




NEPAL EARTHQUAKE HOUSING RECONSTRUCTION MULTI-DONOR TRUST FUND



ANNUAL REPORT

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World Bank Kathmandu Office
Yak and Yeti Hotel Complex
Durbar Marg
Kathmandu, Nepal
Telephone: +977 1 4236000
+977 1 4226792

Faris H. Hadad - Zervos
Country Director
Maldives, Nepal and Sri Lanka
Email: fhadadzervose@worldbank.org

Kamran Akbar
Senior Disaster Risk Management Specialist
Email: kakbar1@worldbank.org

Photos by:
Gajendra Shrestha, Scott Wilson Nepal, Nepal Infopark
The World Bank, National Reconstruction Authority, Rajendra Malla

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Abbreviations

CBS	Central Bureau of Statistics	IT	Information Technology
CEO	Chief Executive Officer	LGI	Local Government Integration
CLPIU	Central Level Project Implementation Unit	MDTF	Multi-Donor Trust Fund
DCC	District Coordination Committee	MIS	Management Information System
DLPIU	District Level Project Implementation Unit	MOF	Ministry of Finance
DPDS	Development Project Design and Services	NDF	National Disabled Fund
DRRM	Disaster Risk Reduction and Management	NDRRMA	National Disaster Risk Reduction and Management Authority
EHDC	Earthquake Household Damages and Characteristics Survey	NGO	Non-Governmental Organization
EHRP	Earthquake Housing Reconstruction Project	NRA	National Reconstruction Authority
FCDO	Foreign, Commonwealth & Development Office	PDNA	Post Disaster Needs Assessment
GBV	Gender Based Violence	PDRF	Post Disaster Recovery Framework
GDP	Gross Domestic Product	RE	Recipient Executed
GESI	Gender Equality and Social Inclusion	SDC	Swiss Agency for Development and Cooperation
GON	Government of Nepal	STA	Socio-Technical Assistance
HRP	Housing Reconstruction Program	SWN	Scott Wilson Nepal
ICNR	International Conference on Nepal's Reconstruction	TPMA	Third-Party Monitoring Agency
IDA	International Development Association	UNOPS	United Nations Office for Project Services
ILO	International Labour Organization	USAID	United States Agency for International Development

Foreword

This year, Nepal's recovery and reconstruction efforts endured and overcame a series of setbacks caused by the COVID-19 pandemic. It goes on to show the remarkable resilience of Nepalis in the face of adversity, yet again.

Six years on from the 2015 earthquakes, the Government of Nepal's National Reconstruction Authority (NRA) was able to achieve reconstruction of over 611,241 houses. This was made possible through the collaboration and partnership efforts of NRA, the World Bank Group, and the Nepal Housing Reconstruction Multi-Donor Trust Fund (MDTF).

This joint program in Nepal has set a precedent for reconstruction initiatives the world over, amplified by relentless efforts made by NRA despite the pandemic.

Keeping in line with the World Bank's commitment to leave no one behind, the Earthquake Housing Reconstruction Project (EHRP) adopted an inclusive approach to support vulnerable groups in the reconstruction process. The socio-technical assistance team, comprising 755 mobile masons and 246 social mobilizers, reconstructed houses of 1,771 vulnerable beneficiaries. Of the 755 masons recruited by the project, around 20 percent were women—an exemplary feat in a largely male-dominated occupation.

This report provides insights into the key lessons learned and challenges that the program was able to mitigate through innovative solutions—maintaining COVID-19 protocols in reconstruction.

Disability inclusion is a top priority for the EHRP; the project is promoting accessible designs in reconstruction and retrofitting of houses for beneficiaries with disabilities. It is also facilitating their mobility through the provision of assistive devices and livelihood through targeted livelihood enhancement interventions.

Through one of the world's largest post-disaster housing reconstruction programs, Nepal's reconstruction and recovery experience can provide essential learnings for reconstruction efforts in the future, for Nepal and beyond. Nepal's reconstruction experience will be shared widely through an International Conference on Nepal's Reconstruction in December 2021, supported by the World Bank-administered MDTF.

Aligning with the EHRP's objective of enhancing the government's capacity to improve long-term disaster resilience, the National Disaster Risk Reduction and Management Authority (NDRRMA) has been included in the recipient-executed MDTF grant project. This support will be crucial to further the country's effort to prepare and respond effectively and efficiently to disasters.

The World Bank Group is grateful to be part of this joint venture with the governments of Canada, Switzerland, the United Kingdom, and the United States and stands committed to the cause of supporting the communities hit hardest by disasters and building lasting disaster resilience in Nepal.

[Faris Hadad-Zervos](#)

COUNTRY DIRECTOR,
MALDIVES, NEPAL AND SRI LANKA,
THE WORLD BANK



Government of Nepal

National Reconstruction Authority

Singhadurbar, Kathmandu

Ref No.

Statement by the National Reconstruction Authority

The National Reconstruction Authority (NRA) has come a long way since its establishment in 2015 as a special purpose vehicle to reconstruct physical infrastructure affected by 2015 Nepal earthquake. The NRA has continued the reconstruction effort despite numerous challenges it faced this year, mainly due to the COVID-19 pandemic. Still, the NRA has successfully completed reconstruction of over 615,493 beneficiary houses through its owner-driven reconstruction approach, complying with the COVID-19 health and safety protocols.

The World Bank supported Earthquake Housing Reconstruction Program (EHRP) relied on synergizing efforts from various tiers of the government; therefore, capacity building played a key role in the long-term sustainability of resilient reconstruction modality. Sub-engineers and assistant sub-engineers of local levels were trained to develop their technical capacity in risk reduction design and building techniques.

The NRA, through the Local Government Integration Initiative, has successfully trained elected local level representatives and officials on resilient reconstruction and development. It also delivered extensive training to local level officials and orientations to elected representatives in all 282 local levels from 32 earthquake affected districts (total 1,810 officials, of which 23% are women). It was an effort not only to transfer knowledge gained on reconstruction but also to build capacities of newly formed local governments towards 'Resilient Nepal'.

Now that the housing reconstruction program is concluding in December 2021, the NRA is also in the process of capturing achievements, challenges and lessons learned of the reconstruction process through a series of scientific and open-ended papers. These lessons will be shared through the International Conference on Nepal's Reconstruction (ICNR) scheduled for December 2021. The main objective of the ICNR-2021 is to share the experiences of the past six years with the national and international audiences. It will be a forum not just to share knowledge but also to learn from and interact with the world on reconstruction efforts.

Furthermore, the NRA is also collaborating with the National Disaster Risk Reduction and Management Authority (NDRRMA), local governments, and various line ministries to impart information and knowledge obtained during its tenure. The remaining tasks are in the process of being handed over to the respective government agencies maintaining smooth transition when the NRA completes its term in December 2021.

Last but not the least, NRA highly values the support of development partners in advancing Nepal's reconstruction efforts, and would like to thank the World Bank, the governments of Canada, Switzerland (Swiss Agency for Development and Cooperation), the United Kingdom (Foreign, Commonwealth and Development Office) and the United States (U.S. Agency for International Development) for their generous technical and financial support through Multi Donor Trust Fund (MDTF) to advance the resilient reconstruction agenda in Nepal.

Thank you

Sushil Gyewali
Chief Executive Officer

Remarks by the Chief Executive, National Disaster Risk Reduction and Management Authority

Towards Disaster Resilient Nepal

Nepal's resilience in the face of disasters such as the 2015 earthquakes has been exemplary. The country has been able to provide around 75 percent of damaged households with safer and more resilient housing, six years on from the devastating quakes. However, in view of mounting disaster risks exacerbated by climate change and the COVID-19 pandemic, it is critical for Nepal to take a proactive approach in disaster risk reduction and preparedness for effective and efficient response.

The post-earthquake reconstruction in Nepal, one of the largest reconstruction efforts worldwide, has generated tremendous knowledge, experiences, and lessons that are vital to inform future post-disaster recovery policies and programs in the country and globally. As highlighted in the annual report, the lessons gained from the program are invaluable in areas of collaborative efforts, socio-technical assistance, capacity building, and promotion of inclusion for future reconstruction efforts.

According to the Disaster Risk Reduction and Management Act, 2017, the Government of Nepal established the National Disaster Risk Reduction and Management Authority (NDRRMA) in December 2019 with a mandate to effectively carry out disaster risk reduction management including post-disaster recovery and reconstruction activities.

The reconstruction works undertaken by the National Reconstruction Authority (NRA) with the support of the Multi-Donor Trust Fund (MDTF) have proven crucial for NDRRMA to learn from and incorporate in its post-disaster recovery and reconstruction engagements in Nepal, particularly for private households damaged by landslides, floods, and fire. As the natural successor of NRA's legacy, NDRRMA has already started to collaborate with NRA for long-term disaster resilience initiatives. Joining the Nepal Earthquake Reconstruction MDTF was the first step toward that effort. This has already paved way for other collaborative programs with the World Bank Group and MDTF partners in Nepal.

With the support from the World Bank as well as other development partners, we feel that NDRRMA is well placed to providing meaningful and sustainable disaster risk reduction and resilience initiatives. We look forward to being a part of this significant engagement to building a safer and resilient Nepal.

