreed retrofitting methodology.

Image 30: *Photos showing the condition of houses after the earthquake. Source: CRS Haiti*

***Image 31: Left**: Before repair and retrofit; **Right**: After repair and retrofit. Source: CRS Haiti*

Challenges faced:

- Land ownership – Many vulnerable families were to be qualified based on the actual condition of their houses, however, they didn't have land title and/or property tax receipt as proof of ownership.
- Accessibility – The area of intervention was in urban areas, which are congested and inaccessible by delivery trucks due to narrow pathways and hilly mountain sites. Material deliveries were done manually by foot.
- Owner's influence to add extra works – since the owner was also delegated to monitor the retrofitting of their respective house, at times, they influenced workers to do extra works outside the agreed BOQ.
- Availability of MTPTC engineers to Inspect – Most of the time, MTPTC engineers were swamped with many tasks disabling them to inspect on the requested date and delaying the certificate of completion and transfer of each beneficiary household.

Lessons Learnt:

- Addressing poverty and community grievances through development projects was not easy, requiring longer time than expected.
- Proper construction planning and contingency plans due to insecure conditions should be factored in the overall construction timeline.
- Through housing construction, repair and retrofitting, and improvement of physical community infrastructure, CRS and partners stimulated the local economy, increased social cohesion, and helped the government of Haiti build a resilient community.
- Local government, household and community involvement throughout the project

implementation processes has paid off especially in attaining a peaceful working environment in unsecured locations.

- The absence of Haiti building code and negligence of the city engineers office to provide guidelines for construction has resulted into sub-standard and poor quality of houses

4.3 Maule, Chile: Recovery Planning [25]

master planning, relocation, governance, speedy recovery

"Balance between the speed of recovery and the quality of reconstruction"

Keywords: Master planning, relocation, community engagement, speedy recovery

Location:	Maule region (southwest of Santiago), Chile
Disaster:	Earthquake, 8.8 Magnitude and a Tsunami, 27 February 2010
Damage:	Affected more than 2 million people, 260,000 homes and other infrastructure severely damaged
Chile's Reconstruction Program Duration:	2010-2015; 90% displaced were housed by 2015

Project Outline:
Excerpts from Chile's strategy to build back better at a good pace, managing an efficient transition from temporary shelter to housing resilience.

Program Approach:
The national government's role was limited to defining the scale of the problem and providing resources.

Program Implementation:
Those displaced by the earthquake and tsunami either were asked to stay on their property or move to another site temporarily; in both instances the affected families were housed in 18 sq.m. temporary timber shelters until they reconstructed. Some included the timber shelters as a part of their reconstructed houses.

[25] *Platt, S. (2019). Planning Recovery and Reconstruction After the 2010 Maule Earthquake and Tsunami in Chile: Re-thinking Urban Transformation. Urban Resilience for Risk and Adaptation Governance, 285-304. 10.1007/978-3-319-76944-8_16*

Having faced a history of destructive earthquakes, Chile had a well-developed and enforced building code even prior to this earthquake, thus leading to low casualty, of 500 to 600. However, it should be noted that the then (2010) existing urban planning framework of Chile did not take into account risks and hazards. Thus, the first step in the post disaster planning process in Chile, importance was laid on developing a long-term strategic vision. As mentioned, the national government's role was limited to defining the scale of the problem and providing resources. The master planning and implementation of recovery was assigned to regional and local governments, experts, and included high levels of community consultation.

National Plan for Reconstruction

The national government set out the main principles for recovery and allocation of funds. The centre emphasized that each locality should set a "long-term vision", taking into consideration the environment, culture and citizen participation. The local governance had the primary role in setting budgets, although the national treasury gave the final approval.

Project Impact:

The response in Chile has been recognized for achieving a perfect balance between speed and quality of reconstruction. In Chile, damages were assessed to be at 30 billion USD, out of which insurers paid out 8 billion USD. The government estimated 12 billion USD would be required for public efforts in recovery, which were organized through moderate tax increase, budget reallocations, and schemes on infrastructure development with the private sector. There was a clear demarcation of roles between the centre and local authorities. Chile's recovery has been termed as exemplary as they returned to "normalcy" and built back better within five years after the earthquake.

