Webinar on Nature-based Solutions to Emerging Water Management Challenges in the Asia-Pacific Region

A case study of Lao PDR

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Nature Based Solutions

"Nature based solution as a concept is built on and closely related to ecosystem based interventions for sustainable mitigation and adaptation solutions"

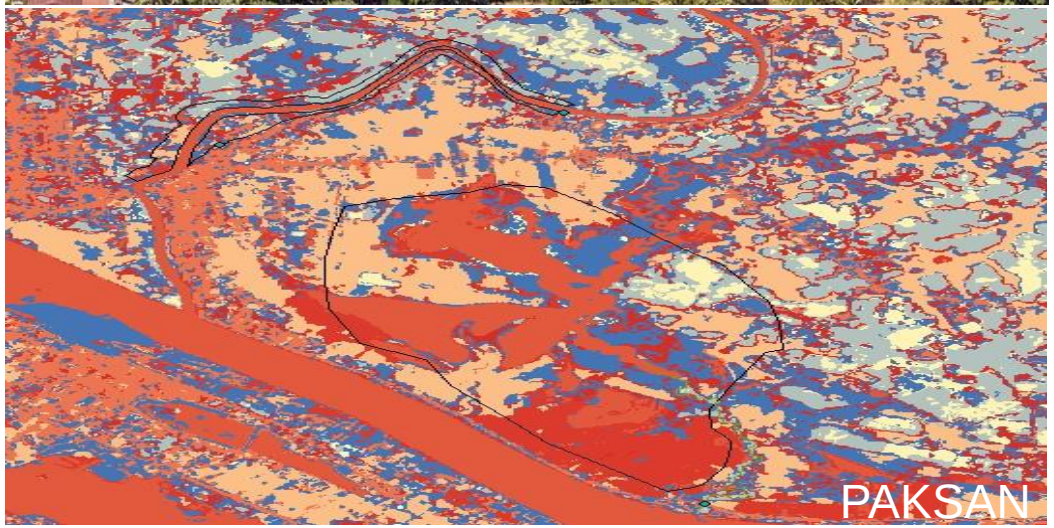
- Aims to provide solutions for variety of issues in a environmentally sustainable manner.
- The idea is to mimic the way the nature cope with the environmental stresses and replicate the same to improve the socioeconomic and environmental resilience

Designing ecosystem-based solution for building resilience of urban populations in Lao PDR

Objective of the Study:

- Provide technical assistance for suitable ecosystem-based adaptation options for 6 cities in Lao PDR for flood management
- Engineering design for ecosystem-based SUDS for flood management