Anil Pokhrel

CHIEF EXECUTIVE
NATIONAL DISASTER RISK REDUCTION AND MANAGEMENT
AUTHORITY (NDRRMA)



An Overview of the MDTF

The Multi-Donor Trust Fund (MDTF) comprising the governments of Canada, Switzerland, the United Kingdom, and the United States was deemed crucial in supporting effective implementation of the World Bank Group's Earthquake Housing Reconstruction Project (EHRP). A flexible financing option like the reconstruction MDTF helped with the foundational activities, which was particularly effective in Nepal, where the government was constrained in its capacity to immediately mobilize

financial and technical resources. The MDTF financing was instrumental in providing just-in-time assistance to the National Reconstruction Authority (NRA).

The objective of the MDTF is “to restore affected houses with multi-hazard resistant core housing units in targeted areas and to enhance Government’s ability to improve long-term disaster resilience.”

The World Bank-supported EHRP with total financing assistance of US\$700 million¹ is one of the largest contributors to the Housing Reconstruction Program (HRP) of the Government of Nepal (GoN). This contribution is further scaled up through the World Bank-administered MDTF (US\$34.45 million including US\$15 million recipient-executed grant) that plays a pivotal role in supporting the implementation of GoN's umbrella HRP.

The HRP has adopted an owner-driven housing reconstruction approach that is premised on the homeowners themselves taking responsibility of constructing earthquake-resistant houses with partial cost coverage through housing grants as well as socio-technical facilitation provided by the government and development partners. This approach aims at improving long-term resilience through a culture of safer and sustainable housing. Safer construction is ensured by providing the housing grants in three tranches with first tranche as an advance whereas the second and third tranches are contingent upon satisfactory compliance to NRA-approved construction guidelines.

The MDTF can finance both World Bank-executed activities as well as recipient-executed activities.

■ World Bank-executed activities:

The World Bank, as the administrator of the MDTF, has implementation responsibility in carrying out:

- Technical assistance and capacity-building activities aimed at strengthening Nepal's overall capacity toward better risk mitigation, preparedness, and disaster response in line with global best practices;

- Trust fund operational activities including but not limited to processing, appraising, monitoring, supervising, and evaluating recipient-executed activities; and
- Program management and administration activities for the MDTF including but not limited to supporting governance arrangements and trust fund-related meetings, planning and executing work plans and budgets, managing communications and conducting outreach, disseminating lessons learned, reporting on progress, and monitoring and evaluating the program.

■ Recipient-executed activities:

For recipient-executed activities, one or more recipients have implementation responsibility for the provision of:

- Housing grants for the reconstruction of multi-hazard resilient core housing units;
- Support to establish owner-driven housing reconstruction program including social, environmental, and technical support mechanisms for beneficiary households; and
- Assistance for systems ensuring better risk mitigation, preparedness and disaster response.

¹ US\$200 million original financing; and additional financings of US\$500 million and US\$200 million.

MDTF: A comprehensive framework of support

MDTF resources, along with other WB financing, was instrumental in supporting Government of Nepal in housing registration that included census of over 800,000 households in earthquake-affected districts. In addition, the MDTF resources were utilized to technically support implementation of both umbrella HRP as well as the World Bank financed EHRP.

Some of the contributions of MDTF on overall HRP are as follows:



Census of over 800,000 households in the earthquake-affected areas to collect housing damage and socioeconomic information.



Determination of program eligibility and enrollment of eligible beneficiaries based on the housing damage characteristics survey



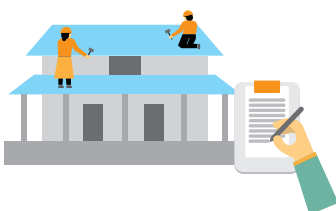
Robust management information system (MIS) with a multi-tier grievance redressal system that has reviewed 100% registered grievances.



Mass awareness programs and trainings for masons and artisans



Communication campaigns for safer construction practices and government approved design specifications



A house quality inspection regime to ensure earthquake-resistant construction at several construction stages with guidelines for corrective actions.



An accountable housing grant disbursement system with digital record keeping and direct payment of housing subsidy into the beneficiaries' designated bank accounts.



Third-party monitoring for quality assurance of reconstruction



Social mobilization efforts tailored to reach the most vulnerable beneficiaries including women-headed households and persons with disabilities



Strengthening of long-term disaster resilience by institutionalizing NRA's learning and records through a new government entity, the NDRRMA



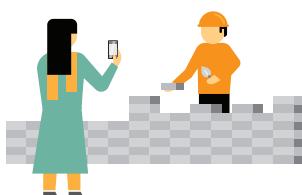
Direct housing subsidies to 3,766 beneficiaries and enabling technical facilitation for all EHRP beneficiary households in 32 earthquake affected districts.



Assisting the World Bank financed socio-technical assistance program that ensures to leave no one behind.



Piloting disability inclusion activities for EHRP beneficiaries with disabilities such as "Making Homes Accessible to All", provision of assistive devices and livelihood enhancement support.



Informing urban reconstruction through ongoing urban housing financing assessment.

The MDTF's Value Addition

The MDTF support has been crucial in bridging capacity gaps, scaling up housing subsidies, and providing technical assistance and advisory support to NRA on a range of topics. Additionally, the MDTF contributes to the following areas:

- Harmonization among development partners by pooling financial and technical resources to support the government's umbrella housing reconstruction program.
- A coordination platform for the development partners leading to complementarity within their individual post-earthquake assistance.
- Reduction in transaction costs by working through a single and scalable funding facility.

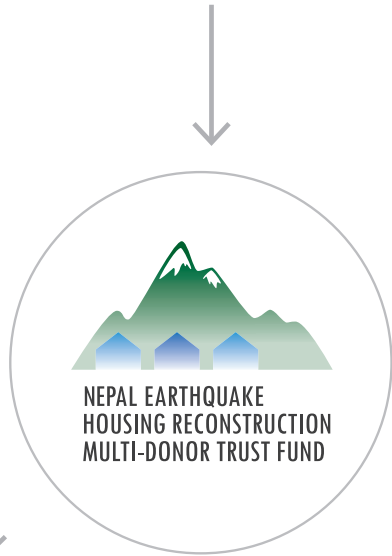
- Quick mobilization of experts and services reducing administrative burden on the NRA.
- Enhanced transparency and accountability under World Bank procedures, whereby the World Bank undertakes the due diligence checks on financial management of the MDTF executed by the GoN on behalf of contributing partners.
- Facilitation of socio-technical assistance (STA) by supporting development of curriculum for capacity building of social mobilizers and mobile masons.
- Promotion of disability inclusion through both World Bank-executed and recipient-executed (RE) activities.

Financial Overview of the MDTF

The World Bank-administered MDTF has secured \$34.45 million in contributions from the Government of Canada; UK's Foreign, Commonwealth & Development Office (FCDO); Swiss Agency for Development and Cooperation (SDC); and United States Agency for International Development (USAID).

Table 1. Financial Contributions [as of June 30, 2021; in millions]

MDTF Donor	Funds Pledged			Funds Received
	Country Currency	Amount [Country Currency]	Amount [\$]	Amount Paid [USD]
USAID	USD	9.60	9.60	9.60
SDC	CHF	7.00	7.29	7.19
Canada	CAD	14.70	11.61	11.61
FCDO	GBP	4.80	6.05	6.05
Total			34.45	34.45



Enrollment in housing reconstruction program



Reconstruction of resilient houses



Technical supervision and inspection



Support to vulnerable



Training and capacity building

Note: The MDTF-financed foundational activities for the design and implementation of the GoN's HRP with a specific focus on the World Bank-supported EHRP and MDTF grant that cater to 349,623 beneficiary households with full and partial housing grants in 32 districts affected by the earthquake.

Among the range of activities supported by the MDTF, a \$10 million Recipient Executed (RE) grant was disbursed to provide housing subsidies to approximately 3,200 targeted beneficiary households. Activities under this component have been completed in FY2020. At the final tally, 3,766 households were provided with housing subsidies with MDTF support. (Additional beneficiaries could be covered under the RE grant due to exchange rate gains.)

Funds have been allocated to conduct damage assessment and beneficiary registration covering all affected districts, provide technical and advisory support to the NRA for program management and implementation support, deploy third-party monitoring agents (TPMAs) for quality assurance, and strengthen communications and outreach to beneficiaries on safer housing reconstruction and related policy guidelines.

An additional \$5 million grant to the NRA and NDRRMA was signed in July 2020 to provide support to vulnerable beneficiaries, build capacity of NRA officials and local levels and support activities for long-term disaster resilience.

Table 2. Fund Allocation [as of June 30, 2021]

Activity	Allocated amount [US\$, millions]
Earthquake Housing Damage and Characteristics Survey (EHDC) and beneficiary registration for the HRP	7.90
Housing reconstruction grants (GoN executed)	10.00
Implementation support	4.00
Communications and outreach	0.20
TPMA Phase I (3 districts)	1.00
TPMAs Phase II (8 districts except Kathmandu Valley Districts)	2.4
Program administration and management	0.30
Strengthening resilience	0.50
Technical assistance support to vulnerable on housing reconstruction and capacity building of local governments (NRA)	3.00
Institutional strengthening of National Disaster Risk Reduction and Management Authority (NDRRMA) (USD 1 million disbursed)	2.00
International Conference on Nepal's Reconstruction (ICNR)	1.00
Total	\$32.30



Housing Reconstruction Program

The EHRP follows the four tenets of the Government's HRP derived from international experience and best practices of other HRPs: owner-driven construction, equity, safer construction, and transparency and accountability.