Challenges:

There was lack of access to updated information systems and maps to make planning decisions. High-level of coordination was required in the process of urban recovery.

Lessons Learnt:

- Clear division of roles and responsibilities at different government levels
- Local communities engaged in decision-making across the recovery process through regular consultations and various associations
- Gathering expertise to fast track planning within the "window of opportunity" period before recovery starts
- Integrating urban planning with a long-term vision into the recovery program
- Financing had minimal bureaucratic glitches to ensure speedy recovery

Housing Recovery for Renters

The housing recovery in Nepal has not addressed the recovery of renters. It is a missing component in practice and research, as the focus has been on "owner-driven" reconstruction. And while non-homeowners have been included by the "landless grant" (of 200,000 NRs), there has been an exclusion of renters and the impact of the 2015 earthquake on their housing. The two case studies below show approaches taken in Haiti on encouraging renting as a form of housing recovery, and the case of Turkey, where renters formed a cooperative to demand housing after the Duzce earthquake.

4.4 Haiti: Post Earthquake Rental Support [26]

rental support, neighbourhood approach, livelihood, informal settlements

"The rental-support relied on donors' willingness to take a risk on project type with few precedents"

Location:	Haiti
Disaster:	Earthquake, January 2010
Damage:	Destruction of 180,000 Houses
Project Duration:	2010-2012
Project:	Rental support by a number of small organizations

Project Outline:
A humanitarian organization started the rental support initiative in a small camp consisting of 200 families in October 2010. Gradually, the number of organizations taking this approach increased, and by 2012, 23,000 households were supported by rental grants for a period of 1 year. Through a survey, it was found that the rental scheme was successful, enabling 90% respondents to access housing and thus avoiding camps or informal settlements.

Project Approach:
The three main responses in Haiti's emergency housing phase included transitional shelters, house repairs and permanent reconstruction. These focused-on owners alone, and thus there was an increased possibility of a large number without land rights, continuing to be displaced in camps or moving to informal settlements. The approach taken by some organizations was

[26] *Global Shelter Cluster. Shelter Projects, Shelter in Urban Contexts: 10 Relevant Case Studies. 2018* (https://bit.ly/30ojdSt)

to provide rental support along with other sectors such as livelihood to achieve a holistic response.

Rental Support Implementation:
Rental support was carried out in parallel with other key recovery components, in order to prevent the chances of households "rebounding" to camps. A neighbourhood approach to reconstruction was undertaken, to coordinate across sectors such as demolition, WASH and livelihoods programming.

The rental support projects were carried out by different agencies, but the common pattern followed by all has been highlighted below:

- **Registration**: Obtaining accurate beneficiary lists
- **Protection and Assistance**: Identifying vulnerable families
- **Beneficiary communication**: Setting up a range of multimedia and in-person communication
- **Choosing a housing option**: Beneficiaries could either choose a transitional shelter, housing repair or the rental support cash grant
- **Choosing a rental property**: Family selects a rental option and settles on the monthly rent
- **Cash grant transferred**: After this step, the year's rental of USD 500 is given directly to the landlord. The beneficiary receives the balance amount if any
- **Camp Closure**: Families are given 25USD to move belongings to their rental house
- **Surprise Visit**: A few months later, the agency visits the house and grants an additional 125USD if households continue to live in their rental house

