



MUS in the Challenge Program on Water & Food

CPWF Management Team

MUS-Network Meeting
Rome, 24-25 August 2009

From CPWF Phase 1 to Phase 2

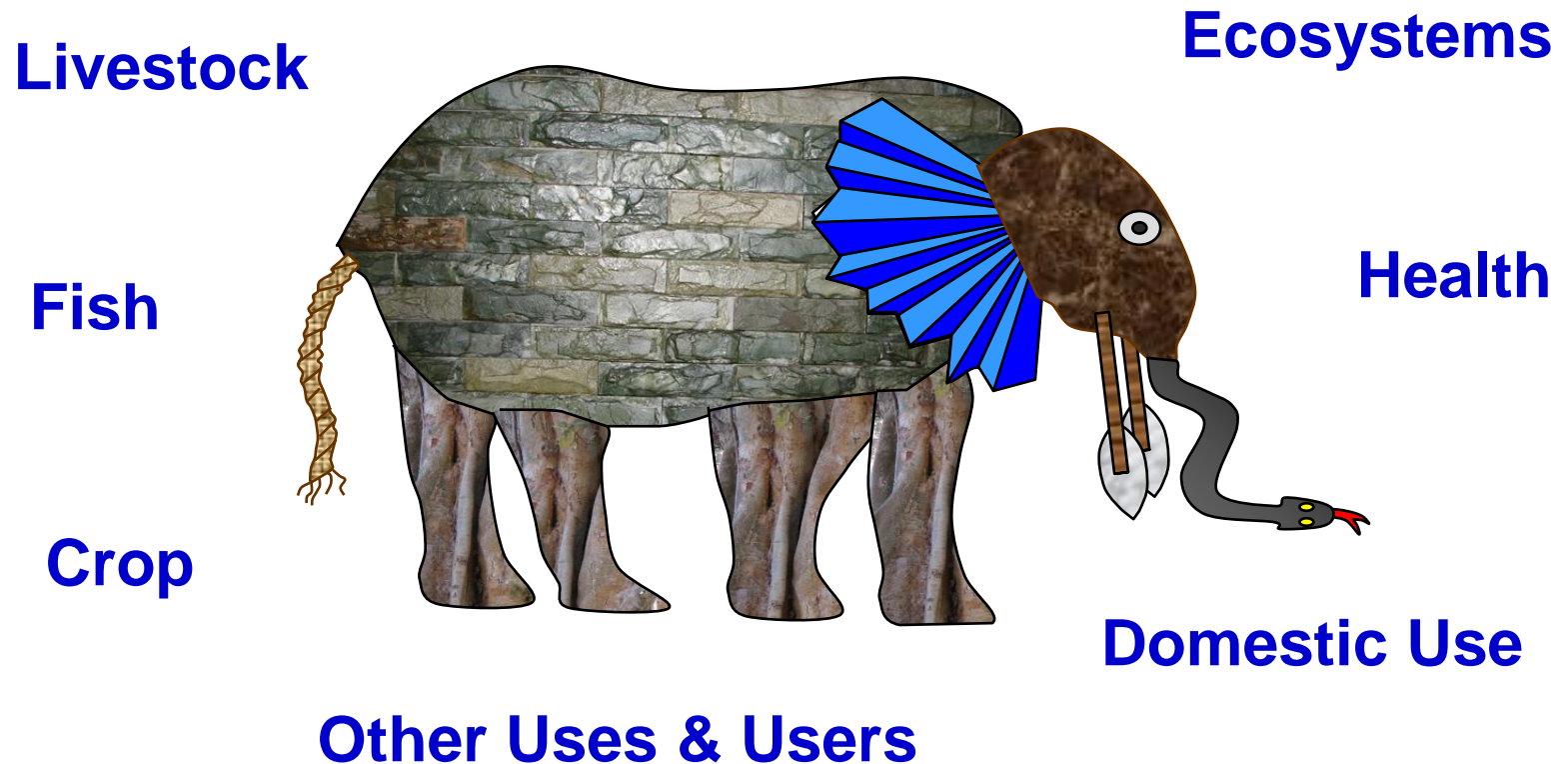
Management of Water Storage
for Multiple Uses and Users:
*The experience of the
CGIAR Challenge Program on Water and Food*

*Sophie Nguyen Khoa
and Project Teams: PN10, 25, 28, 37 & 46*

Stockholm World Water Week
19 August 2009

“Integrating the Unusual” in the Management of Water

CPWF International Forum on Water and Food - After Peden et al. 2006



Livestock Water Productivity in the Nile Basin: the Water-Food-Livestock Nexus



- **Improved livestock management** has provided opportunities to increase agricultural water productivity
- **Key strategies:**
 - Feed sourcing based on water productive vegetative material
 - Improved animal husbandry, health, genetics and nutrition
 - Water conservation practices to reduce contamination and degradation of water
 - Optimal spatial balance of feed and drinking water sources

Fresh/Brackish Water Management in the Mekong basin



- Vietnamese River Systems and Plains (VRSAP) Model
- Provincial Land Use Policy: viewing saline and brackish water as a resource and opportunity rather than a constraint to food production
- Participatory extension approach: assists farmers select appropriate technologies



“Rice house”



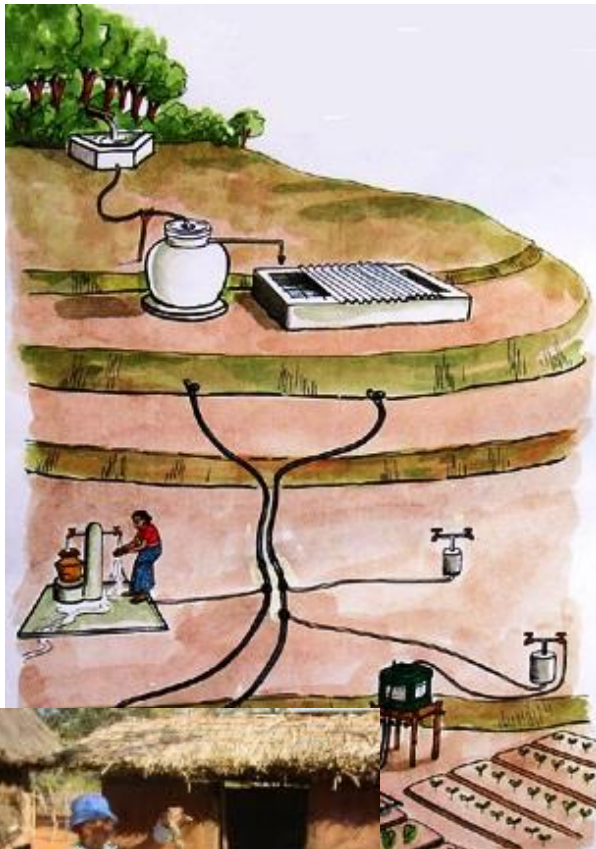
“Shrimp house”

- Diversification of production systems and livelihood strategies
- Demonstration site farms made approximately \$250 US/ha/year more than the controls.