There are five stages to HRP:

- Household-level damage survey
- Identification and validation of the beneficiaries
- Enrollment of the beneficiaries to HRP
- Housing grants in installments for reconstruction of the housing units
- Completion of the reconstruction

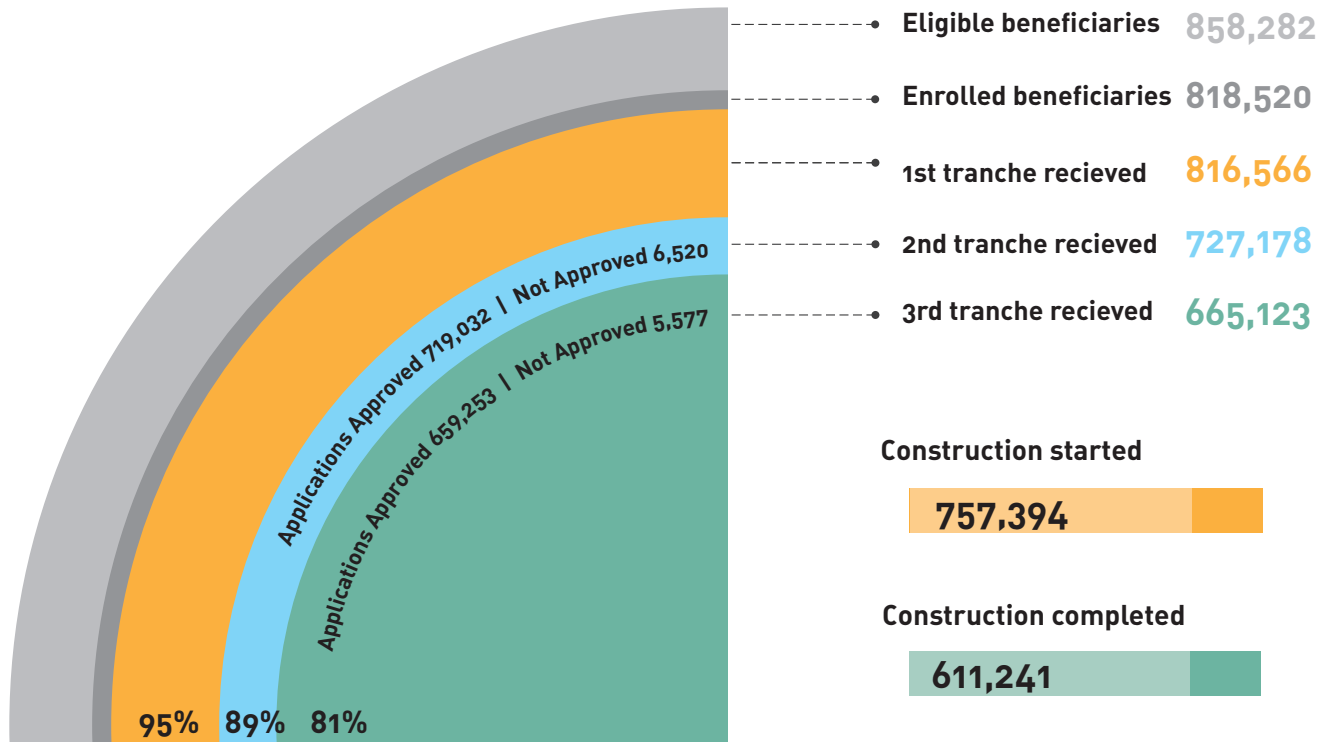
The five stages are supported by five pillars:

- Technical assistance and support,
- Communication and Outreach,
- Grievance Redress System,
- Monitoring and Evaluation, and
- Management Information System

Progress so far:

The first three stages have already been completed and the last two are underway.

Overall Housing Reconstruction/ IDA supported EHRP



Out of 858,282 eligible beneficiaries of 32 earthquake-affected districts, 95 percent have enrolled in the program by signing the Participation Agreement and have received the first installment of housing grant. Out of 818,520 enrolled beneficiaries, 89 percent and 81 percent have received the second and third tranches of housing grants, respectively, while 75 percent of enrolled beneficiaries have completed reconstruction.

Uncertainty with respect to NRA's tenure extension further delayed activities at the beginning of Nepali fiscal year 2077-78. The cabinet's decision in November 2020 to extend NRA's tenure by one year (up to December 24, 2021) came as a respite following which, project implementation accelerated. NRA planned to complete all the works related to private housing by the end of the Nepali fiscal year (that is, mid-July 2021).

However, the second wave of COVID-19 hit Nepal in early March 2021 and nationwide complete lockdown was imposed. This further impeded the project implementation activities that were already behind schedule.



Table 3. World Bank Financing for the EHRP

	Funds Committed [\$, million]	Number of Houses Targeted to Support	Actual Number of Houses Supported as of June 30, 2021
IDA Credit 5706-NP	200.00	66,336	65,916
IDA Credit 6164-NP	300.00	120,938	112,272
Full grant (NPR 300,000)		56,134	50,356
Second and third tranches (NPR 250,000)		64,804	61,916
IDA Credit 6530-NP	200.00	159,149	67,531
Second and third tranches (NPR 250,000)		56,178	23,697
Third tranche (NPR 100,000)		102,971	43,834
MDTF Grant TF0A4783	10.00	3,200	3,766
Total	710.00	349,623	215,106

MDTF Support to Housing Reconstruction & Disaster Resilience

With the housing reconstruction effort nearing the finish line, the MDTF will focus on supporting the government in institutionalizing the learnings of one of the biggest disaster recovery projects. The EHRP experience will also help build long-term disaster resilience in Nepal through innovative systems, data, knowledge, lessons, and human resources that have played, and continue to play, a key role in the reconstruction process.

[EHDC Survey and Beneficiary Registration](#)

The EHDC survey and household registration processes were coordinated by the GoN's Central Bureau of Statistics (CBS) and NRA with technical and logistical support from the United Nations Office of Project Services (UNOPS). UNOPS was mobilized with financial

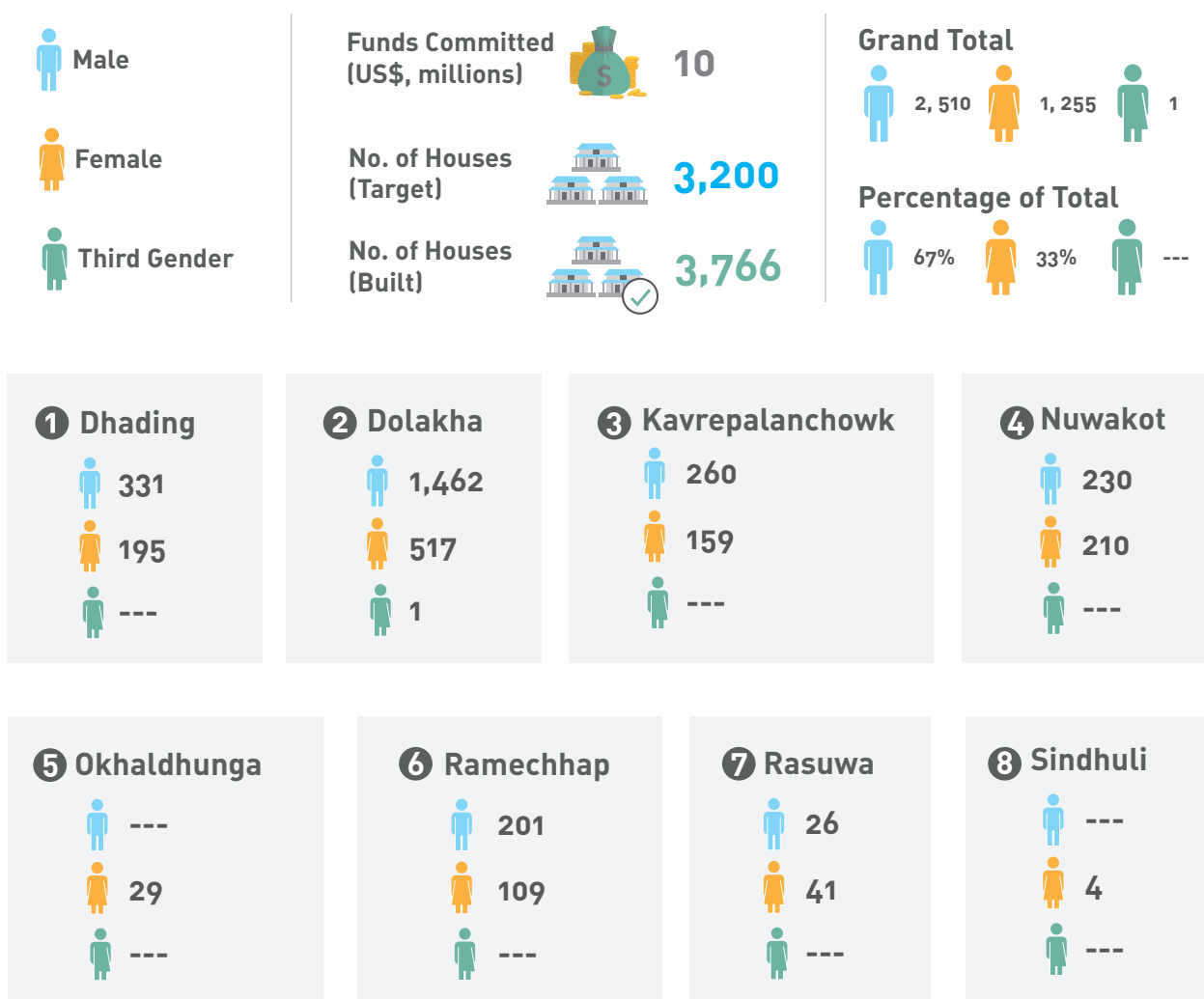
support from the World Bank's Global Facility for Disaster Reduction and Recovery (GFDRR) and Nepal Earthquake Reconstruction MDTF. This was a vital input to the GoN's entire reconstruction effort. The survey was conducted in three phases, of which the survey in 14 most affected districts was financed by the World Bank-administered GFDRR and MDTF grants. In 32 districts, the survey documented the earthquake damage information of 996,582 households and identified 832,408 potential program beneficiaries. The assessment classified a total of 1,052,930 houses into five categories, ranging from 'completely damaged' to 'negligible damage'. The process of registering the beneficiaries into the HRP was carried out using the EHDC information.