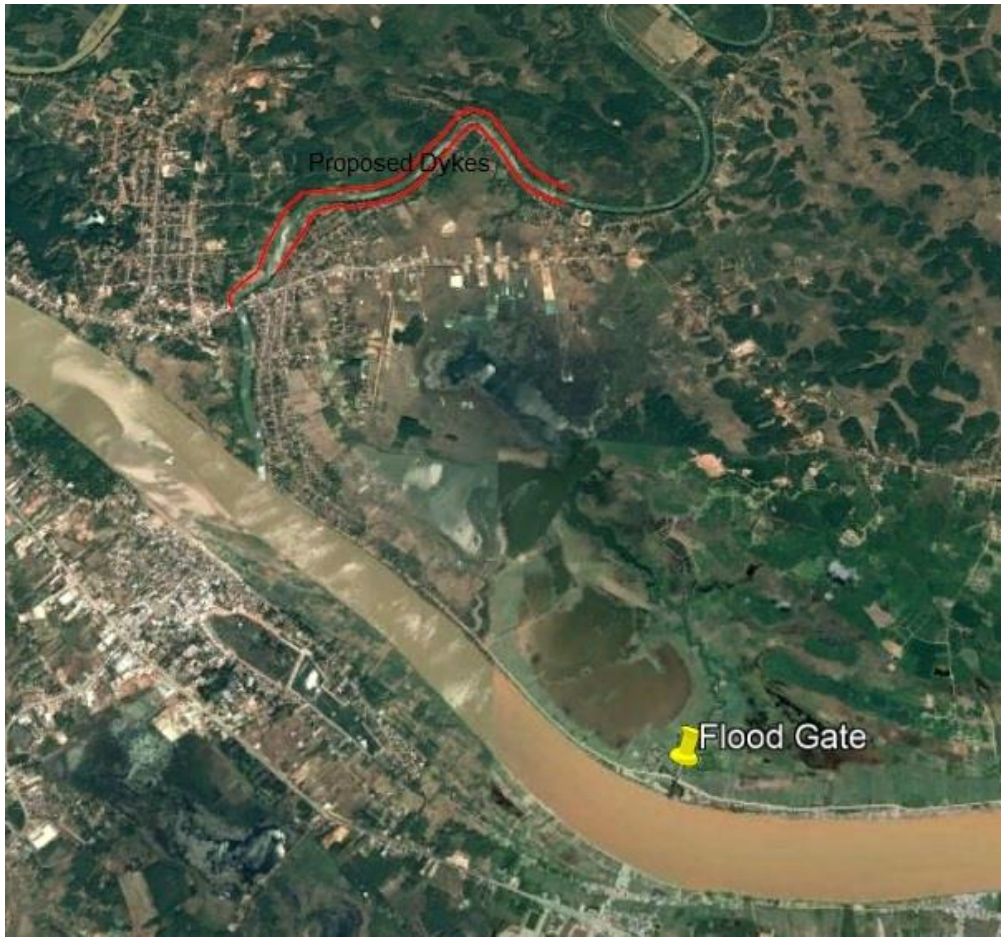
  - Luang Prabang,
  - Vientiane,
  - Paksan,
  - Thakek,
  - Savannakhet and,
  - Pakse)



Proposed NBS for Flood management in Lao PDR

The selected cities are prone to frequent pluvial and fluvial flooding

- Estimated Economic loss: US$400 million in past 40 years
- Heavy rainfall results in flash floods in urban and peri-urban streams and canals.
- Backwater flow in 4 cities from the Mekong River prevents urban streams and canals from draining adequately.
- When the Mekong River water levels rise, floodwaters cannot drain into the river and water remains stagnant.



Proposed NBS for Flood management in Lao PDR

The Case City: Pakse

NBS Proposed: SuDS

- Widening the channels to improve conveyance and restoring the stream's natural characteristics.
- Modify the channel with natural materials such as stones and grass to stabilise the banks.
- Walkways and running paths is proposed along the improved stream to provide recreational co-benefits to the residents
- Retention pond for storage and Peak Attenuation
- Other NBS options proposed were: Reforestation, dikes, wetland conservation, diversion channel etc.

