Agricultural Adaptation in the context of the Water-Food-Energy Nexus

Kim Geheb
Principle Scientist
Mekong Region Futures Institute
The Nexus

Water

Livelihoods

Energy

Food
Irrigation in Lao PDR

Nexus sequence:

Large HP reservoir with under-utilised water → Poverty in riparian areas → large-scale irrigation scheme → food production + incomes increased → poverty reduction and livelihoods improvement.

The Belief:

If
We invest in large-scale irrigation schemes.

Then
Poverty will be reduced.
Irrigation has only marginal effects on poverty
Industry employment effective to alleviate poverty
Land use planning, Vietnam

Nexus Sequence

Up-stream dams → reduced flows, reduced sediments, + SLR → increased saline intrusion → reduced rice harvest → food security + rice exports affected.
Beliefs

Hard Adaptation

If
We invest in large-scale sea-dykes and sluice gates to manage salinity levels.

Then
Livelihoods can be maintained, and national policy & food security targets met.

Soft Adaptation

If
We introduce new agricultural production strategies and land use.

Then
Salinity can be managed and SLR/salinity can be adapted to.
SLR by 30 cm
50,000 ha affected (of 1.8m ha)
120,000 MT less rice (out of 23m MT)

SLR 30 cm + dams + drought
500,000 ha affected
1,000,000 MT less rice
Hard Adaptation: Recommended Land-use changes

13,000 ha of land use change

US$ up to $8 billion
Hard + Soft Adaptation: Recommended Land-use changes

180,000 ha land use change

Up to 8 farming systems

Existing rice shrimp retained
Summary

- The WFE Nexus is a process to integrate water, food and energy planning, visioning and implementation.
- It looks to improve livelihoods via the application of integrated WFE solutions.
- Developing shared future visions is a crucial step to establish agreed objectives.
- Partners must co-design the problem, methods and criteria of success.
More info:


Thank you for listening!