Multiple Use Systems

Nile, Limpopo, Andes, Indus-Ganges, Mekong

Promoting 'climbing the MUS Water Ladder'



Van Koppen *et al.*
2006; 2008;
www.musproject.net

Service level	Volume (lpcd)	Water needs met
High MUS	100-200	All Dom needs; Garden, Trees, Livestock & Entpse
Intermediate MUS	50-100	All Dom needs; Garden, Trees, Liv. or small Entpse
Basic	20-50	Consumption ok; Hygiene low, basic Liv., Trees
Basic Domestic	<20	Cons. just ok; Hygiene too low, no PDive use

- Targeting 50-100 lpcd or more (3 lpcd safe w)
- Cost-benefit ratios at homestead level
- Accompanying measures (hygiene, integrated farming, markets, etc.)

Small Reservoirs Project (SRP) in the Volta and Limpopo Basins



Reservoirs ensemble

Major scales:

- Basin/catchment
- Community/household



SMALL RESERVOIRS TOOLKIT

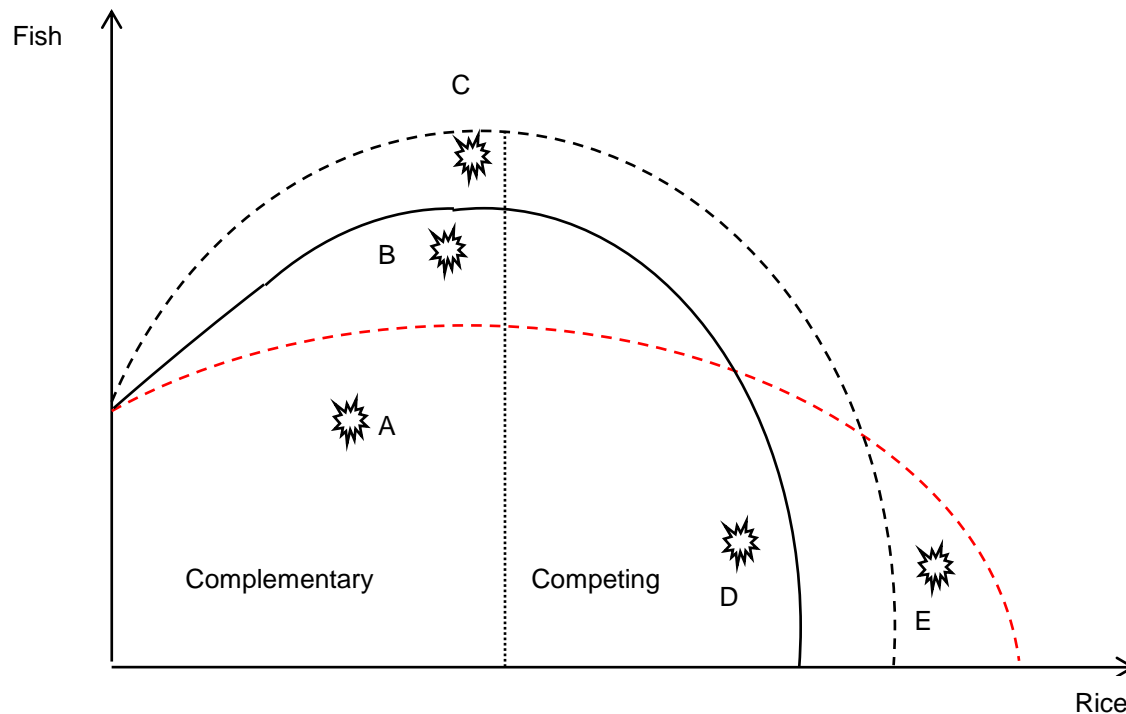
Around 30 tools & techniques
in 4 main areas:

- Intervention Planning
- Storage and Hydrology
- Ecosystems and Human Health
- Institutions & Economics including:
 - Water Allocation
 - Governance



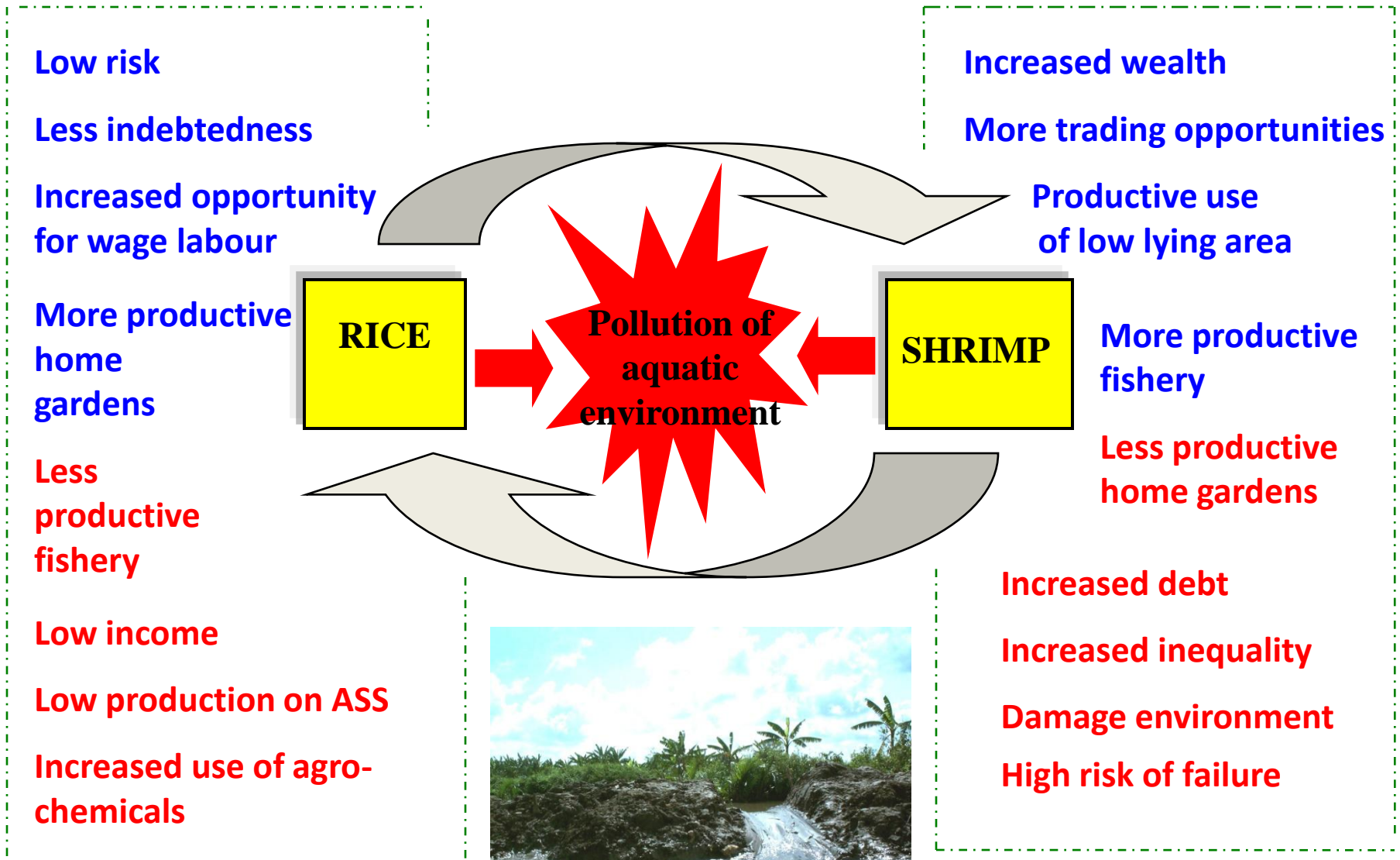
Re-Focusing the Discourse of Agricultural Multi-functionality