Housing Grants

The MDTF allocated \$10 million RE grant to co-finance the housing reconstruction component of the EHRP. This allocation was designed to provide housing grants to 3,200 households for rebuilding their houses with multi-hazard-resistant features in earthquake-affected districts. The World Bank and the GoN signed an agreement for this grant in September 2017 and the funds were transferred to the government's Designated Account on March 2018.

Following the same due diligence and output verification procedures in place for the EHRP, \$10 million has been spent for the reimbursement of housing grants provided to 3,766 reconstructed houses verified as hazard resistant.

Figure 1. MDTF Housing Grant Beneficiaries



Technical Assistance and Implementation Support

The MDTF has allocated US\$4 million Bank Executed grant to provide expanded implementation support and technical assistance to NRA as well as socio-technical facilitation to homeowners. The assistance provided so far includes more than 20 individuals and three consulting firms in the fields of communications and outreach, website development and maintenance, MIS, financial management, procurement, project operations, inspection regime, structural/earthquake engineering, livelihood enhancement, social mobilization, economic recovery, and disability inclusion.

Even while dealing with the unprecedented challenges posed by COVID-19 pandemic, the STA to beneficiary households continued to support the vulnerable beneficiaries this year with the support of social mobilizers and mobile masons.

Management Information System

The EHDC survey was instrumental in setting up NRA's MIS, a crucial system for monitoring the physical and financial progress of the project. The MIS hosts and manages various elements of the HRP through the modules on survey, enrollment, payment, grievance, inspection, training, vulnerability, and resettlement. The MIS helps NRA leadership in informed decision-making on the HRP and contributes to transparency and accountability among various stakeholders. A summary of the overall reconstruction progress update generated from the MIS is regularly published on the NRA website (www.nra.gov.np).

As NRA moves toward closure, data from the MIS will be migrated to the NDRRMA to build long-term disaster management systems. The project is restructured to enable the MDTF to directly support NDRRMA with a US\$2 million recipient-executed grant for multiple activities, currently delayed due to COVID-19 challenges.

Disability Inclusion, Disaster Resilience and Technical Assistance on Urban Reconstruction

An additional US\$3 million grant is allocated to NRA for multiple activities including making houses accessible for persons with disabilities and persons with functional limitations. The facility is not just limited to persons with disabilities heading the households but also to other family members with disabilities or functional limitations. Further, they will also be provided with assistive devices and livelihood enhancement support.

The reconstruction in the valley districts has remained slow because of multiple complexities, including land ownership and availability issues as well as risk of damage to adjacent houses. The cost of reconstruction in the valley is also higher than other areas, especially if adjacent houses are to be protected. Also, attention needs to be paid to restoring the cultural dimension of the valley houses and that incurs additional cost. The technical assistance for housing reconstruction in Kathmandu valley districts will enable NRA to increase the momentum of reconstruction in the valley districts including reviewing housing finance market and recommending measures to improve them.

Institutional Strengthening of NDRRMA and Disaster Resilience Technical Assistance

To enhance Nepal's ability to improve long-term disaster resilience, a portion of the recipient-executed grant of US\$2 million will focus on the institutional strengthening of NDRRMA. Activities include establishing and strengthening communications and information technology (IT) systems, equipping select emergency operations centers, and strengthening the capacity of NDRRMA staff. The support to NDRRMA will also focus on building disaster resilience at the national level. Assessment will be undertaken to build a multi-hazard disaster risk assessment platform to inform all 753 municipal governments, seven provincial governments, and relevant ministries and departments, together with the transfer of necessary disaster related information and records to federal government ministries and departments as well as provincial and local governments. NDRRMA will also build or strengthen capacities of provincial and municipal governments on disaster risk reduction and management (DRRM) as well as pandemics or emergencies.

Performance against Indicators

The MDTF assistance plays a crucial role in the World Bank-financed EHRP as well as the GoN's umbrella HRP. Direct housing subsidies under the MDTF have benefited 3,766 households, reaching a total of 16,154 beneficiaries—higher than targeted. Activities incorporated under additional financing of US\$5 million are targeted toward disability inclusion in recovery and reconstruction and building long-term disaster resilience through capacity building, and institutional strengthening of NDRRMA and select local governments.

Table 4. MDTF performance against indicator

Indicator	Target	Actual	Status
Component 1: Housing reconstruction			
Number of direct project beneficiaries	13,760	16,154	Exceeded
- percentage of female beneficiaries	50	50	Met
Percentage of intended beneficiaries aware of project information and project investments	100	100	Met
Improved houses reconstructed under the project	3,200	3,766	Exceeded
Percentage of registered grievances related to delivery of project benefits addressed	95	100	Exceeded
Component 2: Disaster risk management systems²			
Assessment of housing finance market conducted (NRA)	1	0	Progressing
Houses that belong to persons with disabilities and persons with functional limitations made accessible (NRA)	100	0	Progressing
Emergency operations center equipped (NDRRMA)	1	0	Progressing
Number of local governments having developed DRRM plans (NDRRMA)	25	0	Progressing

² Component 2 is planned to be added to the MDTF after restructuring the project to include support for systems that enhance long-term disaster risk management, as requested by the GoN. ⁴ During 2018 to 2020, a total of 422,299 houses were constructed in 11 most affected districts, thus on average 12,797 houses per district per year. This figure assumes future demand for reconstruction will fall, and only 25% additional housing units (3,200 units per district per year) will be required in 11 most affected districts during 2020-23; - and only half of what is being proposed for 11 most affected districts (i.e. 1,600) will be required in the 17 least affected districts.

Lessons Learned

■ Household Registration for the Nepal Earthquake Housing Reconstruction Program: Operational Support to Housing Registration

As housing reconstruction emerged as the largest single need in Post-Disaster Needs Assessment (PDNA), the GoN announced it as the most prioritized agenda in the post-earthquake reconstruction.

It was agreed that a comprehensive survey of households in 14 severely affected districts would be undertaken. The survey examined the damage to houses using applied engineering criteria to identify eligibility criteria for grant assistance. Considering the urgency of the survey, the World Bank implemented the activity through financial support from GFDRR and Nepal Earthquake Reconstruction MDTF.

The EHDC assisted the GoN to (a) provide operational support for the implementation of a household registration process led by the CBS, (b) identify affected

households, and (c) support the expansion and extension of an MIS led by the then Ministry of Federal Affairs and Local Development (MoFALD).

Specific objectives were to support:

- Coordination and communications of the program;
- Assessment of the damages to the houses in accordance with the approved survey methodology;
- establishment of the list of beneficiaries to receive housing recovery assistance, in a manner that is uniform, equitable and inclusive;
- set up and/or expansion of a database for government and other stakeholders to use for response, recovery, reconstruction and beyond; and
- promotion and integration of short-term and long-term risk reduction strategies in housing planning and construction.



The household database established through this activity aimed to serve as the basis of the Government's housing reconstruction program, assist in effective monitoring of the recovery process, enhance GoN's capacity to quickly respond to future disasters, and support longer-term social protection efforts.

Accomplishments:

- **Survey completed of over 850,000 households** in affected districts.
- **The EHDC was the largest tablet-based survey** worldwide that paved the way for technology facilitated initiatives throughout the project cycle. The EHDC served as a baseline to identify eligible beneficiaries for the housing reconstruction project. Considering the difficult terrain, weather and topography of Nepal, and maiden use of such a technology by CBS, the successful completion of survey as well as use of Management Information System to identify eligible beneficiaries is a landmark achievement.
- **Eligible project beneficiaries already enrolled** in the project and almost **75% of enrolled beneficiaries have reconstructed their houses.**
- **Management Information System established** that contains damage characteristics and socio-economic data of all affected population. The system served as an important tool for project implementation, and monitoring and evaluation.

Challenges and Constraints:

- There was **lack of coordination and communication between central-level government entities and district offices.** Affected districts and officials at Village Development Committees were not sufficiently informed prior to the planned survey. This created tension between government offices, political parties and communities. As a consequence, enumerators and social mobilizers had to halt the survey activity at times. There was also concern about the security and safety of the enumerators and social mobilizers.
- The activity also faced **delays in decision making.** The decision to engage Central Bureau of Statistics (CBS) to manage and conduct the EHDC survey was significantly delayed due to the bureau's reluctance to undertake such a massive survey using tablets for the first time and within a limited timeline. This resulted into considerable delays in overall planning of the survey operation and actual implementation.
- **Trade Blockade** was another setback for the survey. In September 2015, a four-month trade blockade stopped commercial imports and exports including fuel, gas and oil from India. The blockade crippled the local economy already hit hard by the earthquake leading to considerable increase in prices of goods, services and labor costs. Nepal was also suffering from long hours of loadshedding making it extremely difficult for local suppliers to operate leading to delays in supply and delivery.

