Rehabilitation and Reconstruction of Houses in Flood-Affected Areas in Lao PDR

Submitted By: UN-Habitat (Lao PDR Office)



Organization Profile

Organization Name: UN-Habitat, Ministry of Public Works and Transport and Provincial Departments of Public Works and Transport

Organization Type: United Nations entity

Website: https://unhabitat.la/

Practice Details

Country(ies): Laos

City(ies): Sanamxay, Pakbeng

Start Year: 2019 **Ongoing:** No **End Year:** 2021

Main Adequate Housing Components:



Housing Thematic Areas:

Housing in Crisis & Displacement Contexts

Housing & Climate Adaptation

Relevant SDGs:



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Problem & Context

In July–August 2018, Lao PDR experienced severe flooding and landslides, worsened by the collapse of the Xe-Pian Xe-Nam Noy dam in Attapeu province, resulting in at least 71 deaths, Weak enforcement of resilient construction standards, lack of integration of “Building Back Better” principles, and limited coordination between national and local agencies exposed major policy gaps. The absence of inclusive, climate-resilient housing left communities vulnerable to recurring disasters, highlighting the urgent need for resilient housing, WASH systems, and stronger institutional capacity.

Solution Developed

To address the housing crisis caused by the 2018 floods, the Government of Japan and UN-Habitat launched a recovery program targeting the most affected families in Sanamxay (Attapeu) and Pakbeng (Oudomxay). A total of 81 permanent houses and community-based piped water systems were constructed, benefiting 486 people with secure shelter and over 1,200 people with reliable 24/7 water supply. The objectives were to restore safe housing, integrate climate resilience, and strengthen local capacity for future disaster response. The practice applied “Building Back Better” principles through elevated piloti houses, reinforced concrete structures, and modular designs that allow future family expansion. Innovations included community co-design of housing features, integration of WASH to safeguard health during COVID-19, and institutional strengthening through on-the-job training for provincial and district engineers on quality management and resilient construction. This holistic approach combined technical solutions with social and institutional capacity-building, ensuring both immediate recovery and long-term resilience.

Implementation

The housing practice, funded by the Government of Japan and implemented by UN-Habitat in partnership with the Government of Lao PDR, directly addressed the devastation of the 2018 floods and dam collapse. Targeting 81 of the most vulnerable and poorest households (66 in Sanamxay, Attapeu and 15 in Pakbeng, Oudomxay), the project provided permanent, flood-resilient houses and community-based piped water systems, benefiting nearly 1,800 people.

The objectives were to restore safe housing, rehabilitate basic services, and embed the Building Back Better (BBB) principles - strengthening resilience to future floods and disasters. Key features included two-storey houses with reinforced concrete footings, beams, and columns, elevated floors (+50 cm) to reduce flood risk, adjusted beam and corridor levels for stability, and removal of indoor water basins to improve space and maintenance, while preserving the cultural essence.

Innovative approaches enhanced effectiveness: community co-design ensured cultural appropriateness (choice of layouts, colours of indoor tiles and bathroom accessories) and

active community monitoring of construction supported by a grievance hotline, and transparent, competitive procurement with 21 qualified bidders across nine contracts. Capacity-building workshops trained provincial and district engineers and local artisans on quality management and resilient construction (BBB), reinforcing institutional knowledge and ensuring sustainability.

Enablers & Obstacles

The project was enabled by strong political commitment from the national government and the strong partnership between UN-Habitat and local authorities.

National ownership was reinforced through the Governor's support at the national and provincial levels, while stakeholder consultations and community co-design ensured that housing designs were locally and culturally appropriate and fully accepted.

Technical enablers included structural design reviews and the integration of Building Back Better (BBB) principles such as elevated housing, reinforced concrete structures, and improved flood resilience.

Capacity-building workshops for provincial and district engineers enhanced institutional knowledge and long-term maintenance skills. Gender mainstreaming, HRBA approach, community co-creation and inclusive design were key enablers.

Key obstacles included delays caused by COVID-19 restrictions, which limited travel and slowed procurement and construction.

Results & Impact

A total of 81 permanent, flood-resilient houses were constructed 66 in Sanamxay and 15 in Pakbeng benefiting 486 people with secure housing and 281 households (1,291 people) with 24/7 metered piped water supply. Several beneficiaries were employed during implementation, providing short-term income and supporting livelihood recovery.

For low-income and marginalised households, including women, children, the elderly, and persons with disabilities, the move from fragile temporary shelters to two-storey houses with reinforced concrete structures, elevated floors, adjusted beam/corridor levels, and improved bathrooms significantly reduced vulnerability to floods, enhanced safety, and improved dignity and living standards. Community members were engaged in co-design (selecting layouts, colours, tiles) and in monitoring construction through a grievance hotline, strengthening ownership and trust.

A major achievement was the project's cost-effectiveness: the average cost per permanent house (including access to basic services) was about USD 16,200, nearly half the USD 30,000 per unit in a comparable donor project in Sanamxay, without compromising structural resilience or quality. Rather the houses under this project had additional structural components. This cost

efficiency, combined with transparent procurement (21 bidders across nine contracts) and capacity-building of 13 provincial and district engineers in BBB and quality management, created a replicable and sustainable model.

Replication & Scale Up

The housing component is being directly replicated and scaled through the Adaptation Fund project “Enhancing adaptive capacity in Lao PDR provinces, and building resilient housing in vulnerable communities”, covering six provinces including Bokeo, Vientiane, Bolikhamxay, Khammouane, Champasak, and Attapeu. This new project is currently ongoing, and it is expected to deliver 6 demonstration resilient houses across six provinces, reconstruct over 600 existing houses, and rehabilitate 4,942 additional homes, directly benefiting approximately 27,740 people who are vulnerable.

The model’s replication is enabled by strong political commitment, UN-Habitat’s technical expertise, community co-design, and transparent local procurement, which built trust and ownership.

Policy Uptake

This housing practice has informed or been partially integrated into policy discussions, strategies, or pilot-level policy instruments.

The housing practice has informed national policy discussions and been partially integrated into strategies through the newly ratified Housing Law, to which UN-Habitat provided technical inputs. The project’s “Building Back Better” principles, climate-resilient housing models, and community co-design approaches have influenced pilot-level instruments under the Ministry of Public Works and Transport, reinforcing links between disaster recovery, housing policy, and national adaptation planning.

Lessons & Takeaways

The project demonstrated the importance of community engagement, gender mainstreaming, HRBA approach, transparent procurement, and BBB-based resilient design, while also revealing challenges. COVID-19 restrictions and limited local capacity affected construction, highlighting the need for earlier training and stronger coordination between national and district authorities. Embedding local cultural and contextual knowledge - such as anticipated flood levels, household size, and daily living practices - proved essential for designing safe, acceptable, and sustainable houses.