Fishing in the Asian Monsoon Paddy Fields



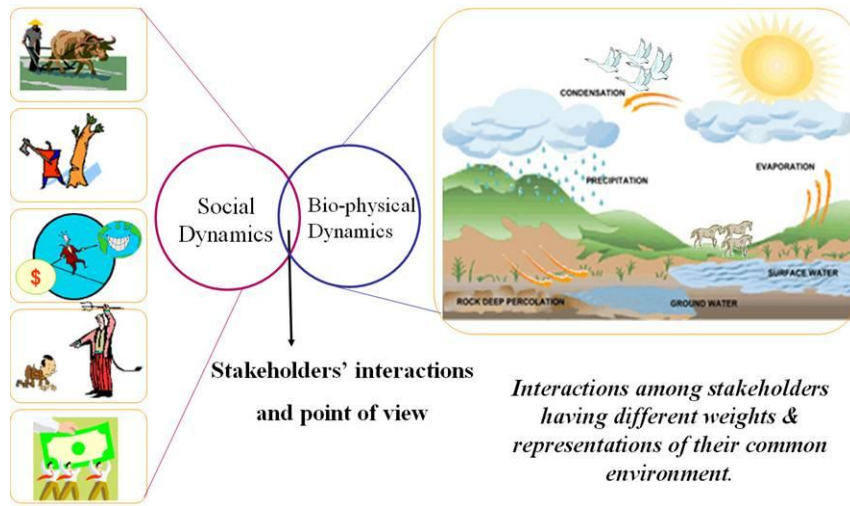
Source: IWMI/WorldFish, CPWF Theme 3 - Nguyen-Khoa & Smith, 2008

Freshwater environment ← Social Conflicts → Brackish environment



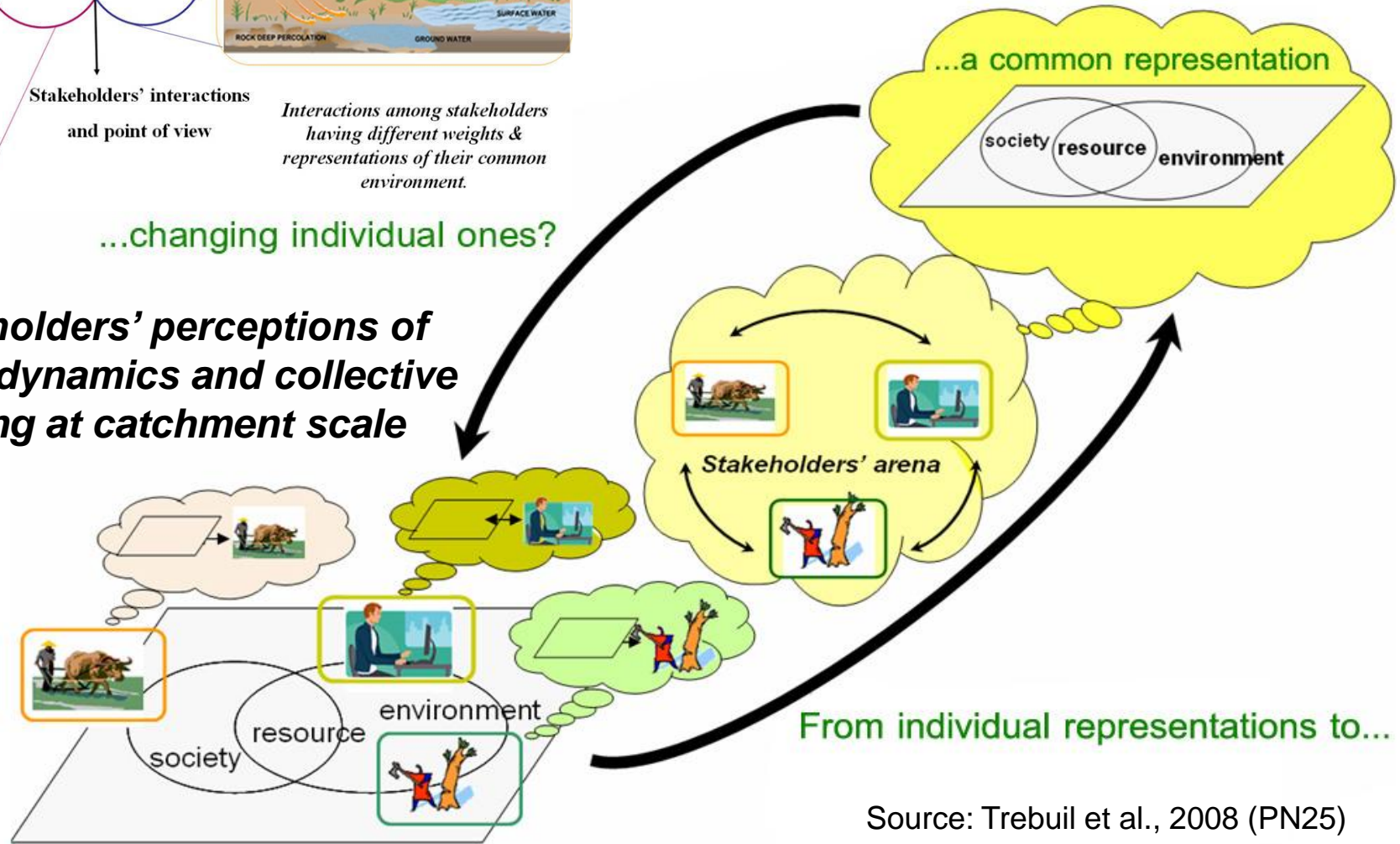
After: Tuong et al. 2008 (PN10)

Companion Modeling for Resilient Water Management



...changing individual ones?