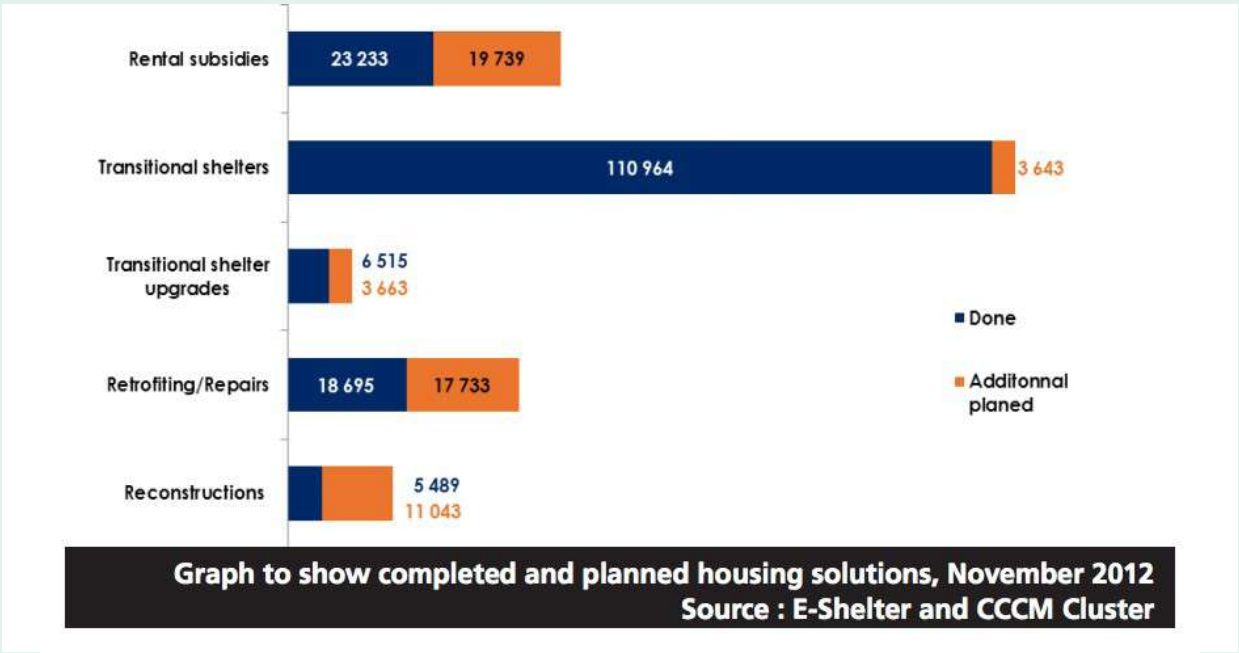


Figure 8: Completed and planned housing solutions, November 2012 Source: E-Shelter and CCCM Cluster

Challenges Faced[27]:

- Overall, the rental support contributed to closing camps, but was a shorter-term solution of a 1-year period. Some rental support programs included livelihood program components and were more effective
- While rental subsidy encouraged the construction of rental units across the city, there were issues of safety standards and water access
- In the absence of a wider, national strategy on interventions such as rental subsidies, the housing of displaced was not well integrated into the city's development
- In the absence of government regulations, the grants were misused at times, example: the grants were used to "buy" land from racketeers and squatter settlements formed, such as the case of Corail-Cesselesse[28]

Lessons Learnt:

- The rental support program needs to be strongly linked to livelihoods program so households can pay their future rent
- Such a program must be embedded into a neighbourhood-approach program as those consist of more effective coordination between sectors
- Further, a neighbourhood approach program to be sustainable, it needs to be linked to a larger urban vision for the city's reconstruction.

4.5 Kabul, Afghanistan: Linking Emergency Settlements to City Development [29]

Multi-sectoral, area-based approach, urban development, capacity building

"Rural models should not just be replicated but adapted to urban context/needs"

Location:	Kabul, Afghanistan
Context:	To develop facilities for returnees and IDPs in districts of Kabul lacking basic services. The project was undertaken in one existing settlement and another newly planned site
Organization:	ACTED
Project Duration:	2008 - 2010

[27] *IOM. Supporting Durable Solutions to Urban, Post-disaster Displacement: Challenges and Opportunities in Haiti. 2014.* (https://bit.ly/31r7YrV)
[28] *The Canada-Haiti Information Project. Haiti reconstruction's disastrous legacy at Corail-Cesselesse. 2013.* (https://bit.ly/3gpmXlS)
[29] *Urban Settlements Working Group. Area-based Approaches in Urban Settings. 2019.* (https://bit.ly/2DtY8Nz)

Project Outline:
A multi-sectoral project integrating emergency shelter to broader urban development. The project is a successful case of LRRD (Linking Recovery and Rehabilitation with Development).

