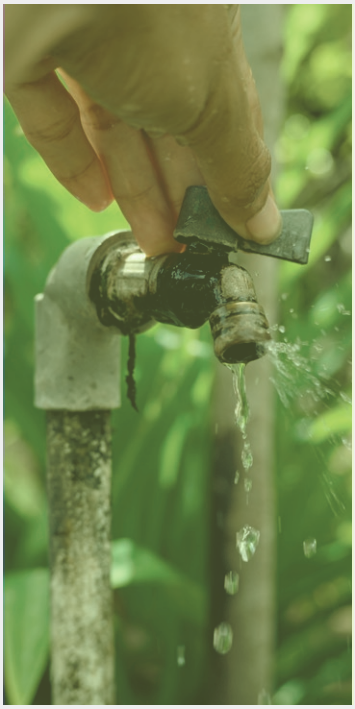
ADAPTATION FUND

PORTFOLIO MONITORING MISSION REPORT

ENHANCING THE CLIMATE AND DISASTER RESILIENCE OF THE MOST VULNERABLE RURAL AND EMERGING URBAN HUMAN SETTLEMENTS IN LAO PDR

CONTENTS





PROJECT INFORMATION

Project Title	**Enhancing the climate and disaster resilience of the most vulnerable rural and emerging urban human settlements in Lao PDR**
Country	**Lao PDR**
Sector	**Disaster Risk Reduction**
Implementing Entity (name and type)	**UN-Habitat** (Multilateral Implementing Entity)
Executing Entity(ies)	**Ministry of Natural Resources and Environment, Ministry of Public Works and Transport, Provincial Departments of Public Work and Transport of Attapeu, Sekong and Saravane Provinces**
Funding Amount	**US$ 4.5 million**
Project start date	**02/24/2017**
Project completion date	**08/24/2024**
Portfolio Monitoring Mission Date	**March 24 – 28, 2025**