Key Lessons Learnt:

- The success of the activity largely depended on the leadership role that the GoN played in formulating the policies and guidelines for the HRP on time. These policies and guidelines included methodology for the housing program, grant distribution, the means of transfer, eligibility criteria for the program beneficiaries, accountability and compliance mechanism, survey methodology, and finalization of questionnaire. All these elements contributed to development of an operations manual, survey methodology, and communications strategy for the program.

- Collaboration with existing government programs was found to be effective. UNOPS mobilized the social mobilizers from the GoN's existing Local Governance and Community Development Program, being implemented by the MoFALD by signing a Project Cooperation Agreement.
- Timely communication and collaboration with concerned stakeholders including local governments and affected communities is extremely crucial to avoid unnecessary conflict and confusion.
- The data collected could have been improved with regard to gender disaggregation, precise information on disabilities, and other vulnerabilities.





Additional Technical Assistance Support from MDTF as Recipient-executed Grant

As mentioned in preceding pages, additional grant agreement was signed with NRA and NDRRMA to complement the STA program, promote disability inclusion among eligible EHRP beneficiaries, and

contribute toward longer-term disaster resilience. The restated and amended grant agreement, signed on July 31, 2020, for TFOA4783 consisted of additional US\$5 million that includes US\$3 million allocation to NRA and US\$2 million allocation to NDRRMA.

NRA Component

US\$3 million allocated to NRA focuses on activities with an aim to leave no one behind in reconstruction and recovery. Specific activities financed under this component are listed in the following paragraphs.

1. Housing finance market assessment

While the progress achieved in the overall HRP is impressive, progress in urban reconstruction particularly in Kathmandu valley is still lagging. One of the studies undertaken by NRA indicated two major reasons for slow progress in urban reconstruction—land ownership and access to finance.

In addition, uptake of the different loan schemes to support housing reconstruction introduced by the Central Bank of Nepal was limited for many reasons. The study findings will facilitate policy makers and governments to make informed decisions regarding urban and rural housing reconstruction. As urban reconstruction will continue beyond NRA's closure, this study aims to inform policy measures and operational modalities in facilitating access to finance for the reconstruction of private housing in urban areas. The study aims to explore the sources of housing financing available to households and examine the determinants of housing recovery finance after the 2015 earthquake in Nepal.

The firm has already submitted an inception report and mobilized its team to collect information on the survey questionnaire. The consultant firm will be interviewing beneficiary households, banking and financial institutions, Nepal Rastra Bank (Central Bank of Nepal), policy makers, bankers' association, and other relevant stakeholders. The delivery of this assignment has been delayed due to the second wave of COVID-19.

2. Disability inclusion

Achieving inclusion and empowerment for persons with disabilities demands innovative solutions. In an effort to leave no one behind in recovery and reconstruction, EHRP MDTF grant has incorporated activities that promote disability inclusion. These activities include (a) mason's training 'Making Homes Accessible to All' with accessibility retrofitting provision for beneficiaries with disabilities (including material support), (b) provision of assistive devices to the beneficiaries to facilitate mobility in their daily lives, and (c) livelihood enhancement support to the EHRP beneficiaries with disabilities that will facilitate their recovery from both 2015 earthquake and ongoing COVID-19 crisis.

3. Capacity Building

Several activities are planned regarding capacity building of technical human resources of NRA and local governments of 32 earthquake affected districts. Several local governments suggested NRA to conduct trainings for engineers/sub-engineers on slope stabilization and risk-reduction in local infrastructure. The training programs are currently under development and will be delivered in August-September 2021.

NDRRMA Component

The NDRRMA component (US\$2 million) is focused on building long-term disaster resilience in Nepal. Specific activities planned are as follows:

Component 1: Multi-hazard risk assessment

Under this component, NDRRMA plans to develop multi-hazard disaster risk assessment platform to inform all 753 municipal governments, 7 provincial governments, and relevant ministries. A group of experts on fire risk, landslide risks, flood and inundation risk, earthquake risk, lightening risk, and disaster risk modeling will be recruited. This team of experts will be responsible for the following:

- Draft terms of reference for multi-hazard risk assessment and training of local governments on disaster risk management and climate change. Recommend specifications for communications equipment for select district emergency operations centers (DEOCs).
- Recommend specifications for procurement of search and rescue equipment—particularly position tracker for emergency vehicles and resource mapping system for disaster response.

Component 2: Capacity strengthening of provincial and municipal governments on DRRM as well as pandemics or emergencies

This component will cover training and capacity-building activities for provincial and local level including the officials of NDRRMA and the Ministry of Home Affairs in Disaster Risk Management and Climate Change.

Component 3: Build capacities of provincial as well as local governments to prepare for better disaster response

This component entails following activities:

- Procurement of emergency preparedness and response system considering four-level emergency operations centers, including health emergency response, assessment aligned with common alert protocol system.
- Hiring of expert service to conduct municipality capacity assessment for national building code (NBC) implementation and preparation of a road map to implement NBC as well as risk-sensitive land use plan assessment.
- Procurement of search & rescue (SAR) equipment:
 - SAR equipment
 - Multi-seater grade A ambulance for rescue
 - Two vehicles for monitoring, supervision, and emergency handling
 - Position tracker for emergency vehicles
 - Resource mapping system for disaster response

Component 4: Transfer of necessary information and records at the federal, provincial, and local levels

Under this component, NDRRMA plans to procure a service firm to maintain, update, and disseminate the information on disaster risk reduction portal (Bipad portal) to provincial governments as well as local levels.

Component 5: NDRRMA institutionalization

This component supports (a) procurement of communications and IT system for targeted DEOCs and (b) communications and outreach events through publications, workshops, and media events.



Leave No One Behind

NRA, through World Bank Financed EHRP expanded socio-technical assistance programs with the objective of leaving no one behind in reconstruction and recovery. MDTF resources were utilized to create enabling environment for these teams to provide effective support through training curriculum development. This multipronged effort consisted of social mobilization, technical assistance, capacity building, and focused support for the most vulnerable groups including women, children, and persons with disabilities.

STA teams facilitated acceleration of reconstruction activities by providing tailored support to those beneficiaries who either have not been able to start reconstruction or have abandoned the process midway because of various reasons including vulnerability.



Tailored Support for the Most Vulnerable:

- Single women
- Elder people of 75 and more
- Minor with no guardian
- Persons with disabilities holding red and blue card.



At Their Doorsteps, Through

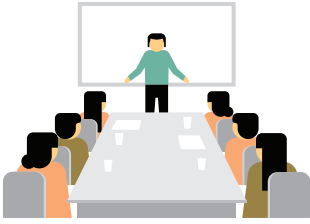
- 246 social mobilizers and
- 755 mobile masons



Who work with NRA field engineers across the 14 most-affected districts, trained in various inclusion aspects:

- Concept of vulnerability
- Ways to identify vulnerable communities
- Concept of disability
- Factors involved in making homes accessible
- Gender equality and social inclusion (GESI)
- Gender-based violence (GBV)
- Process to access benefits.

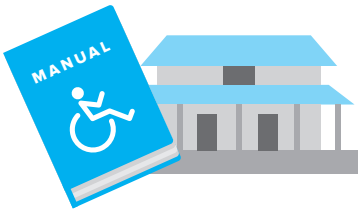
■ Making Reconstruction More Inclusive: A Snapshot



- Provided four-day interactive training for social mobilizers and field engineers



- Developed video training modules for mobile masons



- Developed mobile masons training manual on making homes accessible for persons with disabilities



- Conducted pilot entrepreneurship training of trainers for persons with disabilities



- Extended accessible houses built for beneficiaries with disabilities, and assistive devices and livelihood enhancement support



Socio-Technical Assistance Progress

Recruitment of social mobilizers

In February 2020, NRA recruited 246 social mobilizers, comprising over 60 percent women and 755 mobile masons, with women constituting 20 percent of the workforce. The STA teams' primary responsibility is to link non-responding beneficiaries with program activities and provide tailored support to the vulnerable to expedite the reconstruction process. Mobile masons were supposed to physically participate in the reconstruction of the houses belonging to vulnerable beneficiaries in addition to providing construction-related technical support.

The main objective of STA is to ensure no one is left behind in reconstruction and recovery because of the following:

- Some beneficiaries, because of their age-related inability, disability, illness, or any other functional limitations, require physical support in reconstruction. For this group, mobilization of STA team/community is critical.
- For owner-driven housing reconstruction, the houseowner makes the decision regarding reconstruction of the house including the typology. Assistance is key to understanding the project basics and access technical input during reconstruction.

STA is critical even though the NRA is in the process of concluding housing reconstruction because of the following:

- To understand why some beneficiaries are not reconstructing their houses. Subsequently, it is vital to persuade beneficiaries to start reconstruction, and in case the beneficiary's decision to not construct is final, documenting those reasons accordingly.
- To promote collective actions from STA teams, local governments, communities, and other stakeholders.
- To bridge the gap between eligible beneficiaries and the existing support mechanisms.
- To assist NRA in expediting and concluding private housing reconstruction within the stipulated time.

