# Establishing a Knowledge Hub and Building Capacity on Urban Ecosystem-Based Adaptation (EbA) in Lao PDR

# PROJECT SUMMARY

## Background

Water Sensitive Cities Australia (WSCA), a multidisciplinary research-to-practice partnership within the Monash Sustainable Development Institute, is working with government and academic organisations in Lao PDR to restore natural flood protection processes and build local capacity.

This project is supported by the Green Climate Fund through the United Nations Environment Programme, and delivered by the Ministry of Natural Resources and Environment (MONRE), the National University of Laos (NUoL) and Water Sensitive Cities Australia. This component is part of the larger GCF project on Building resilience of urban populations with ecosystem-based solutions in Lao PDR.

The project considers urban streams and wetlands in 4 areas.

Vientiane and Paksan have a wetland focus:

1. In Vientiane the focus is on awareness raising.
2. In Paksan, flooding is largely caused by vegetation choking at the outlet and since the project removed them, the wetland outlet has operated adequately. Backwater flooding from the Mekong is controlled by flood gates.

Pakse and Savannakhet are focusing on urban stream rehabilitation.

## Key points

The Monash team working with NUoL and Department of Climate Change (within MONRE) will produce:

1. Guidelines on urban wetland stream remediation, rehabilitation and restoration developed with NUoL will include different types of urban wetland and stream typologies, and associated design approaches depending on priority ecosystem services and functions identified through a government- and community-codesign process.
2. A research and knowledge hub roadmap, which includes envisaging the growth trajectory of the knowledge hub over time that would include participation across broader disciplines within the university, and industry and government stakeholders.

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These outputs reflect the following considerations:

- Rehabilitation, remediation and restoration of urban streams and wetlands occurs on a spectrum – it is not always necessary (or possible) to return to pristine conditions, so it is important to differentiate between terms.
    - Restoration – return an area to full health
    - Rehabilitation – enhance or rehabilitate a degraded natural system to preserve the ecosystem services within the context of changing land use at the basin-scale
    - Remediation – move to a different state in response to changed and changing land use conditions that have significant impacts on the fundamental drivers of ecological health in these systems. It often requires significant physical work that is often expensive.
    - Ecosystem management can also include protection in anticipation of changing catchment and site conditions – which is the simplest and cheapest option. Protection initiatives require zoning and land use designations, planning policies and appropriate conditions for development approvals that usually require different and less resources and investments, and has better coverage at a basin-scale.
- The complexity of ecological systems, and how all parts interact, should be understood and not overly simplified in developing the guidelines, to avoid the risk of maladaptation. Even though each site is different, the same questions can be asked, and then the different answers can inform how to manage the site. The guideline will support high level planning and municipal implementation.
- Understanding the relationship between nature and humans is an important key element framing restoration strategies. It includes how these ecosystems are used and accessed by different groups such as ethnic minorities, women, peoples with disabilities etc. Other factors to consider include land tenure arrangements, access to migratory fisheries and recapture fisheries (beyond aquaculture), etc.
- The guidelines will include design criteria for various wetland and stream typologies, and what is needed to carry out the design. They will provide the science needed to make decisions, but the actual decision depends on the socio-political environment.
- The guidelines will facilitate planning of wetland systems consisting of a combination or mosaic of wetland typologies such as a recreation wetland buffer for conservation wetland area and a treatment wetland buffer for the productive wetland area. Similarly, stream condition changes from within a city to the upstream or downstream; the whole stream doesn't have to have the same ecological value. The wetland and stream typology need to be decided through community consultation.
- No one group or discipline can fully undertake a natural system remediation project; it requires collaboration which can be expanded over time. A starting point for the Knowledge Hub is to have a clear focus such as urban EbA and water management, and use the guideline development as a platform for sharing ideas. Examples from the UNEP GCF project to illustrate how the guidelines can be applied, but they will be broader than the project sites.