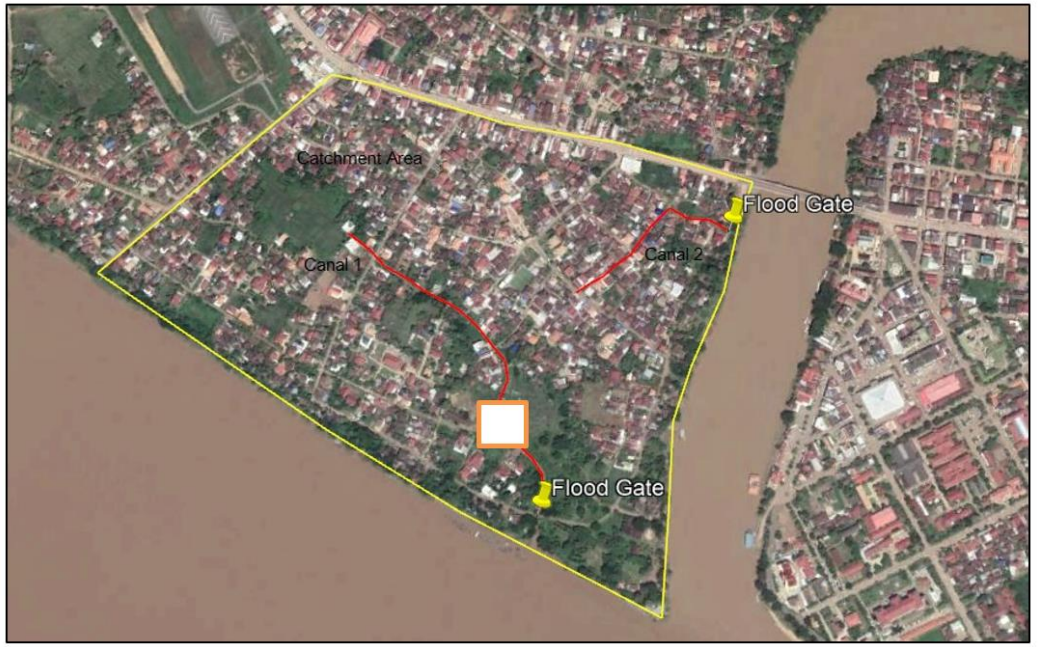


Figure 1 Catchment area and selected sites for Retention pond

Catchment and Natural Drainage Characteristics:

- The catchment area of 60 hectares is situated south east of the Airport.
- The catchment has diverse land use with almost 85 % of impervious surface, rest is vegetated surface with large plants and grasses, open and water bodies.