STA teams consist of social mobilizers, mobile masons, and field engineers, who facilitate acceleration of reconstruction activities. Being local residents, these mobile teams provide door-to-door technical and social support that allows the beneficiaries to access reconstruction benefits. As trusted intermediaries, they also act as a bridge between beneficiaries and local authorities or inspecting engineers for core tasks that expedite the reconstruction process. These include facilitating beneficiaries to fill out paperwork, coordinating inspections, and distributing completion certificates.

Socio-technical assistance teams, particularly social mobilizers and mobile masons who are from the same locality adopted COVID-19 protocols formulated by NRA and continued working during the pandemic. These field personnel were trained on the reconstruction program, concepts of vulnerability, ways to identify vulnerable members or communities, gender equality, and making homes accessible to all - including persons with disabilities.

Progress Achieved

Despite the restrictions on mobility, and lack of construction material and manpower due to the COVID-19 related lockdown, substantial progress has been made by the STA teams.

- **1,771** houses of the vulnerable beneficiaries reconstructed.
- **157,691** households provided with door-to-door technical assistance.
- **65,250** participant agreements collected for digitization.
- **24,765** non-beneficiaries supported in appellate process at different stages.
- **41,627** photos and information of completed houses collected for final inspection.
- **19,779** retrofitting beneficiaries supported for application and filling up annex documents to change into reconstruction category.
- **90,300** beneficiaries assisted to obtain construction completion certificates.
- **1,054** beneficiaries' socioeconomic information collected for Socio-Economic Impact Study Survey undertaken by NRA.
- **65** EHRP beneficiaries with disabilities approached to undertake preliminary needs assessment for disability inclusion activities.
- **2,585** masons' information collected for skill certification by the Council for Technical Education and Vocational Training.
- **2,590** coordination meetings conducted with the concerned local governments to coordinate STA

Nepal strives to leave no one behind in earthquake reconstruction

-APRIL 25, 2021



Man Kumari Parajuli with her homeowner agreement card. Photo: Gajendra Shrestha/World Bank Nepal

Ninety-two-year-old Man Kumari Parajuli flashes an infectious smile while she shows me her homeowner agreement card.

Her old dwelling located in Namobuddha municipality in Nepal's central hills was damaged by the 2015 earthquake. A group of mobile masons is busy building a new house for her in the adjacent courtyard. "I cannot wait to move into the new house," she says with an apparent glimmer of hope in her eyes.

Padam Bahadur Kami's landless family is also getting their house built by the same construction crew while more than a 100 km away from Namobuddha, another crew is building a house for elderly Dipa Bahadur Kunwar and his wife in Nuwakot.

Six years on, Nepal's post-earthquake housing reconstruction is nearly complete.

Ninety-two percent of the targeted population is on track to move in refurbished and resilient houses. In the final reconstruction stretch, the teams mobilized by Nepal's National Reconstruction Authority (NRA) under the World Bank-supported [Nepal Earthquake Housing Reconstruction Project](#) (EHRP) are ensuring that all vulnerable residents in earthquake-affected areas get a roof over their heads.

Single women, elderlies above 75, minors with no guardian, and persons with disabilities fall into the most vulnerable category and can receive additional cash grants for housing.

NRA has coordinated with the local governments to ensure that no eligible beneficiary is left behind.

In the final reconstruction stretch, the teams mobilized by Nepal's National Reconstruction Authority (NRA) are ensuring that all vulnerable residents in earthquake-affected areas get a roof over their heads.

"We have been working diligently to identify and support the most vulnerable ones in our ward. It is often challenging to manage the expectations and positively discriminate those in need," says Amrita Parajuli Adhikari, a local people representative coordinating support for Man Kumari and Padam Bahadur, both of whom were missed out in NRA's initial list of vulnerable beneficiaries.



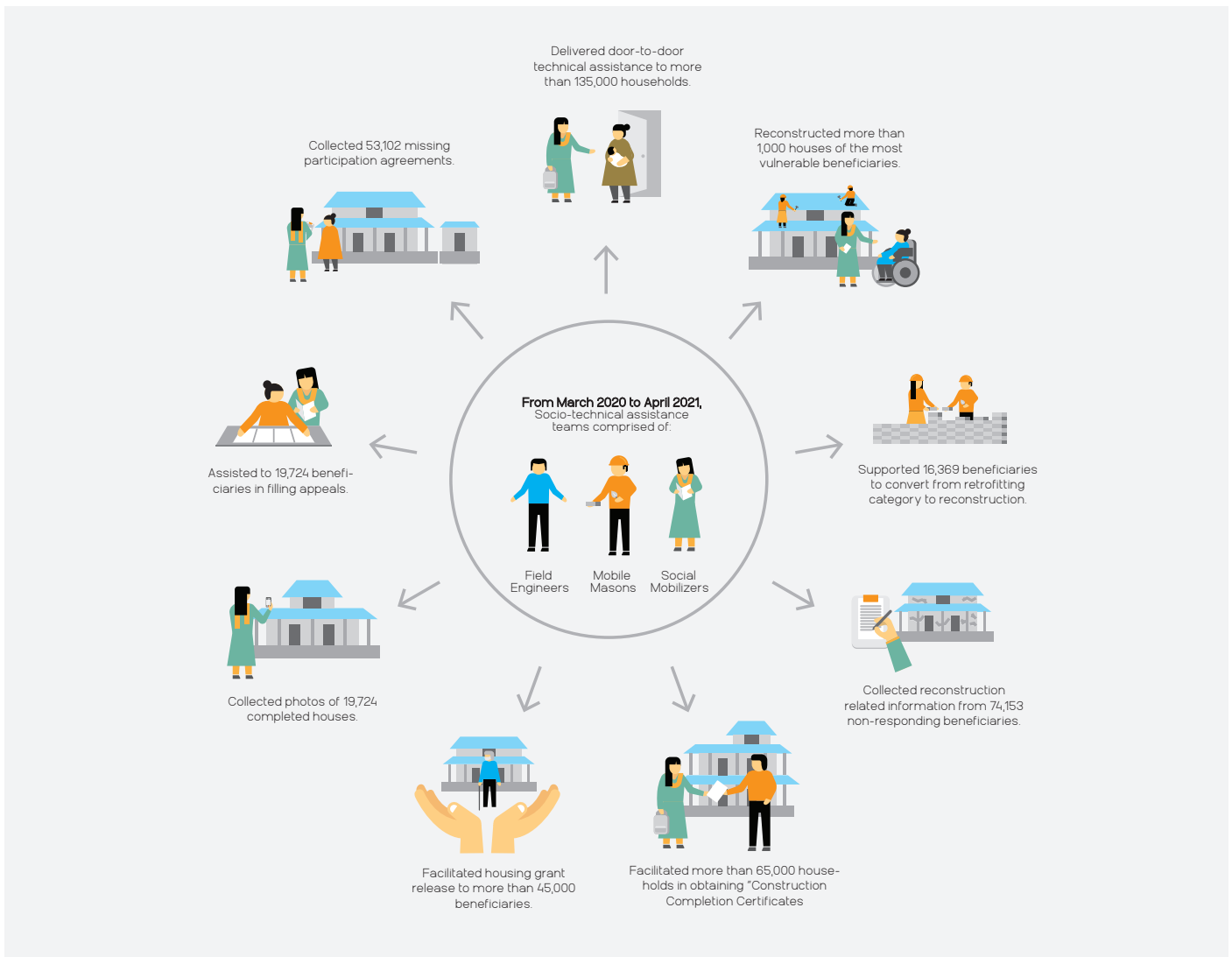
Dipa Bahadur Kunwar in the construction site of his house. Photo: Gajendra Shrestha

Socio-technical assistance: Key to owner-driven reconstruction

An owner-driven approach puts the homeowners at the heart of the reconstruction, who take key decisions about the rebuilding. To make sure that the decisions made are well-informed by the resilience and safety protocols, socio-technical assistance (STA) teams comprising field engineers, social mobilizers, and mobile masons go door to door providing crucial information to the homeowners on building resilient and safer houses.

NRA recruited, deployed, and mobilized 755 mobile masons and 246 social mobilizers in early 2020 to expand STA and spur reconstruction efforts.

While STA is a critical part of the overall reconstruction from the beginning, it is particularly significant in providing tailored support to those who could not start or finish rebuilding their homes because of various reasons including old age, disability, or illness. In this regard, NRA recruited, deployed, and mobilized 755 mobile masons and 246 social mobilizers in early 2020 to expand STA and spur reconstruction efforts.



Reconstruction continues amid the pandemic

Already running its sixth year, reconstruction activities have continued unabated during the COVID-19 pandemic. For many earthquake-affected people, access to safe and resilient houses was key to shelter themselves from the virus. To that end, **NRA proactively issued COVID-19 safety protocols for mobile masons and social mobilizers to keep up the pace of reconstruction.**

Since most social mobilizers and mobile masons are recruited locally, they continued working despite the nationwide lockdown.

While mobile masons physically participate in the reconstruction, the local governments facilitate procurement of construction material on credit and communities provide in-kind and labor support.

NRA proactively issued COVID-19 safety protocols for mobile masons and social mobilizers to keep up the pace of reconstruction.

Social mobilizers act as the bridge connecting these entities—they mobilize the technical teams and communities and coordinate with local governments, civil society organizations, and other reconstruction stakeholders to plan and implement general STA support to the overall earthquake-affected residents and focused hands-on support to the most vulnerable persons.