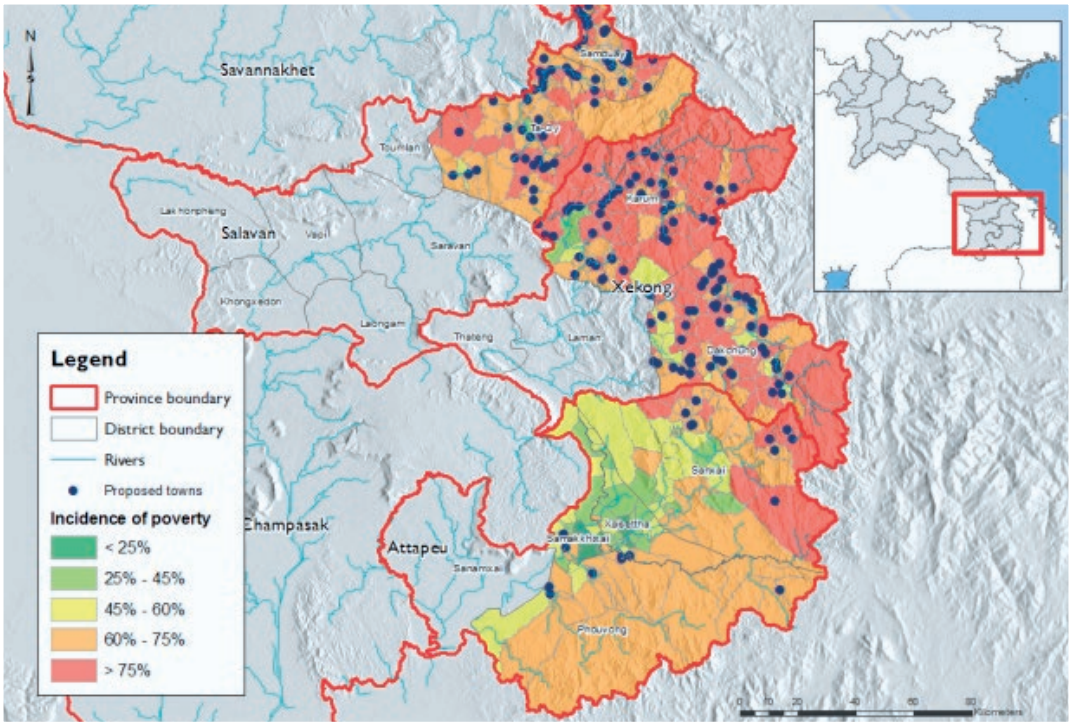


Figure 1 - Project target locations in Attapeu, Sekong, and Saravane provinces *(Source: UN Habitat)*

PROJECT BACKGROUND AND OBJECTIVES

Lao PDR is considered a least-developed country (LDC) however, itis on track to graduate from this status by 2026. While this marks a significant step forward, the country still faces considerable challenges, particularly in its water sector. Rainfall increases, climate variability, rising temperatures, and more frequent and intense floods and drought continue to threaten water availability and quality. These challenges are compounded by inadequate infrastructure to manage and store water, resulting in limited access to clean water, especially for those living in rural and peri-urban areas. Women in these areas especially carry the heaviest responsibility for collecting water far from their homes. In response to these challenges, the Adaptation Fund (AF) project, "Enhancing the Climate and Disaster Resilience of the Most Vulnerable Rural and Emerging Urban Human Settlements in Lao PDR," aimed to improve access to water through the development of small-scale, climate-resilient water infrastructure. The project sought to strengthen water infrastructure systems in the most vulnerable provinces, ensuring communities are better equipped to cope with the ongoing and growing climate risks affecting their water resources.

Overall, the project focused on strengthening community resilience to extreme climate events. It did this through effective engagement of local communities and related institutions, ensuring co-created, long-lasting solutions. Upon completion, the project conducted 11 risk and vulnerability assessments and developed 11 climate action plans for 189 settlements across three provinces of Salavan, Sekong, and Attapeu. These efforts led to the successful implementation of community specific small-scale water infrastructure systems, benefiting 125,295 individuals, 54% of whom are women, and enhancing resilience to climate-related challenges.

PROJECT COMPONENTS

The project had four main components:

1. To develop the institutional capacities of the national government and local authorities, enhancing the resilience of human settlements and infrastructure systems.
2. To enable communities to improve their well-being and health conditions by building local capacities and resilience strategies for their settlements and infrastructure systems.
3. To enhance climate and disaster-resilient infrastructure systems in human settlements.
4. To ensure project compliance with AF and UN-Habitat standards for Knowledge Management, Advocacy, and Monitoring.

PROJECT RESULTS & OUTCOMES

The project was successfully completed in 2024 delivering several notable achievements:

- 11 Climate Risk and Vulnerability Assessments (CRVA) were conducted at the provincial (3), district (8), and village (189) levels. This marked the first integrated multi-hazard mapping at the settlement level in Lao PDR, enabling the identification of climate risks and the prioritization of resilience solutions tailored to their specific needs.
- 11 climate change action plans and 189 small-scale climate-resilient water supply systems were developed across the three southern provinces of Saravan, Sekong, and Attapeu.
- Community water groups were established and trained in all 189 settlements to ensure the proper operation and long-term maintenance of the water systems.
- The project reached a total of 125,295 beneficiaries, including 67,659 women, enhancing water security and strengthening community-level climate resilience.

The successful completion of this project brought significant positive change to the rural communities in Salavan, Sekong, and Attapeu provinces of Lao PDR, with far-reaching impacts on resilience, livelihoods, and well-being. By conducting 11 Climate Risk and Vulnerability Assessments (CRVA) at the provincial, district, and village levels, the project has enabled communities to identify and understand their specific climate risks. This process has allowed communities to co-design tailored and integrated solutions that address each community's unique challenges, ensuring that resilience strategies are effective and also relevant to local needs.