Project Approach:
Multi-sectoral Area-based approach

Project Implementation:
The project planned to provide services in a fast urbanizing Kabul, in 2 districts on the outskirts of Kabul. The return of many Afghans (estimated at 8 million), along with IDPs and growing trends of urbanization led to a large population increase in Kabul, and the selected districts were not included in the city's Master plan, not forming a part of any rural or urban development programs.

The project linked the upgrading of the emergency shelters for the returnees and IDPs through an integrated area-based approach, wherein shelter, water, sanitation and livelihood issues were addressed.

The project also enabled the establishment of "community councils" where needed, to help increase community capacity to participate in their development and work with local governments. The project carried out plot-mapping for land certification and resolution where needed.

Project Impact:
- The project witnessed good engagement of community representatives in the neighbourhoods
- The participation of residents was effective. They contributed 5 million USD and the project grant was 14.7 million USD
- Focus on capacity building for local authorities using key lessons from "National Solidarity Program"[30]. A high degree of participation was seen from Kabul municipality and the mayor as well
- The integrated approach created a dynamic community, as opposed to "ghettoized" peri-urban resettlement programs

Challenges faced:
There was a challenge in working with the mayor in terms of reaching a common ground for

[30] *A program by the Government of Afghanistan that aimed to rehabilitate a number of villages in Afghanistan*

needs of community vs. mayor's priorities for the city. This challenge was further reflected in administrative challenges like signing MoUs. Another challenge was adequately representing the diversity of heterogeneous urban communities through the process of the project and beyond.

Lessons Learnt:

- Linking of different governance levels: such as community councils, municipalities and districts, requires regular efforts for improvement
- Special assistance is required to solve land tenure issues
- Rural models should be contextualized for urban settings instead of being replicated
- Campaigns for civic action and participation need to be embedded in urban regeneration programs

4.6 Yangon, Myanmar: The Bridging of Scales [31]

community engagement, affordable housing, recovery finance, women empowerment, capacity building

"The idea to expand the scale of networks is not just about numbers, but also a way to slowly improve the living conditions of the low-income household"

Location:	Yangon, Myanmar
Disaster:	Cyclone Nargis, 2 May 2008: Recovery and development thereafter
Damage:	2.4 million people affected; 100,000 households affected[32]
Organization:	Women for the World (WfW) and the Asian Coalition for Housing Rights (ACHR)

Project Outline:

Women for the World is an organization in Myanmar that has been functional since 2004, focusing on people-centric practices for affordable housing, along with disaster-risk reduction, livelihood, food security and more. The case study looks at the development of the "Women's Savings Development Network" (WSDN), a self-help savings group, a long-term program

[31] *Marina Kolovou Kouri, Katrin Hofer, Nada Sallam, & Aji Bima Amriza Amalsyah. Grounded Learning, People-centred approaches to housing in Yangon and Yogyakarta. 2020.* (https://bit.ly/2Xptb4e)
[32] *IFRC. Myanmar: Cyclone Nargis 2008 Facts and Figures. 2011.* (https://bit.ly/2DogO13)

which came into place through WfW's efforts in collaboration with the Asian Coalition for Housing Rights (ACHR) after cyclone Nargis in 2008.

Project Approach:
The approach taken by WfW is to engage with the communities and develop trust over a long period of time. While doing this, WfW has created networks and built partnerships with multiple stakeholders. For example, WfW created a women's savings network, WSDN, which was initially facilitated by WfW, but later on the more experienced members from WSDN expanded the network and organized the workshops, making WSDN semi-autonomous. Thus, their approach has been to facilitate the building up of not only knowledge but also social capital.

Project Implementation:
WSDN: WfW was addressing women empowerment through their work even before the cyclone hit in 2008. When cyclone Nargis hit, WfW started a saving scheme pilot in collaboration with ACHR while distributing funds of Asian Coalition for Community Action (ACCA) across 15 villages. WfW promoted the idea of saving amongst the women's groups, and within some months, saving groups grew considerably in size, allowing for borrowing by the especially vulnerable groups. From here on, as WfW continued their work in informal settlements, more such savings groups were formed, leading to the birth of the Women's Savings Development Network (WSDN). The WSDN started with 8 members in 2009, to 2,300 members in 2013 and 30,000 members by 2019. The WSDN has become a critical element for people to create opportunities for themselves. The tenacity and success of the savings groups led to collaborations with formal microfinance institutions.