STA teams are nearly done rebuilding houses for more than 1,000 earthquake-affected people like Man Kumari, Padam Bahadur, and Dipa Bahadur. All are now preparing to move to safer houses, hopefully before the monsoon starts.

Disability Inclusion

■ Making Homes Accessible to All

The ‘Making Homes Accessible to All’ training is key to building capacity of masons in Nepal on multi-hazard resistant retrofitting and reconstruction skills to ensure accessible homes for persons with disabilities. The training will enable masons to assess specific needs of persons with disabilities/persons with functional limitations and incorporate accessibility elements in the houses so that they can perform their daily functions independently.

The manual development was financed through the World Bank-administered Nepal Earthquake Reconstruction MDTF in close coordination with NRA and CLPIU³ Building, which aims to introduce the concept of accessibility to masons on the frontline of the reconstruction effort.

A pilot training of trainers was delivered to 36 focal engineers, including 16 women engineers, from NRA. Attendees reported that the training was instrumental in changing their mindsets as they had limited understanding of disability/functional limitations and accessibility.

The training clarified myths and misconceptions associated with building accessible homes such as ‘building accessible home is costly and too technical’, ‘there are standard solutions’, and ‘accessibility is useful only for persons with disabilities’. Participants also appreciated the newfound understanding that accessible construction also helps people with functional limitations: elderly and pregnant women perform daily functions more independently in addition to persons with disabilities.

Development of Manual/Handbook

Based on learning from the first pilot training of trainers held in early 2020, the training manual was revised to introduce accessibility barriers faced by persons with disabilities on a daily basis. The objective was to generate empathy about the daily struggles of persons with disabilities so that trainee trainers can find solutions to mitigate the physical barriers. A mason handbook was also developed with the aim to provide practical solutions through sketches and practical information in a simple and easy-to-understand manner so that individual houses could be assessed based on their specific needs.

The content of the manual and handbook is divided into five areas: understanding disability; access to entrance; access to building interiors; access to water and sanitation; and access to surroundings.

Training Programs

Training programs were developed based on the manual and handbook for engineers and masons. At first, the master trainers are trained who would then go on to train the district engineers. These district engineers in turn would train the masons in respective districts. The masons are the end users of this training.

Progress Till Date

- Draft Training Manual and Mason’s Handbook on ‘Making Homes Accessible to All’ are translated into Nepali.
- A master training of trainers was conducted in January 2021—the trainee trainers are the select field engineers. The trainee trainers conducted training of trainers in 13 districts out of 14 most affected.
- The training of trainers could not be held in Gorkha district because of restrictions imposed due to the second wave of COVID-19.
- The prohibitory order, owing to the second wave of COVID-19 in March 2021, further delayed the mason’s training.

Further Works

- Training of trainers in Gorkha district needs to be resumed.
- Similarly, mason trainings in 13 districts are yet to be started. These training programs will be conducted after relaxation of the COVID-19 related prohibitory order issued by the government.

³ Central Level Project Implementation Unit.



Demonstration of layout of accessible toilet prepared by the trainee trainers.

The following infographic shows the timeline of various activities that have been conducted till date:



■ Provision of assistive device and livelihood enhancement support

As part of disability inclusion effort, NRA plans to facilitate the mobility of beneficiaries with disabilities and enhance their economic recovery. National Disabled Fund (NDF) was engaged to assess, produce, and procure assistive devices. NDF has an extensive experience in this field along with implementing livelihood programs for persons with disabilities.

There are 204 EHRP beneficiaries with disabilities requiring assistive devices and livelihood enhancement support. NRA has signed a memorandum of understanding with NDF to implement these programs, for which the first installment of funding has also been released. However, implementation of these activities was hindered by the second wave of the COVID-19 pandemic. NDF was therefore, unable to complete detailed needs assessment for assistive device and livelihood enhancement by June 30, 2021, as planned.

Progress achieved

- Information collected from 75 EHRP beneficiaries with disabilities on assistive devices and livelihood enhancement support. For this, a detailed questionnaire was developed by NDF and social mobilizers were oriented virtually to conduct the survey. By assessing the information collected, NDF identified 24 different types of assistive devices and 8 different types of livelihood enhancement schemes.

- Detailed budget and work plan prepared and submitted by NDF. First installment has been released.
- As the needs assessment of all 204 beneficiaries is not complete, NDF estimates 628 assistive devices for 204 beneficiaries. NDF is undertaking detailed assessment of beneficiaries to ascertain both assistive devices and livelihood enhancement support needs.
- Proposal put forward to include counseling sessions (two sessions per person), physiotherapy and occupational therapy in the project activities.
- Eight different kinds of livelihood enhancement support for 75 beneficiaries identified.

Way Forward

Both livelihood and assistive devices support programs are key to EHRP's disability inclusion initiatives. The success of these activities will depend largely on the outcome of EHRP's beneficiary needs assessment followed by subsequent targeted support.



Third-party Monitoring

Third-party monitoring of housing reconstruction was initiated in October 2017 to introduce independent monitoring and evaluation of the reconstruction progress of the EHRP. The TPMA's carried out field-level monitoring of the government's inspection scheme on a sample basis and provided technical advice to engineers and technicians involved in the inspection. The objectives of the tasks were as follows:

- Provide critical data on reconstruction including issues relating to reconstruction;
- Provide independent feedback of project implementation including adherence to due process of inspections by the field engineers for compliance with approved construction standards for multi-hazard resistant reconstruction.
- Make recommendations on improvement or modifications to inspection guidelines and seismic-resistant standards due to geographic, logistical, or other challenging context.
- Identify crucial deviations in project implementation from operations manuals and support the program in achieving compliance with key project rules
- Share the findings to facilitate the mainstreaming of good practices and lessons.

In the first phase, an international third-party monitoring firm, Development Project Design and Services (DPDS), Bangladesh, through a joint venture with Devtec Nepal Private Limited, was hired to conduct third-party monitoring in three districts—Dhading, Dolakha, and Nuwakot.

Summary of Key Findings/ Second Phase of TPMA

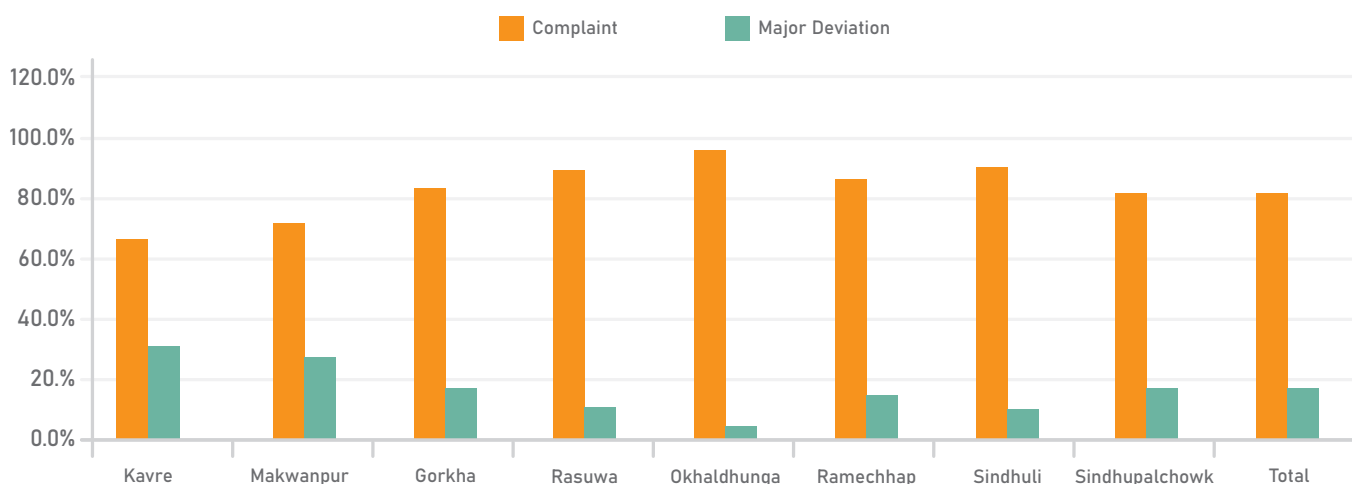
The second phase of third-party monitoring covered eight districts outside of Kathmandu valley. Scott Wilson Nepal Private Limited and Mukesh & Associates in association with BDA Private Limited were assigned the task of carrying out field-level monitoring of the inspection on a sampling basis. Each firm was assigned to carry out spot checks of at least 5 percent sample size with 1 percent repeat visit.

■ Compliance to the Standard

Scott Wilson Nepal carried out a total of 7,761 spot checks in Kavrepalanchowk, Makwanpur, Gorkha and Rasuwa. Similarly, Mukesh & Associates/BDA carried out a total of 8,422 spot checks in Okhaldhunga, Ramechhap, Sindhupalchowk, and Sindhuli districts.

The monitoring showed that 76 percent of the reconstructed houses met the minimum standards for multi-hazard resilience set forth by NRA, while nearly 24 percent of the built houses will need corrections/rectifications in Kavre, Makawanpur, Gorkha, and Rasuwa districts. Similarly, 86.9 percent of the reconstructed houses met the minimum standards for multi-hazard resilience set forth by NRA, while nearly 13.1 percent of the built houses will need corrections/rectifications in Okhaldhunga, Ramechhap, Sindhupalchowk, and Sindhuli districts. Overall, 81.73 percent of houses were found to be compliant with the minimum standards set forth by NRA, while 18.3 percent of the houses were non-compliant with major deviations in these eight districts. The summary of the spot check is shown in Figure 2.