Similarly, the development of 11 climate change action plans and 189 small-scale climate-resilient water supply systems significantly improves water security in the region, a vital resource for economic diversification and improved well-being. These water systems are particularly benefitting women who have traditionally spent long hours fetching water from

Figure 2 - A village woman using water from the new water supply system to water vegetables in her kitchen garden *(Source: UN Habitat)*

distant sources. By reducing this burden, women have more time to engage in other activities, such as income-generating work and personal development ultimately improving their dignity and quality of life. With less time spent collecting water, women can engage in more productive activities like smallholder vegetable farming, which has the potential to diversify household incomes and empower them. economically. Figure 2 shows an elderly woman engaged in vegetable farming with access to water.

A resident of Attapeu province remarked:

> ***"The water supply has improved our livelihoods in many ways. We no longer need to travel 30 minutes to an hour to collect water from the river. It is now much more convenient, as we no longer have to carry heavy water over long distances. We have more time to do other activities."***

Additionally, the establishment of community water groups in all 189 settlements provides the necessary skills and knowledge for locals to ensure the proper operation and long-term maintenance of the water systems. This promotes sustainability, ensuring that the water systems remain functional and continue to serve the communities for years to come.

Prior to this project, most people within the benefiting provinces depended on untreated wells or other unreliable water sources, which led to waterborne diseases. With the introduction of climate-resilient, safe water systems, communities now have access to cleaner water, significantly reducing the risks of water-related illnesses. This access to safe water improves overall health, particularly for children and the elderly, and will ultimately contribute to a better standard of living.

In summary, the project has had a far-reaching impact on the daily lives and long-term well-being of rural communities in Salavan, Sekong, and Attapeu. The project's outcomes are a step towards a more sustainable, resilient, and thriving future for these communities.

KEY FEATURES OF THE PROJECT

Sustainability of the project

Knowledge management and dissemination for long-term impact

During the PMM mission, it was observed that the project benefits from a robust and well-curated knowledge management system, including a comprehensive repository of resources that is easily accessible to the public. Each publication has received an average of over 1,800 downloads, reflecting strong interest and the broad relevance of the project's outputs. This high level of engagement highlights the value and credibility of its knowledge products.

The project's findings and impact stories have also received considerable attention through mainstream media coverage, with several features appearing on the front pages of national and local newspapers. This visibility has significantly contributed to increasing public awareness and enhancing understanding of climate-integrated urban planning solutions. In addition, the strategic use of social media platforms has created new channels for public engagement. These platforms have enabled the project team to share real-time updates, communicate results via accessible formats, and provide unique insights into the project's on-the-ground impact, further amplifying its reach and resonance with wider audiences.

Importantly, the project's knowledge management efforts have not only supported data-driven decision-making but also fostered cross-sector collaboration. By disseminating its findings across multiple channels, the project has helped catalyze dialogue among stakeholders from government, academia, civil society, and the private sector. This wide-reaching dissemination enhances transparency, strengthens stakeholder networks, and lays the foundation for scaling up successful approaches in other regions.

Figure 3 - Women participation in the environmental and social risk assessment of the project

Fostering local ownership and embedding sustainability

The project placed a strong emphasis on the co-creation of project components, the implementing and executing entities, district authorities, and local communities, ensuring their active participation at every stage. This approach has facilitated smooth project implementation, while also enabling shared access to technical knowledge and resources for the design and construction process. Additionally, involving communities from the outset has been central to the project's success, fostering a strong sense of ownership. By engaging local actors in every stage of implementation, expertise remained embedded within communities. For instance, community water groups play a crucial role in ensuring the infrastructure and systems developed are maintained and sustained over time. To further embed sustainability, the project also introduced water metering and affordable user fees, which not only encourages responsible usage but also creates a locally managed fund for ongoing system maintenance and repairs.