CAN and National Saving Workshops: In May 2009, the savings scheme was brought to the urban context—to Myanmar's capital, Yangon. Following this, A "Community Architects Network" (CAN) workshop was held in August 2010 for three days, wherein housing and neighbourhood design was worked upon with the community. The workshop led to the formation of 3 affordable housing projects through WfW and has been held regularly. In 2012, WfW held a "National Savings Workshop", which later became an annual workshop.

In 2013, the government was invited and involved in the workshop, along with development agencies, the media, community representatives and ACHR members from various countries. As the workshop has continued annually it has become an important platform for the community and government to have a dialog on development decisions and gaps. In the recent workshop held by WfW in 2019 on housing, an MoU was signed between WfW, ACHR

and the Department of Urban and Housing Development (DUHD).

Image 32: *A community savings workshop in progress. The savings schemes were brought to urban Myanmar in 2009 and have scaled considerably through the last decade.*
Source: Giorgio Talocci. Grounded Learning, People-centered approaches to housing in Yangon and Yogyakarta. 2020.

HOW THEIR SAVINGS WORKS

1. **THE SMALL GROUP**
The basic unit consists of 10-20 women, with 1 elected accountant, one who has the locked savings box, and two others with the keys. Roles to change every 6 months.

2. **WEEKLY SAVINGS**
The group contributes a minimal affordable amount every week in the sub-group meeting

3. **WEEKLY MEETINGS**
For discussions, adding money to saving box, filling master and individual ledgers.

4. **APPLYING FOR LOANS**
Loan requests to be handed in a week in advance and discussed in weekly meetings on priority basis

5. **LOANS FOR WHAT?**
Usually loans are required to repay previous debt consisting of high interest rates

6. **LOAN TERMS**
Some of the loan terms include paying off the loan within 3 months, but this is flexible and can be extended for 1-2 months if required. New members must save for 3 months before applying for a loan.

7. **STARTING NEW SAVINGS GROUPS**
As the sub-group gets bigger, a new sub-group gets formed to keep the group sizes small. A savings committee in each town helps the setting up of the new sub-groups.

8. **MONTHLY NETWORK MEETINGS**
All subgroups of a township gather once a month for cross checking of savings, introduction of new members to the concept and more

9. **FIVE DIFFERENT COMMITTEES**
For each township savings network there are 5 committees for savings, health, livelihood, housing and education

10. **WELFARE FUNDS**
There is a welfare fund gradually created in each sub-group that is set aside for emergencies, medical expenses and school-related expenses.

Source: Adapted from ACHR Newsletter, Number 18, page 13. August 2013. (https://bit.ly/31a0CZu)

It is notable that in 2017, 2 microfinance institutions approached WSDN. The savings' network's track record, number of members and "the rigid but yet flexible scheme" acted as collateral for one of the microfinance institutions, thus making the formal financing institution a funder for development of a community building. Such interfaces between what are considered as formal and informal institutions can help raise the government trust in community efforts.

Challenges faced in the formation of WSDN:

- In the initial stages of developing the savings groups, there was distrust amongst members
- The government at that period was banning gatherings, and in one instance they took the community's saved money
- There were cases of savings group leaders running away with the savings

Lessons Learnt:

- Training and skill-development workshops improve capacity to innovate and implement, along with behavioural change
- There is potential to scale up by setting collective reforms of goals, processes and activities with other institutions and organizations
- Inclusive and participatory practices at each step of the process
- Through smaller projects, widening the scope and strategy to tackle issues of urban development

4.7 Düzce, Turkey: Cooperative Post Disaster Housing [33] [34]

cooperative housing, community engagement, affordable housing, earthquake resistant reconstruction

"Through this project, we want to prove that another form of housing is possible"

Location:	Düzce, Marmara, Turkey
Disaster:	Earthquake, August and November 1999
Damage:	17,000 lives lost; 100,000 homes destroyed
Project Duration:	2003-2014: Acquired Land 2014-2020: Construction