Figure 2. Summary of the Spot Checks in Eight Districts



■ Major Deviations

The major deviations, causing the houses to be categorized as non-compliant, were due to discontinuous horizontal bands provided at different levels, absence of horizontal bands, excess story, and so on. The minor deviations in most of the buildings were due to the additional height of the attic not in accordance with the guidelines. Around 66 percent of the major deviation was related to the horizontal bands; the horizontal bands were either absent or discontinuous.

One of the reasons for the non-compliance was the announcement of the deadlines at different times by NRA to expedite the reconstruction. The rapid increase in rate of construction during this period affected the quality of the construction.

Non-compliance issues were prevalent where beneficiaries reconstructed houses without adequate technical assistance. Some of those deviations can be addressed through the solutions offered in Correction and Exception Manual for Masonry Building published by NRA.

■ Alternative Construction Technologies

Different types of building typologies were encountered in the districts surveyed, most of them stone masonry in

mud mortar followed by brick masonry in cement mortar and reinforced cement concrete structures. Alternative construction technologies such as hollow block concrete, compressed stabilized earth block, and interlocking bricks were least adopted in the areas despite the promotion of such technologies through vigorous training, construction of model houses, setting up facilities, and so on.

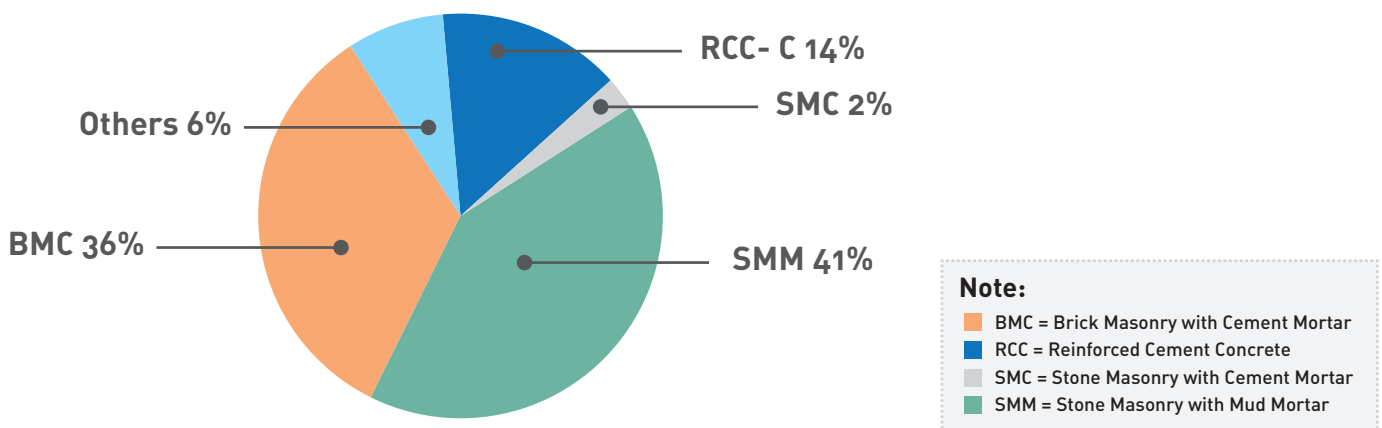
■ Awareness about Safer Construction Practice

The awareness level of the people involved in the reconstruction increased tremendously due the involvement of trained masons, technicians, and monitoring mechanisms.

■ COVID-19 Pandemic

Lack of construction materials and trained masons, availability of technical inputs at the right time, and an uninvited COVID-19 pandemic are some of the issues and challenges faced during the reconstruction works.

Figure 3. Summary of Building Typologies in Eight Districts



Lessons Learned & Areas of Improvement

- Capacity building through mason training (including on-the-job training organized by government and various other non-governmental organizations) had a significant role in upgrading the skills of masons in rural areas. The trainings provided an opportunity to many youth and women to learn/enhance skills thus providing livelihood options in construction sector.
- The provision of revolving fund established by local governments reached out to vulnerable households to support the gaps in cash flow and to continue the construction while they wait for government tranches.
- Technical and social support through STA to homeowners ensured the quality in reconstruction and increased the efficiency of partner teams, including TPMA.
- Series of different deadlines for tranche payments, with subsequent extensions, had both positive as well as negative effects on the reconstruction. Most of the homeowners expedited their work to meet the deadline compromising the quality of these reconstructed houses. A key lesson learned is that a deadline-based approach should be adopted only with an adequate increase in the supervisory support to maintain the quality of the infrastructures.
- Homeowner-driven approach placed people at the center of reconstruction process which enabled households to build desired houses using their own savings according to their specific needs and social cultures, causing vernacular architecture to be overshadowed due to the generalized approach.
- Adoption of traditional workload sharing practices such as Arma/Parma and revolving fund was common in the districts for helping each other in reconstruction which seems to have been sidelined due to the project.
- Nepal's vernacular architecture should be preserved through retrofitting. It is crucial that NRA and many reconstruction actors

convince the people that retrofitting is a more sustainable, affordable, lower impact, and lower cost alternative to new construction and should be encouraged for existing load bearing houses across Nepal. The government should prepare trained masons, laborers, engineers, & technicians to effectively provide retrofitting services.

- Culturally appropriate building designs associated with indigenous communities need to be considered.
- Though the reconstruction gave local/central governments opportunities to reconstruct the houses with proper land use plans, ensuring access to wider roads, open spaces, disabled-friendly infrastructure, people continue to build new homes on the right-of-way of local roads, agricultural lands, and without access to essential infrastructures. This has been a missed opportunity for Nepal's housing reconstruction efforts.
- The beneficiaries tend to extend or modify the houses after receiving all the tranches. NRA in coordination with local governments should issue certain guidelines or manuals to address the extension needs.
- The reconstruction process is now largely driven by local governments who are authorized to identify beneficiaries, manage grants, inspect processes, and issue completion certifications, and so on. Given this, NRA and the government should increase resources and institutional capacity at local levels to effectively implement and supervise the reconstruction process.
- Local government should prepare risk-sensitive land use plan, access vulnerable location, and respond to the needs of vulnerable communities for long-term resilience.
- Third-party monitoring should be carried out in the initial phase of reconstruction as it not only enforces the concept behind multi-hazard building reconstruction but also helps ensure the proper quality of the works.



Way Forward and Program Sustainability

Leave No One Behind

Given the contracts of social mobilizers and mobile masons came to an end in mid-June 2021, there are concerns regarding the reconstruction of houses of the most vulnerable beneficiaries, including the implementation of making homes accessible to all.

To address these concerns, NRA and CLPIU Building have agreed to mobilize field engineers as well as partner

organizations to complete the reconstruction of houses of vulnerable beneficiaries.

The EHRP Program Management Unit has also agreed to explore ways to recruit engineers under MDTF grant, particularly those who have taken ‘training of trainers’ on ‘Making Homes Accessible to All’ mason’s training to make homes of EHRP beneficiaries accessible.

NRA's Exit Strategy

NRA has prepared a Disengagement-Engagement Strategy for smooth exit and transition of remaining reconstruction works to concerned line ministries, including NDRRMA.

While NRA aims to conclude private housing, remaining reconstruction of schools, heritage sites, health facilities, and other infrastructures will be handed over to the concerned line ministries.

Similarly, the activities related to long-term resilience will be handed over to NDRRMA including transfer

of the institutional memory, lessons, knowledge, and experience gained from the post-earthquake reconstruction and recovery.

Several activities including local government integration financed under World Bank-supported EHRP will help contribute toward knowledge transfer and smooth exit of NRA. The activities also include capacity building of local-level elected representatives and officials, transfer of physical records and documentation management, and transfer of digital records through integrated reconstruction portal.

International Conference on Nepal's Reconstruction

The World Bank has earmarked MDTF grant of US\$1 million to support NRA in organizing ICNR, scheduled from December 7–9, 2021. The main purpose of the conference is to share Nepal's experience and learning from the recovery and reconstruction of damaged housing and physical and social infrastructure as well as the restoration of livelihoods and social services after the 2015 earthquake. The specific objectives are to

- Share Nepal's experiences in emergency response, reconstruction, and recovery;

- Learn from global experiences and good practices in earthquake risk reduction and management processes;
- Develop key recommendations for disaster risk prevention, preparedness, and management and develop consensus on the needs, possibilities, and means of disaster risk management for the future; and
- Hand over the post-earthquake experience, knowledge, and information to NDRRMA.

Toward Resilient Nepal

As NRA wraps up its mandate of reconstructing the physical infrastructure affected by 2015 Nepal earthquakes, its experience and lessons will be valuable to inform future policies and programs on post-disaster recovery, reconstruction, and resilience.

The GoN has announced a 10-year campaign toward a disaster-resilient Nepal—also one of the highlights of the ICNR 2021. NDRRMA and NRA will take the lead in

preparing the road map in coordination with relevant governmental and non-governmental stakeholders.

This will ensure a smooth transition of NRA's reconstruction works even after its closure. Given the mounting challenges posed by extreme weather events triggered by climate change and economic crisis resulting from the pandemic, it is imperative that future recovery efforts are green, resilient, and inclusive.



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