Inclusive and data-driven approach

Equally important was the consultation with women's groups, including the Lao Women's Union, ensuring that women were not just beneficiaries, but active decision-makers in the project. This empowerment of women in climate resilience initiatives helped integrate their unique perspectives and needs into the design and implementation of solutions. For example, women were actively consulted during the project's implementation to assess environmental and social risks and to determine effective mitigation actions (see Figure 3). As a result of the strong participation of women, this project was recognized with the 2025 UN Habitat Gender Award, as one of the three leading gender-responsive projects evaluated across the UN-Habitat. This underscores its commitment to gender mainstreaming and women empowerment in climate adaptation efforts. Furthermore, the project identified and targeted the most at-risk communities through a data-driven Climate Risk and Vulnerability Assessment (CRVA) model. As a result, a vulnerability index map was developed, disaggre-

Figure 4 - The project introduces an innovative framework that supports the development of climate-resilient and sustainable town planning *(Source: UN Habitat)*

gated by key dimensions such as age, gender, and disability, which assessed exposure and sensitivity to climate hazards and ranked villages from least to most vulnerable (more on this in section 5.4). By addressing the specific needs of the most vulnerable groups, including women and marginalized communities, the project promoted inclusive resilience and strengthened climate adaptation.

Local partnerships, global impact: driving cost-efficient climate adaptation

The project's partnership model with communities and local government institutions was key to significantly reducing implementation costs. By strategically optimizing the use of available resources, leveraging the institutional capacity of local entities, and fostering strong community engagement, the project was able to achieve impressive cost efficiencies. For example, small-scale water infrastructure systems utilize Hydraulic Ram Pumps, which harness gravity to pump water without electricity or fuel, thereby minimizing long-term operational costs. In addition, the project's design incorporated other cost-effective solutions, such as gravity-fed water systems and solar-powered boreholes, which provide reliable access to water without the high operational costs associated with conventional infrastructure. Community members were also contracted and trained to provide semi-skilled and skilled services, including excavation and basic construction, further reducing costs while building local capacity. By combining resource optimization, community involvement, and appropriate technology, the project sets a strong example for future initiatives, demonstrating how climate resilience strategies can be affordable and scalable. This approach not only offers a model for minimizing costs but also provides a framework for embedding sustainability and cost-efficiency in future climate adaptation projects.

Pioneering innovative tools and approaches for climate adaptation

A standout feature of the project is its use of innovative methodologies and frameworks to support climate-resilient planning and decision-making at the local level (Figure 4). Central to this effort was the development of the CRVA Model, the first of its kind in Lao PDR to provide integrated, multi-hazard mapping at the settlement level. This model was applied across 189 villages in the provinces of Saravan, Sekong, and Attapeu, helping identify priority areas for adaptation investments based on scientific and community-validated data. The CRVA process combined

hydrometeorological data, geospatial analysis, and community consultations to ensure both technical accuracy and social relevance. Data was collected through tablet-based surveys, with trained enumerators engaging local communities to gather inputs on exposure, sensitivity, and adaptive capacity. These assessments also incorporated local knowledge and traditional strategies, enriching data-driven scientific analysis with on-the-ground realities. These elements not only delivered tangible local outcomes but also set a precedent for forward-looking, climate-resilient development planning.

Another innovative aspect of the project was the digitization of climate vulnerability data. The project led to the creation of an interactive online hazard dashboard and infographic-generator making complex data accessible and usable for local governments, planners, and community members. The dashboard enables users to visualize climate risks and vulnerabilities, fostering better-informed planning and prioritization of adaptation actions. The project also incorporated a vulnerability index, which ranks villages from least to most vulnerable based on key criteria such as climate exposure, social sensitivity, and infrastructure readiness. This index has since been scaled up into comprehensive national climate change vulnerability planning, setting a benchmark for data-driven resilience planning in Lao PDR.