Stakeholders' perceptions of water dynamics and collective learning at catchment scale

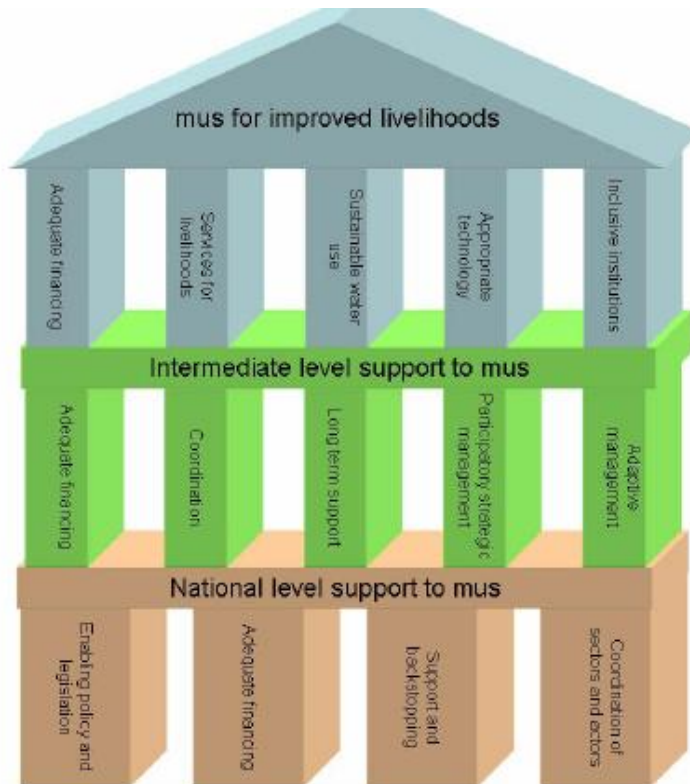


From individual representations to...

Source: Trebil et al., 2008 (PN25)

How to model & integrate different stakeholders' perceptions for collective action?

MUS Framework: from Local to National Scales



- **Multi-stakeholders governance platforms and negotiation** support tools for water mgt & up-scaling
- **“Learning Alliances”** at multiple levels: interlinked platforms of diverse stakeholders
- **Building upon communities’ IWRM**
- **MUS in a Watershed**
E.g. combined domestic and livestock water use in Ethiopia, Tigray region: water treatment gallery, washing slabs and livestock watering points

Proposed Research Areas, CPWF Phase 2: 2009-2013

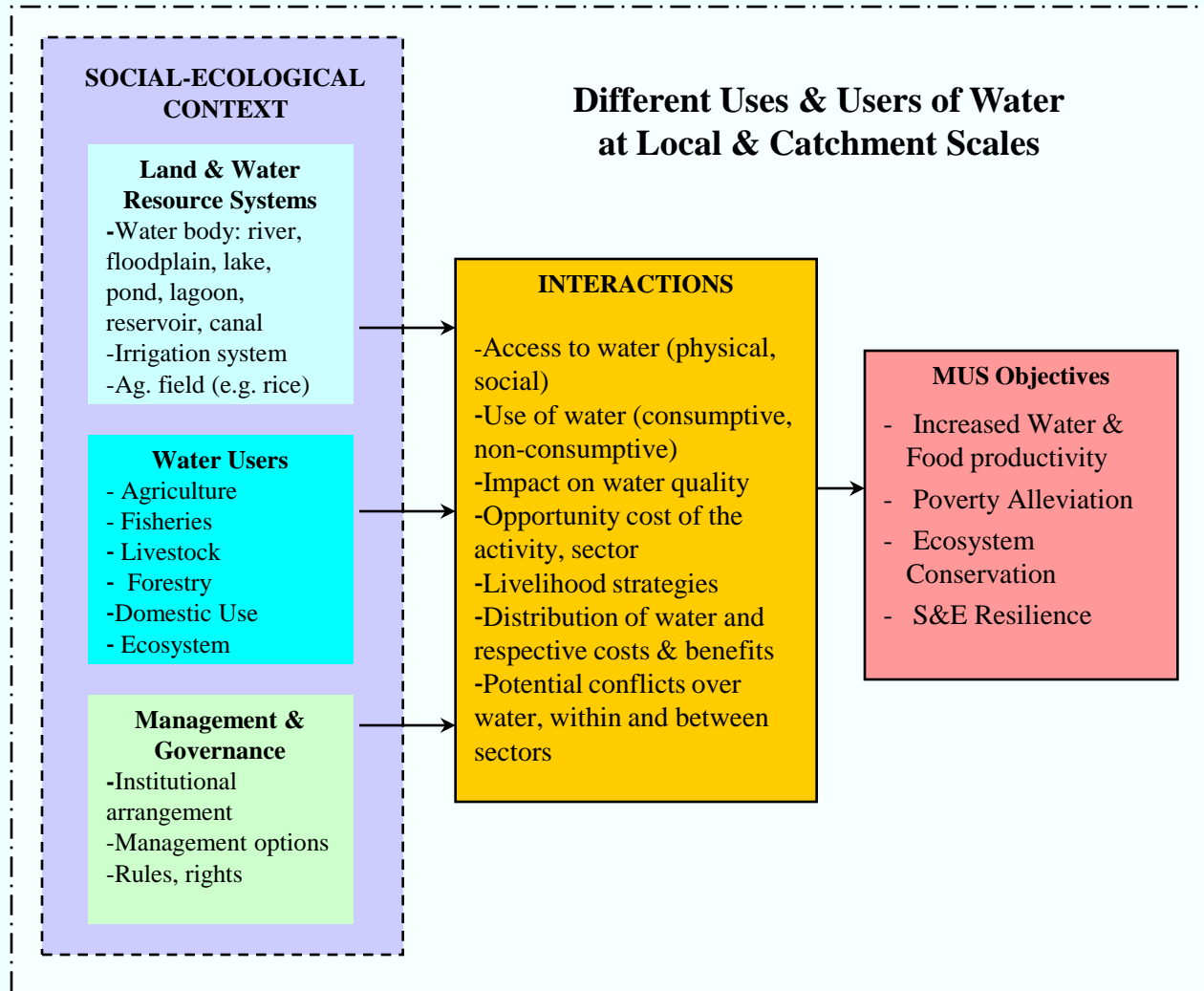


- Characterization and diagnosis of MUS costs and benefits; identification of factors of success across basins
- Assessment and management of MUS water quantity, quality and timing
- Improvement MUS technical performance (design, operation)
- Social-ecological evaluation of trade-offs
- Enabling policies and institutions at local and catchment scales