[33] *Düzce Solidarity Housing Cooperative for Homeless and tenant Earthquake Victims.* (https://bit.ly/39NixJu)
[34] *World Habitat Awards. Düzce Hope Homes. 2017.* (https://bit.ly/3gq8Enr)

Organization:	Düzce Solidarity Housing Cooperative for Homeless and Tenant Earthquake Victims, 2003

Project Outline:

Düzce Hope Homes is a cooperative housing program that has implemented post-disaster reconstruction in Düzce province, Northern Turkey. The program goes beyond reconstruction, as it has succeeded in securing subsidised land and affordable housing for the region's most vulnerable families, through a collective struggle of over 15 years. The project developed housing for tenants and homeless families, who were largely overlooked in the Marmara earthquake response.

Project Approach:

The construction process of the cooperative housing program followed three principles: 1) Participation, 2) Affordability, 3) Ecology. The housing program had a vision for a people-centric neighbourhood, instead of visualizing housing as a material object.

Image 33: *Düzce Cooperative members in front of the housing site Source: Düzce Umut Atölyesi,* https://bit.ly/3fuuTHO

Project Implementation:

Procuring Land: The Government's reconstruction program after Turkey's earthquakes of 1999, addressed the housing problem of only home owners, leaving tenants out of the process, who

were forced to rent flats in damaged buildings or pay very high rental for the limited stock of safe rental housing. They wished to claim their right to secure and adequate housing, and hence formed the Düzce Solidarity Housing Cooperative for Homeless and Tenant Earthquake Victims in 2003. They underwent a 16-year long legal struggle, including a 240 km walk by 650 cooperative members from Duzce to Ankara to be heard by the centre. In 2012 the community was granted a plot of land by Turkey's Mass Housing Association (TOKI), to build 389 housing units for the 389 cooperative members, for a total of 1000 people in 29 buildings.

Design and Construction: A group of 100 voluntary professionals helped the cooperative forward with the architectural, technical and legal processes, forming what they called the "Düzce Hope Studio". The Studio has been carrying out participatory workshops with the cooperative to involve them in the design and development process. Employment has been created within the cooperative during and after construction.

Image 34: *Participatory design workshop with the cooperative and Duzce Hope Studio*
Source: Düzce Umut Atölyesi, https://bit.ly/3fuuTHO

Financing: Total estimated project cost is 18 million TL (5 million USD) for 31,000 square meters of construction. This is being covered by a combination of cooperative fees and loans. Negotiations were carried out with every single household, and down payments, and monthly

instalments were decided.

Image 35: *Ongoing construction as of late 2019 Source: Mekanda Adalet Dernegi*

Project Impact:

- A prominent impact of this project is that it secured right to land and housing for non-homeowners as a post-disaster housing measure
- The movement for securing right to housing has been intergenerational, since the early 2000s
- Duzce Hope Studio has encouraged participatory planning and design practices across the country
- The willingness for local authorities to provide affordable housing has been influenced by this project
- The project was shortlisted as a World Habitat Award Finalist in 2017, and has thus brought more focus on cooperative and affordable housing

Challenges:

- Changing the perception of cooperative members, as the Turkish society and authorities do not usually consider tenants to have the right to decent housing
- Some professionals were not used to working with the communities directly, causing some tensions initially, but later this engagement became a core part of the program

Lessons Learned:

- A cooperative is more likely to sustain when a cooperative approach is undertaken at all

stages of the development process
- Along with access to finance, it is critical to expend efforts towards making the houses more affordable through innovative techniques
- Through this active engagement of locals and cooperative members in addressing their housing rights, they have gained more confidence to engage with the government

4.8 Bhuj, India: Reconstruction and Land Readjustment as a Recovery Strategy [35] [36]

land readjustment, core urban area, heritage reconstruction, urban STA

"Land readjustment is inadequately used in isolation, and needs to be implemented in parallel with other tools"

Location:	Bhuj, Gujarat, India
Disaster:	Earthquake of 7.7 Mw, 26 January 2001
Damage:	Affected 15 million people, with 14,000 fatalities and damage to 1.2 million homes
Project Duration:	2001-2004

Project Outline:
The Government of Gujarat's (GoG's) recovery efforts for Bhuj focused on reconstruction while also embedding long-term urban development and resilience in its new Development Plan.