Capacity building, strengthening local ownership and technical know-how

A key pillar of the project's success lies in its strong emphasis on capacity building at the institutional and community levels. By prioritizing knowledge transfer and local empowerment, the project ensures that the infrastructure developed is not only technically sound but also locally owned and sustainably managed. Throughout implementation, targeted training and technical assistance were provided to district-level water authority staff equipping them with the skills to carry out preliminary system designs and better understand climate-resilient water infrastructure. This hands-on approach allowed knowledge and experience to be effectively transferred to local government officials and consultants, enabling them to independently manage future water supply projects. At the community level, residents actively participated in the construction process, gaining practical skills in excavation, basic construction, and infrastructure development. This direct involvement fostered a strong sense of ownership while also ensuring that community members are equipped to support the maintenance and sustainability of the systems in the long term. Through this multi-tiered capacity building strategy, the project leaves behind more than infrastructure; it cultivates local champions, technical knowledge, and institutional confidence to support continued adaptation beyond the project's lifespan.

LESSONS LEARNED

Successful projects can drive additional climate finance and action

The success of the project has played a catalytic role in driving both climate finance and action. By demonstrating effective, scalable climate adaptation solutions, it has not only attracted additional funding from other climate funds but also laid a strong foundation for influencing future programming and policy development. By informing adaptation strategies, the project contributes meaningfully to Lao PDR's national development and climate priorities, reinforcing the country's commitment to the Sustainable Development Goals (SDGs), particularly SDG 6 (Clean Water and Sanitation) and SDG 13 (Climate Action). This alignment supports national climate resilience efforts and positions the project as a model for integrated, inclusive development, inspiring broader climate adaptation programming within and beyond Lao PDR.

Community ownership and capacity building are catalysts for sustainability

One of the strongest lessons from the project is the transformative role of community engagement. Constant consultation with target communities and their involvement in decision-making significantly enhanced local ownership and buy-in. Community members not only contributed to identifying local needs and shaping solutions, but they were also engaged in implementation activities, such as construction, directly influencing outcomes on the ground. From district engineers to village contractors, capacity-building efforts ensured that local stakeholders developed the expertise required for system design, construction, and maintenance. This hands-on approach fostered a sense of ownership, enabling local communities to become stewards of their own infrastructure thereby contributing to both the success and sustainability of the interventions. The project demonstrated that empowering local communities and government institutions with the skills and knowledge needed to manage climate-resilient infrastructure is essential for sustainable impact.

Effective decentralization is a key driver for cost-efficient delivery

Working directly with provincial and district-level government entities emerged as a particularly effective strategy. Compared to centralized bodies, provincial departments such as the Department of Public Works and Transport (DPWT) proved more efficient, less bureaucratic, and better placed to deliver locally relevant solutions. By involving these entities in all stages, from planning to procurement and implementation, the project strengthened institutional capacity, encouraged co-creation, and leveraged existing government infrastructure and networks. DPWT staff learned by doing through their involvement in transparent and accountable bidding processes, with oversight from UN-Habitat ensuring quality and cost-efficiency. This model of government collaboration demonstrates long-term value for capacity building and institutional sustainability.

Context-specific, scalable technologies and innovative solutions can lead to better outcomes

The project effectively deployed simple, low-cost technologies that were well-suited to the geographical and socioeconomic context. Hydraulic ram pumps, gravity-fed systems, and solar-powered boreholes minimized energy costs and maintenance demands while delivering critical climate-resilient services. Their success shows that innovation does not always require high-tech solutions. These technologies not only met the immediate needs of the communities but also provided scalable solutions that could be replicated across similar contexts, driving broader regional impact.