External Drivers and Pressures at River Basin & Global Scales

Water Allocation and Benefit Sharing at River Basin Scale

Proposed MUS Conceptual Framework



Some information on CPWF Phase 2

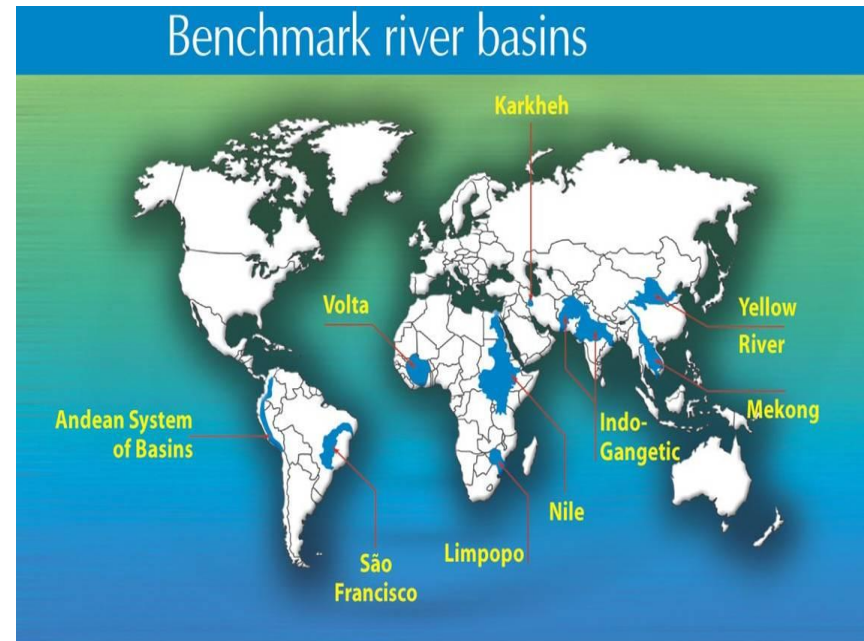
- Information in this presentation is preliminary
- Basin challenges and projects are described more fully in the Medium-Term Plan 2010-2012 (posted on CPWF web site)
- Announcements and information on contracting to be posted in early July



**HOW IS PHASE 2 DIFFERENT FROM
PHASE 1?**

Number of basins

- Phase 1
 - 10 basins, including BFP Niger
- Phase 2
 - Six basins
 - Reduced agenda for
 - Karkheh
 - Niger
 - Sao Francisco
 - Yellow River



Number of projects per basin

- Phase 1
 - 6-12 or more projects per basin, plus Basin Focal Projects
- Phase 2
 - 3-5 projects per basin

CGIAR Challenge Program on WATER & FOOD

CP19: Upstream-Downstream Impacts in the Nile
 Improved water and land management in the Ethiopian highlands and its impact on downstream dependent on the Blue Nile

Goal: Enhance food security and improve sustainability of livelihoods of poor rural people

Major Research Questions

- What are the successful interventions that help improve productivity and reverse degradation?
- What are the impacts downstream?
- What are the opportunities and constraints enhancing rural livelihoods and food security?

Objective 1: Identify major constraints, opportunities and impacts of current and future water, land & livestock management interventions within the catchment & downstream.

Objective 2: Adapt and apply hydrological, watershed, and economic models that can be used to estimate impacts both basin-wide and locally in selected communities, including their costs and benefits, and identify 'best-bet' interventions.

Objective 3: Best-bet management practices, interventions, and the hydrological & socio-economic conditions for up-scaling them.

Objective 4: Build capacity: research partners, NGOs, community leaders and policy makers

Water Allocation Modeling

Example of Watershed and Impact Modeling at Gumera watershed

Slope, DEM, Land Use, HRU, Soil

Lake Tana Wetland

Basins Dam for Agriculture and Hydro-power

International Water Management Institute (IWMI)

ILRI

FAO

CGIAR

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<http://www.internationalwatermanagement.org/>

Basin research agenda

- Phase 1
 - Not necessarily a coherent research agenda at the basin level
- Phase 2
 - Projects to be interrelated and coordinated, focusing on a well-defined basin development challenge



Research locations

- Phase 1
 - Pretty much anywhere in the basin, and at any scale
- Phase 2
 - Research concentrated in a smaller defined area, with an eye to larger cross-scale consequences



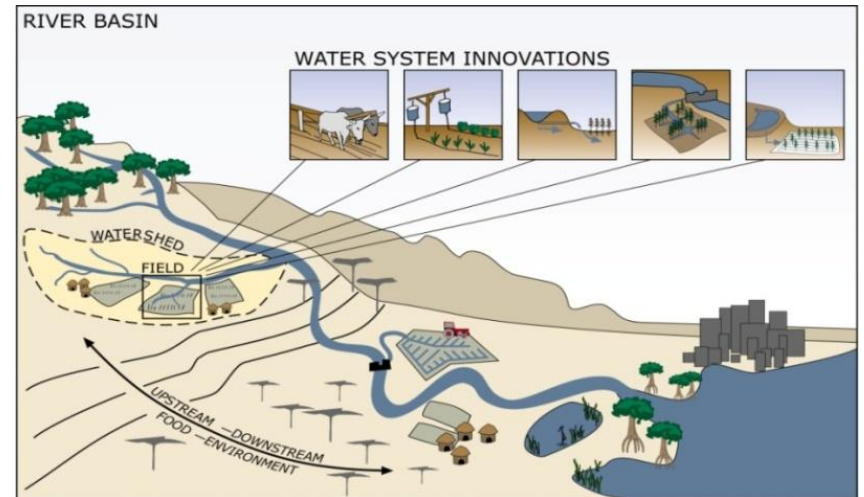
Coordination model

- Phase 1
 - Basin coordinator did not have much influence over individual projects in a basin
- Phase 2
 - Basin leader will have stronger coordination role: project leaders report to Basin leader
 - Basin leader in turn reports to one of the CPWF Directors