Program Approach:
The reconstruction planning of Bhuj was done in 2 phases: 1) Preparation of a city level Development Plan which is a comprehensive plan including aspects such as road networks and zoning; 2) land-readjustment plans for smaller areas called *Town Planning Schemes*

Housing Reconstruction Implementation:
The Government of Gujarat undertook a reconstruction program with a policy of providing core housing such that each affected beneficiary at least received a "minimum safe shelter"

[35] *Byahut, S. and J. Mittal (2017). Using Land readjustment in rebuilding the earthquake-damaged city of Bhuj, India. Journal of Urban Planning and Development, Vol. 143, No. 1, American Society of Civil Engineers (ASCE), DOI:* https://bit.ly/2ELaC3V
[36] *EAP DRM Knowledge Notes. Working Paper Series No. 9.* (https://bit.ly/3goznkm)

Image 36: *Bhuj's dense and core urban areas were severely impacted by the 2001 earthquake Source: Carney Joe/CRS*

which could be expanded incrementally. The government assigned different grants for core shelters in rural and urban areas, with INR 90,000 (2117 USD in 2001) for rural housing up to 45 square meters and INR 175,000 (4117 USD in 2001) for urban housing up to 50 square meters. In addition, designs of 20 model houses were provided to beneficiaries to choose from, or they could choose their own but keep the seismic standards intact.

Land Readjustment Implementation:

A majority of damage and loss of life in Bhuj city was due to narrow lanes with dense settlements including weak buildings. A land readjustment strategy was successfully carried out in Bhuj's post disaster reconstruction in its core inner-city area of the "Bhuj Walled City", in order to create access routes for emergencies, to decongest the neighbourhood and provide open spaces, while at the same time retaining the urban form and organic street layout (see image below). Land was readjusted under the existing Town Planning Scheme by subtracting land from each landowner, using public land and streets, using lands with completely damaged buildings, using plots which were made vacant by those relocating.

- The appropriation was proportionate to plot size
- Buildings not damaged were not tampered for readjustment
- It was attempted to handover the new plot in the same location as the original

- Owners of multiple plots were given one compact plot
- The Bhuj Area Development Authority (BHADA) paid 80% the settlement in advance to the plot owners

*Figure 9: A block in Bhuj walled city **A**: Before land readjustment; **B**: After land readjustment*
Source: Environmental Planning Collaborative, Ahmedabad