Harnessing data and local knowledge can lead to tailored, impactful solutions

The use of the CRVA model was a breakthrough in integrating scientific data with local knowledge. This multi-hazard mapping tool developed at the settlement level combined geospatial, climate data with community-based consultations to create highly localized and actionable outputs. The CRVA not only informed targeted investments but also helped prioritize vulnerable communities, ensuring that interventions were precisely tailored to the needs of each

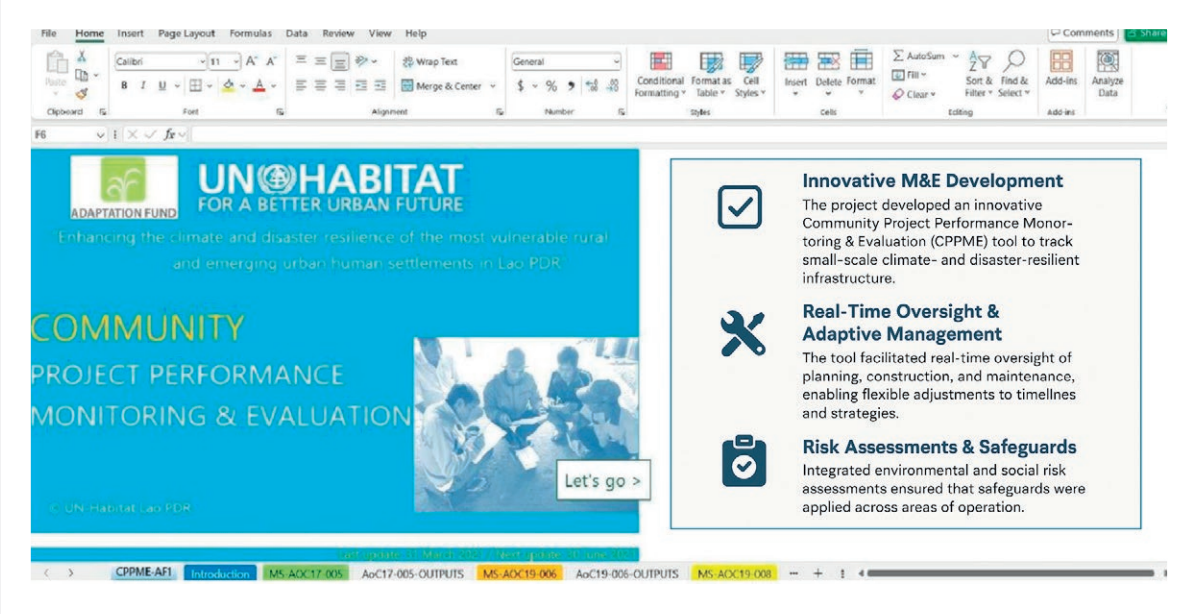


Figure 5 - CPPME Tool

village. This combination of data-driven planning and local insights set a foundation for effective, context-specific climate adaptation strategies.

Leveraging real-time monitoring and adaptation leads to continuous improvements

One of the project's key innovations in monitoring and evaluation was the development of the Community Project Performance Monitoring & Evaluation (CPPME) tool (Figure 5). This tool enabled real-time oversight and adaptive management and was specifically designed to track the planning, construction, and maintenance of small-scale climate- and disaster-resilient infrastructure, particularly water supply systems. By integrating environmental and social risk assessments, the CPPME helped ensure safeguards were applied across all areas of operation. It also supported flexibility, allowing project teams to adjust timelines and implementation strategies in response to evolving challenges. The tool was used in conjunction with a result tracker, which enhanced coordination and kept project data current, thus empowering local partners to take ownership of monitoring activities. The success of the CPPME tool highlights the importance of continuous monitoring and adaptability in overcoming challenges, ensuring that the project remains on track despite unexpected delays or obstacles.

Cross-sectoral interventions can lead to long-term resilience benefits

While the project's core focus was on water access, its success revealed opportunities to expand into related sectors such as sanitation, hygiene promotion, forest conservation, and climate-resilient livelihoods. By establishing water access in 189 communities, the groundwork has been laid for broader development benefits, from improved health outcomes to environmental protection. This integrated approach reflects a growing consensus that addressing climate risk requires cross-sectoral collaboration and holistic interventions that go beyond isolated infrastructure delivery.

SEE MORE ABOUT THE PROJECT HERE

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