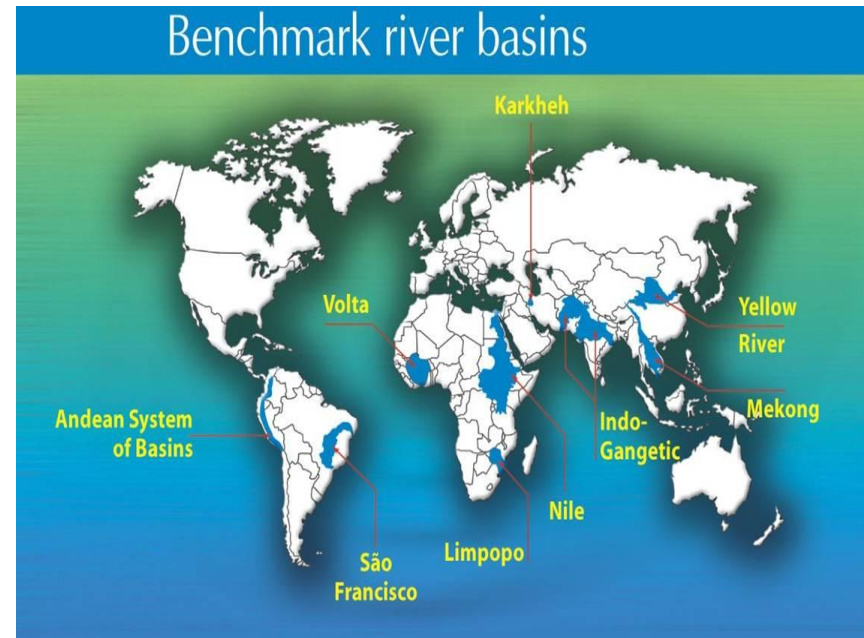
Cross-scale consequences of innovation

- Phase 1
 - Whole basin consequences of innovation were not systematically studied (some projects did, others did not)
- Phase 2
 - Research on whole basin consequences of innovation to be systematically included in one of the 3-5 projects



Cross-basin learning

- Phase 1
 - Cross basin learning not really emphasized
- Phase 2
 - Cross-basin learning to be encouraged through “topic working groups”



Phase 2 topic working groups

- Foster cross-basin learning and sharing
- Synthesize experiences gained in different basins
- Strengthen the science
- Apply lessons learned to further improve research in basins
- Provide capacity for cross-scale analysis within basins

Iterative learning process

**WHAT ARE CPWF PHASE 2 BASIN
DEVELOPMENT CHALLENGES AND
PROJECTS?**

Andes

- Challenge:
 - To improve rural livelihoods and increase water availability through **benefit-sharing** in selected basins
- Projects
 - Designing and implementing benefit-sharing mechanisms (such as payment for environmental services)
 - Assessing and anticipating the consequences of introducing benefit-sharing mechanisms
 - Learning from the past (insights regarding different land and water management practices and their consequences)



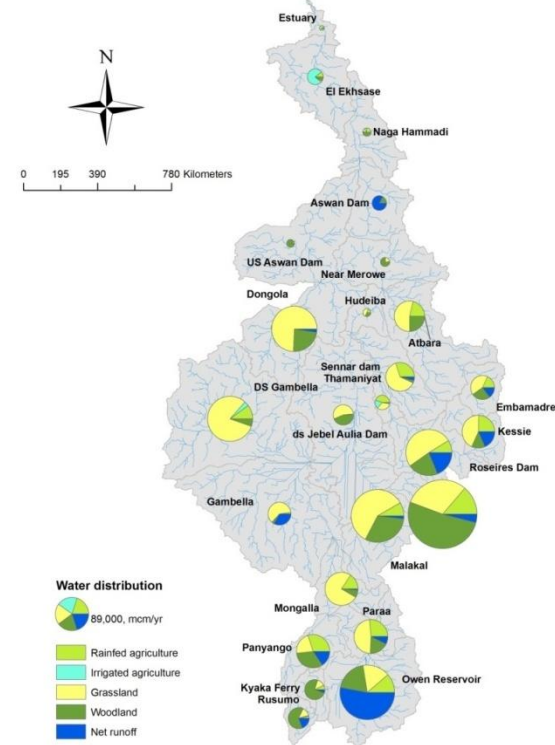
Mekong

- Challenge
 - To reduce poverty and foster development through **management of water for multiple uses in large and small reservoirs**
- Projects
 - Optimizing reservoir management for livelihoods
 - Water valuation
 - Optimal management of cascades of dams and reservoirs
 - Water governance



Nile

- Challenge
 - To improve rural livelihoods and their resilience through a **landscape approach to rainwater management**
- Projects
 - Learning from past experience on rainwater management research
 - Integrated rainwater management strategies – technologies, institutions and policies
 - Spatial targeting of innovation strategies
 - Assessing and anticipating the cross-scale and downstream consequences of innovation