Proposed NBS for Flood management in Lao PDR

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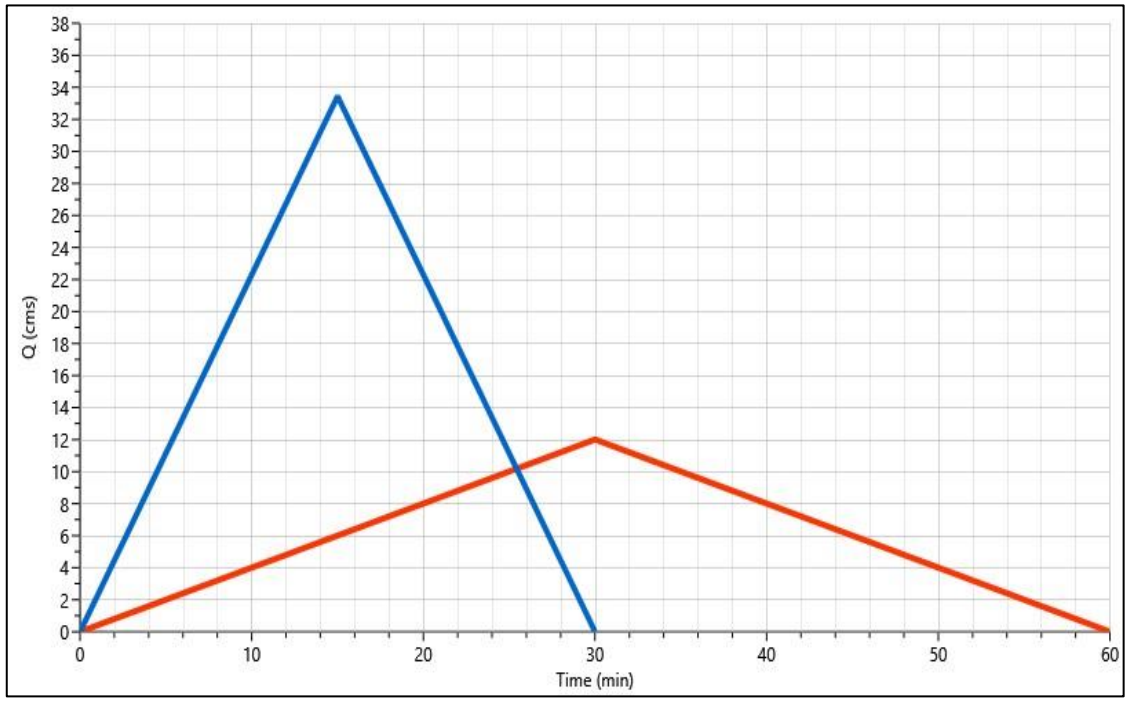
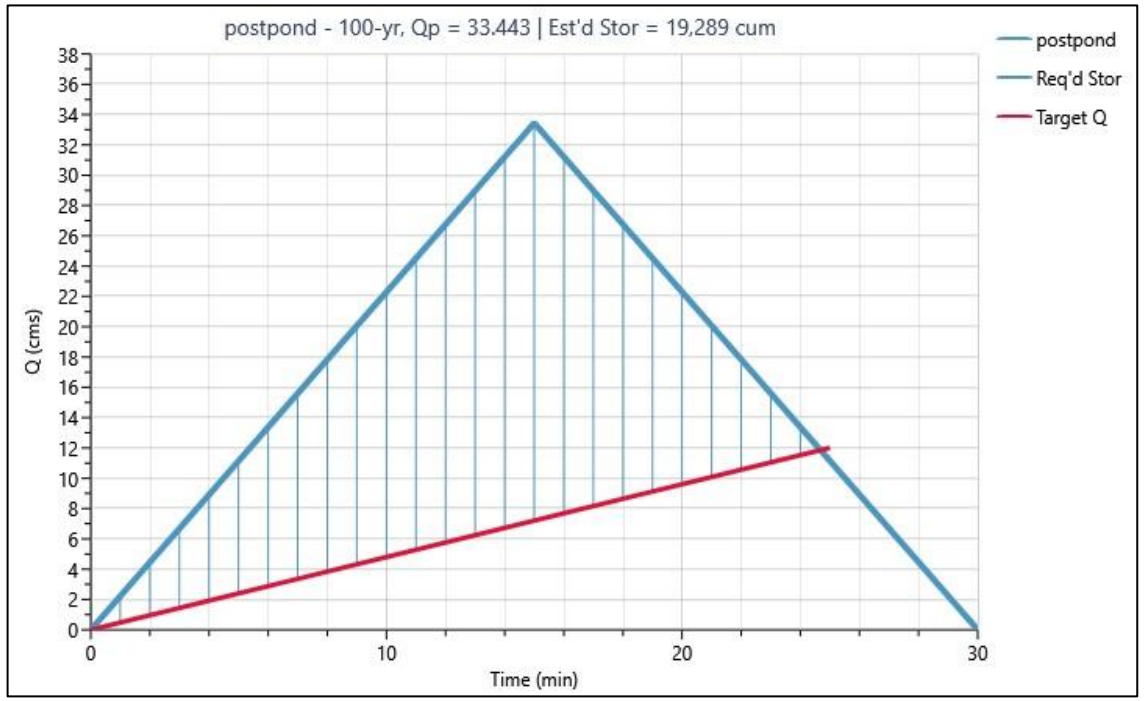


Pre and post development hydrograph



Storage Hydrograph

Pre-requisites for successful NBS interventions

- The proposed NBS Interventions must not affect the resident population or their livelihoods in any way
- The proposed interventions should be on public land in consultation with all relevant stakeholders, however if at all, private lands are required the due process for land requisition should be followed as per the local regulations and with due community engagement
- A grievance redressal mechanism will also be put in place
- Many a time there has been no formal community engagement in the development of the proposal. It is advisable to involve communities and local residents for ensuring public participation in decision-making
- Technical Feasibility of interventions needs to be evaluated based on scientific assessments
- Climate, topographic and meteorological and hydrological data are the base for designing NBS for mitigation and adaptation options for extremes, good quality with optimal coverage of these data sets is a measure challenge in accurate assessments required for NBS

NBS scale up actions

- Evidence Building for co-benefits and enhancing the visibility of NBS
- Research on new NBS and demonstration of their effectiveness
- Establish facts on economic gains achieved through NBS
- Mainstreaming NBS in development agenda and disaster management policies
- Promote actions for awareness generation, capacity building and training on NBS
- Take strategic advantage of growing appreciation of the benefits of NBS
- Integration of NBS in all CCAM activities
- Financing opportunities for NBS




Thank You

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