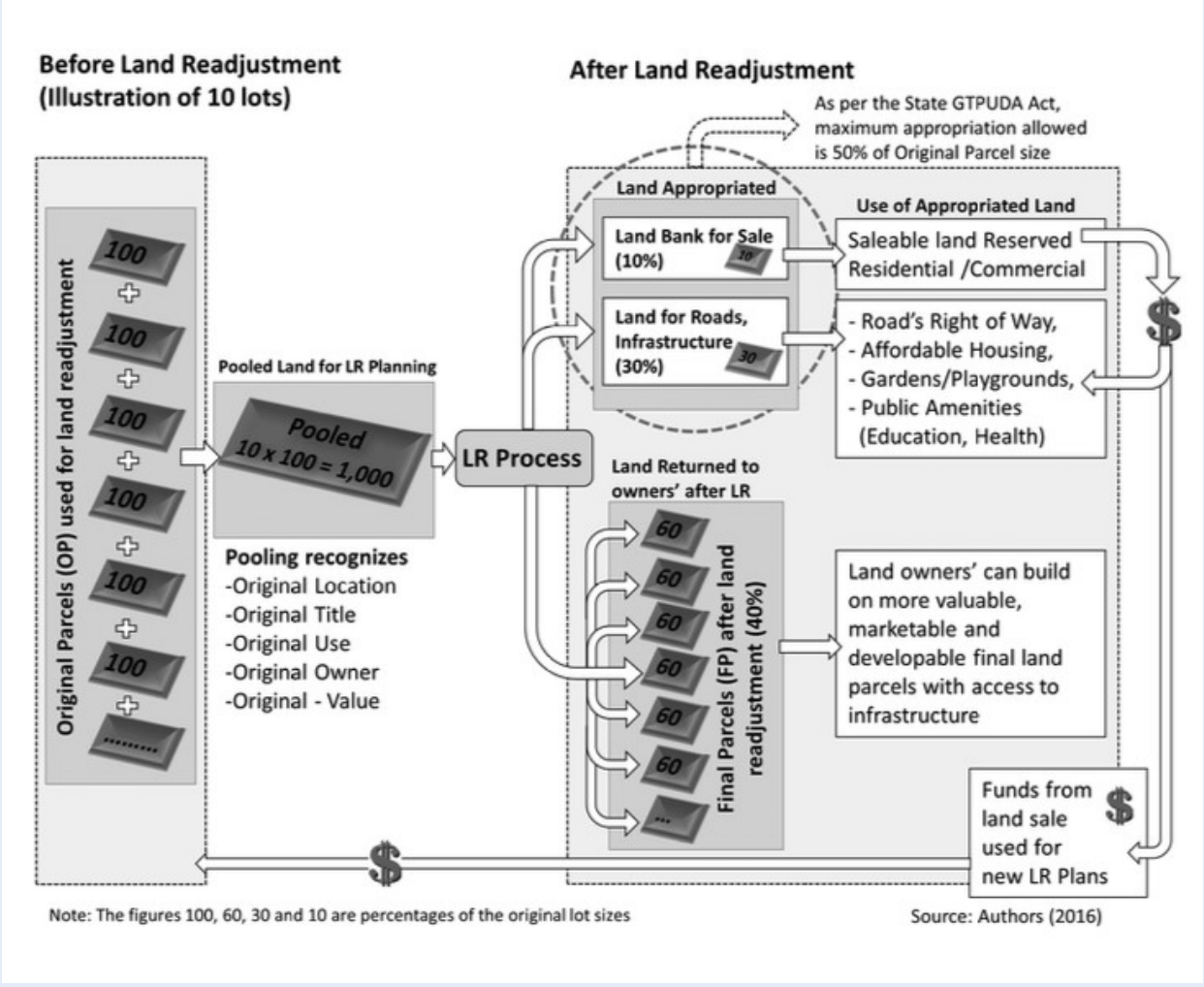


Figure 10: Illustration of Land readjustment strategy in Bhuj, Gujarat
Source: Byahut and Mittal, 2017

Project Impact:

- This approach retained hundreds of shops and enabled the redevelopment and decongestion of commerce, markets and building new shops.
- It became possible to plan parks, community centres and schools on newly available land
- The impact to people and their housing was minimal through a combination of above strategies, and the new plots retained the existing social ties
- A Relocation and Rehabilitation Policy (R&R) was established to provide alternatives, not only to those relocating, but also to renters who had lost their houses to the earthquake, and 400 slum households.

Challenges:

- Land Readjustment (LR) requires accurate maps, which were missing in Bhuj's land readjustment due to poor cadastral maps and since the earthquake and debris removal erased boundaries in many cases
- Disputes on sizing and ownership were resolved on individual case basis and proved to be challenging for BHADA
- There were collective and individual feedback stages within this process. Balancing the coordination with multiple stakeholders within the urgency and time constraints of rebuilding was a tricky process for the planners
- Several organizations were involved in the LR implementation, working with Town Planning officers to ensure that the proposals were well communicated. This process is time-consuming, and altogether Bhuj city residents had to wait 3 years for the planning and final allotment in order to rebuild

Lessons Learned:

- The reconstruction subsidy for a "core" house to a high standard enabled beneficiary to rebuild for the medium-term with clear communication on incrementally building in the future for the long-term
- One of the critical lessons learnt from the successful land readjustment in Bhuj's reconstruction planning, was that land readjustment is inadequately used in isolation, and needs to be implemented in parallel with other tools such as zoning, relocation policies and other customization based on the needs of the community and local economy.

Source: Unsplash/Binaya Photography

Source: Unsplash/LaurentiuMorariu

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