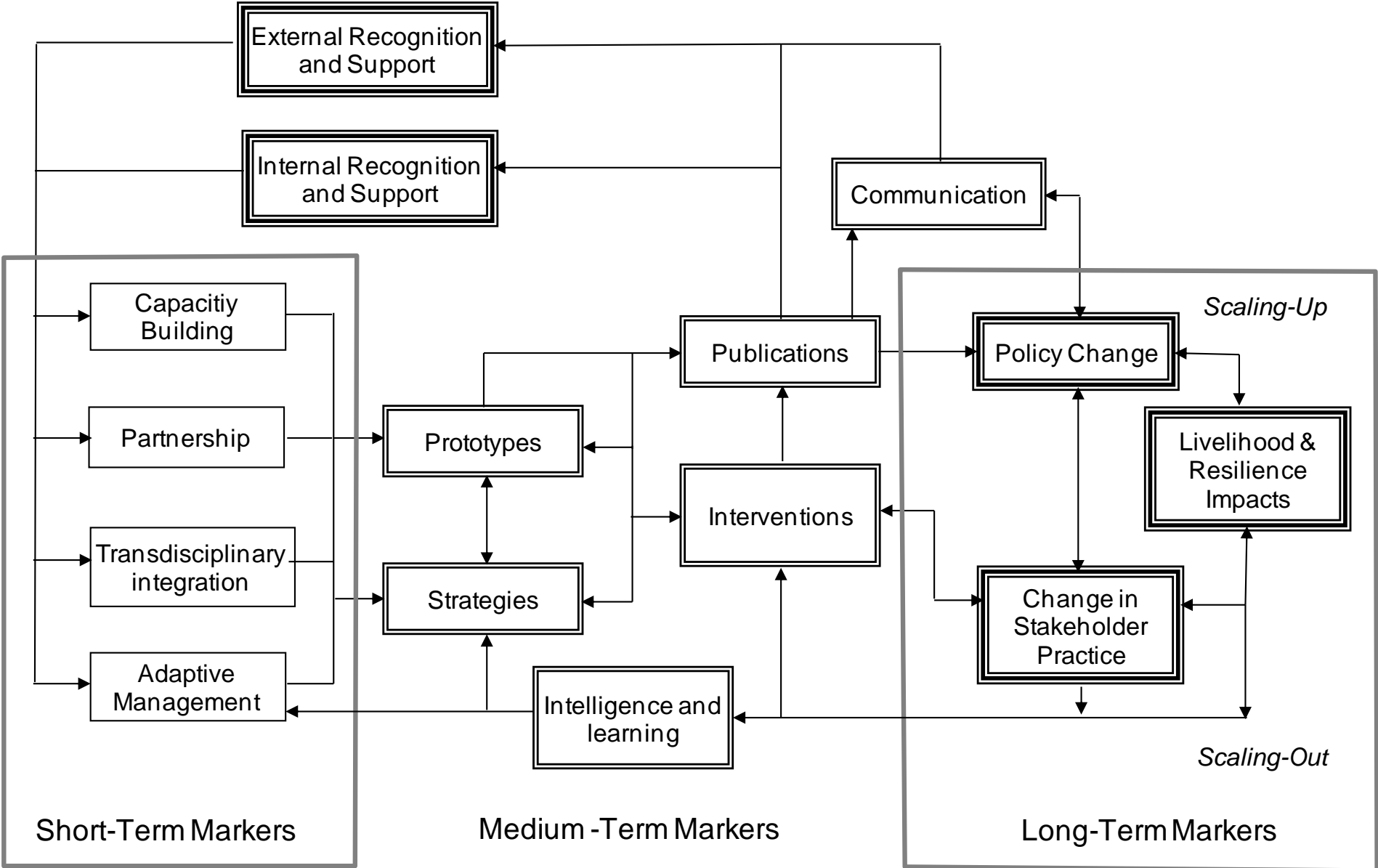
Ganges, Limpopo, Volta

- Preliminary versions in MTP, still being developed
 - **Ganges**: To improve rural livelihoods in the delta through **integrated, diversified cropping and aquaculture**, and through **better use of flood- or salt-affected areas**
 - **Limpopo**: To improve rural livelihoods and their resilience through **better management of rainwater**
 - **Volta**: To improve rural livelihoods and their resilience through **better management of rainwater, including management of small reservoirs**

**HOW ABOUT ANNOUNCING AND
CONTRACTING PHASE 2 PROJECTS?**

Process

- Most projects open competition, some commissioned
- Early July – invitation to submit proposals for projects selected for open competition (forms, rules, formats to be announced)
- Late August – deadline for submissions
- September – proposals externally reviewed
- October – successful proposals selected and announced

