The Adaptive Watershed
Training program for inclusive, ecosystem-based watershed management
Module 6
Non-Climatic Stressors and their Impacts in the Watershed
Learning objectives

After completing this module, you will be able to:

1. Gauge the impact of non-climatic stressors on ecosystems and ecosystem services in the watershed.

2. Analyze and list the indirect impacts from non-climatic stressors on land use activities and vulnerable social groups.
Key questions to be answered

What are the non-climatic stressors in the watershed?
What are the impacts of non-climatic stressors on ecosystems and ecosystem services?
What are the direct impacts on land use activities and vulnerable groups?
Non-climatic stressors

“Non-climate drivers, such as land use, land degradation, urbanisation and pollution, affect systems directly and indirectly through their effects on climate. These drivers can operate either independently or in association with one another.” (IPCC, 2007)

Examples:

- Land use change
- Migration
- Political instability
- Population growth
- Unsustainable development
- Overfertilization
- Lack of education
Nexus of climatic and non-climatic stressors

Climate Impacts

Urbanization
Health
Migration
Illegal resource harvesting
Conflict
Volatile market prices
Population growth
Resource competition

Module 6: Non-Climatic Stressors and their Impacts in the Watershed
Climate change and non-climatic stressors

- Efforts to improve adaptation to future climate change at local levels must give attention to the nexus of both climatic and non-climatic stressors.

- Stressors from human activities or natural phenomena can degrade ecosystems immediately and over time.

- To select the right management strategies, understanding impacts is essential to ensure that interventions are aimed at the highest-priority stressors. Reducing non-climate stressors can make ecosystems more resilient to climate change.
Activity: Non-climatic stressors in our watershed (15 min)

In small groups, discuss and create a list of what non-climatic stressors have an impact on the watershed.

Examples: overfishing, dam construction, migration, political instability
Activity: Impacts on ecosystems and ecosystem services (15 min)

In a next step, identify the impacts on ecosystems and ecosystem services from these non-climatic stressors.
Examples: pollution, erosion, less fish population
Understanding the vulnerability of our watershed

Vulnerability of coupled human and environment system

Image adapted from: WWF. (2013). Operational Framework for Ecosystem-based Adaptation. Implementing and Mainstreaming Ecosystem-based Adaptation Responses in the Greater Mekong Sub-Region

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Activity: climate change and the identified impacts

• In small groups, discuss if and how climate change may exacerbate these identified impacts on ecosystems, as well as the impacts on people’s livelihoods and particular vulnerable groups that are more prone to the impacts.
• Provide a short report from your group discussion.