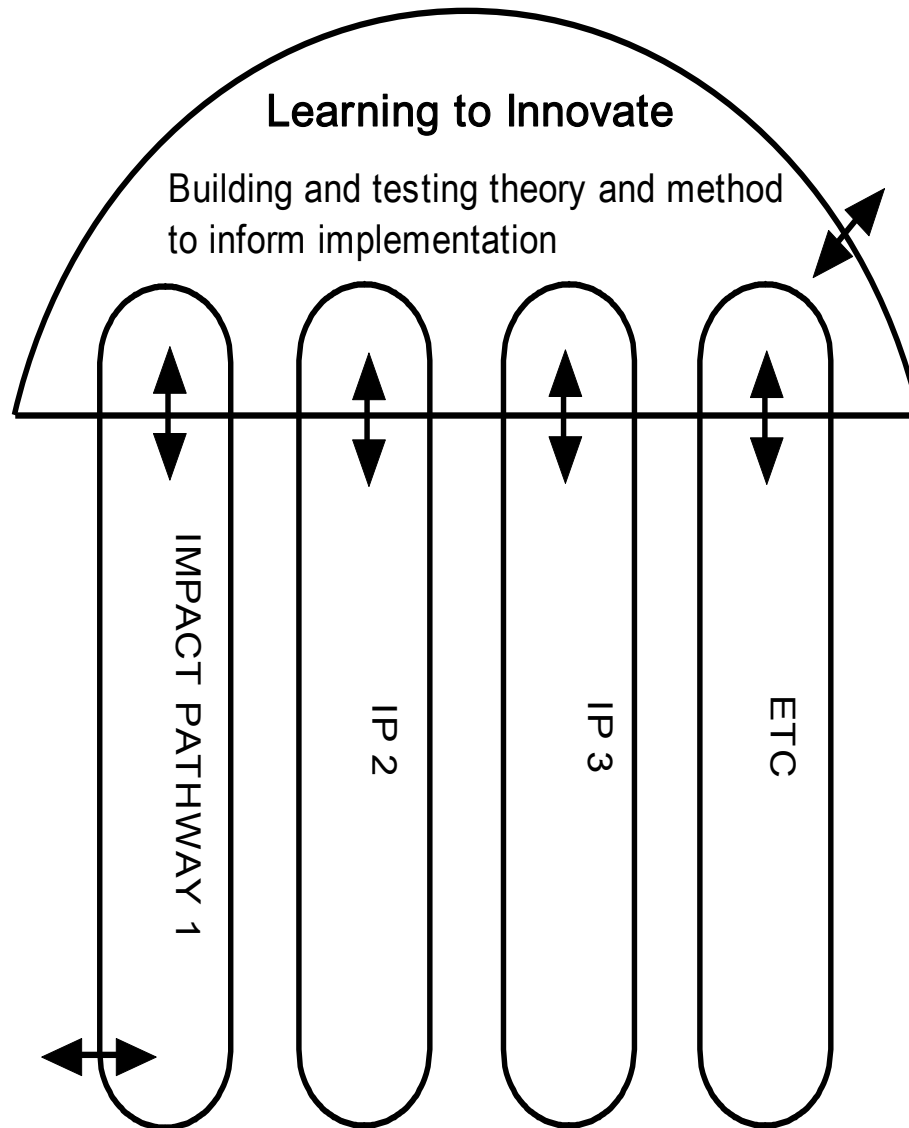


Core Principles

Outputs

Outcomes

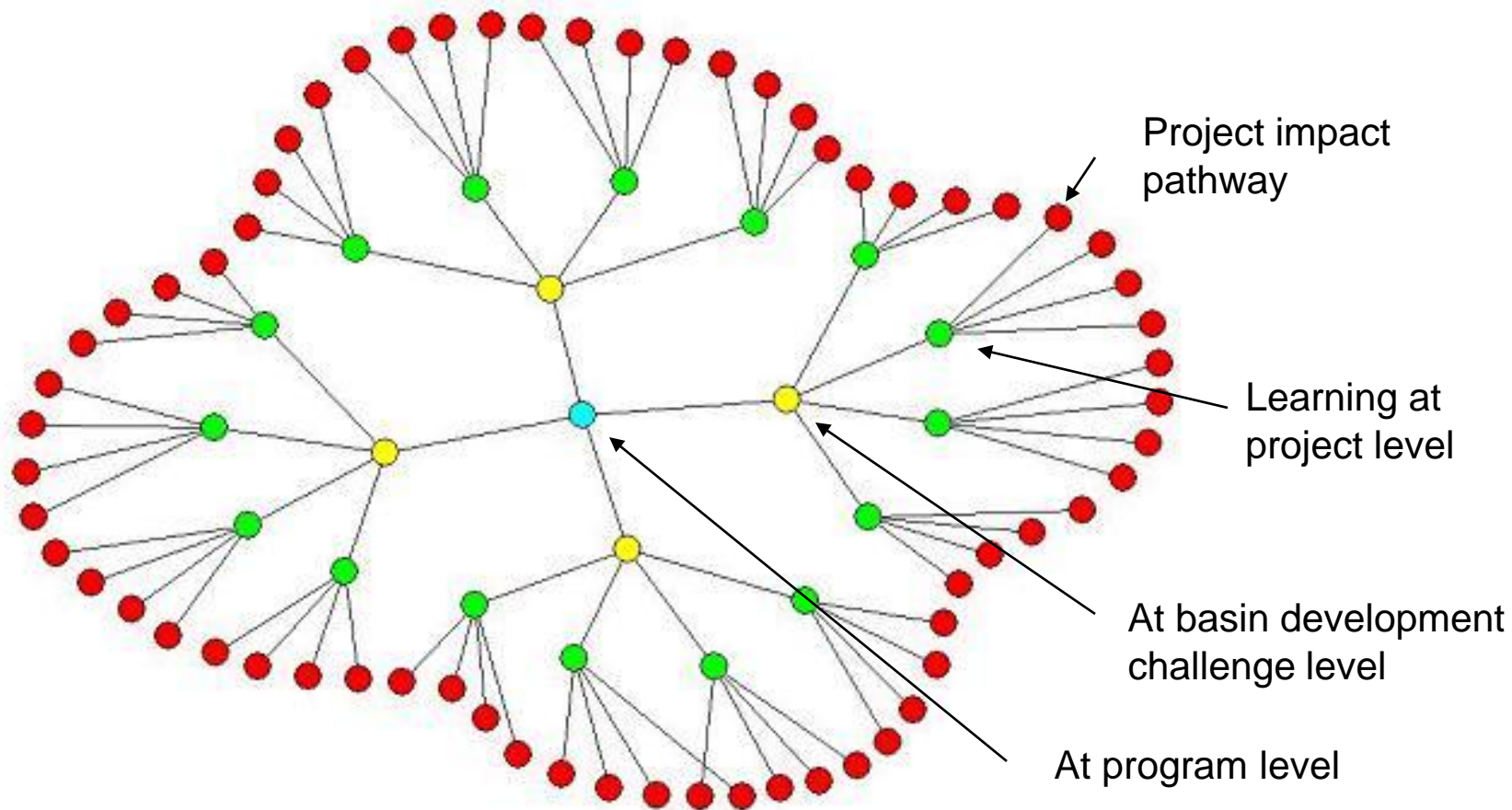
Innovation Research



Learning and theory from outside, esp. Phase I; influencing theory and practice, i.e., IPG generation

Learning and theory from outside

Adaptive management, coherence and innovation research through monitoring impact pathways



FAQ on MUS

How can the MUS Topic Leader influence the design and implementation of BDC projects in basins?

- It is too late for the MUS TL (or any TL for that matter) to influence how project proposals are written for the first three basins - even though “basin priorities are not very specific on MUS”.
- It is not appropriate to make an MUS focus a criterion for evaluation and selection of for projects awarded through competition for the first three basins.
- There is still time for the MUS TL to have an influence on how project proposals are written for the second three basins.

- The MUS TL can still influence research design in projects in the first three basins by helping with work plan development in the inception workshops (“highlight past CPWF MUS experience and cutting-edge research issues and methodologies on MUS”)
- The MUS TL should help with work plan development in inception workshops in the second three basins.
- It is appropriate to negotiate with project teams for commissioned projects so that MUS is properly included.
- BDC research agendas are designed to be dynamic: the MUS TL can have continued influence on MUS in projects in basins through reflection workshops
- The MUS TL can help improve the quality of MUS-related research in projects in basins through mainstream coordination activities: support for BLs; fostering cross-basin learning, mentoring, and capacity-building; cross-basin synthesis.

What is the role of the MUS TL in designing and commissioning cross-basin research on MUS?

- TLs will have resources to commission research, e.g. to develop a “generic cost-benefit analysis protocol”; “design of research on MUS across basins”.

***What is the role of the MUS TL in developing synthesis papers?
What kind of synthesis papers?***

- TWGs will generate synthesis papers, developed by the TL or through commissioned research. An updated MUS topic paper is an obvious first step. The TL may propose other subjects for synthesis papers. This question is closely related to the previous one.

How much time should the MUS TL spend on coordination vs. research?

- To be decided on a case by case basis.

Should TWG TLs all be contracted for the same number of days per year? If yes, how many? If no, how do we decide on TL days per topic?

- The MUS TL will be contracted for more than 20 days; probably for 30-40 days.
- Flexibility on number of days depending on the topic and respective needs.

How will the TWGs meet?

- Building a community-of-practice will require both face-to-face and virtual interaction and part of the TL's responsibility is seek facilitate such interaction through, for example, organizing side meetings at conferences or other fora, and setting up and moderating an on-line discussion group.

www.waterandfood.org

