

Reducing waste in efficient irrigation: what pathways and who gains?

31 August 14:00-17:30

Stockholm Water Week

NL 357

Hosted by WWF, IUCN, UEA

Session Agenda: Seeking to frame the irrigation performance challenge (as a group)

- **1400 to 1415:** Stuart Orr (WWF), James Dalton (IUCN) and Bruce Lankford (UEA)
- **1415 to 1425:** Saskia van der Kooij (Wageningen University) *“Re-allocating yet-to-be-saved water in irrigation modernization projects. The case of the Bittit Irrigation System, Morocco”*
- **1425 to 1435:** Brian Richter (Sustainable Waters) *“Incentivizing farmers to reduce consumptive use”*
- **1435 to 1445:** Elena Lopez-Gunn (ICATALIST and University of Leeds) *“AudiMod: a methodology to audit modernisation projects from an environmental perspective: spatial gains and losses”*
- **1445 to 1520:** Audience Discussion and Panel
- **1520 to 1530:** Wrap up

Why are we here?

High performing, basin aware, carbon accountable irrigation is one of our greatest (forgotten) challenges, un-represented in the SDGs:

- Irrigation covers 330m ha – consuming 4 km³/day, or 10% of global river discharge
- Responsible for between 70-90% of freshwater depletion in developing and transitional economy river basins
- Represents 80% of water use by society
- 40% of the food produced using 20% of the agricultural area
- Ten populous nations, accounting for 50% global population (Bangladesh, India, China,...) eat rice on a daily basis – a field crop nearly totally irrigated
- By 2050 global food demand likely to be 60-70% higher due to population growth and dietary changes

Water stewardship in agriculture

- Improving transparency of information flow
- Link irrigation back to the basin – not separate it
- Focus on sharing water, not individual efficiency
- Understand water's role in the economy
- Understand allocations and definitions better – multiple interpretations
- Reform field and policy interventions in parallel
- Saving water doesn't make it yours



Water Stewardship in Agriculture

Water crises around the world are shining a spotlight on agriculture. Feeding the current and future billions while ensuring water and land resources are properly protected, and energy supplies are maintained is the great resource management challenge of the 21st century. There is today both a dramatic rise in the recognition of water risk issues by corporate actors^{1,2} and a parallel emergence in agricultural investment opportunities driven by demand from national governments and international donors for economic growth.

COMPANIES ARE MISGUIDED IF THEY THINK RISK EXPOSURE CAN BE DEALT WITH BY SIMPLY REDUCING WATER FOOTPRINT.

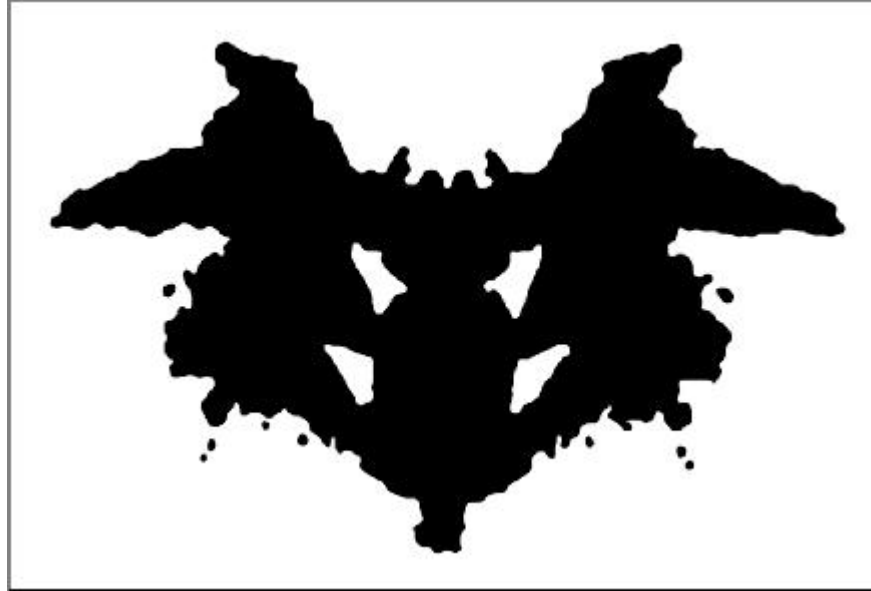
There is a need to better understand how this agricultural challenge will align or conflict with private sector investment and supply chain interventions, and what opportunities there are to improve water resource management. As water stewardship matures and moves from theory and high level discussion to a broader, widespread practice, there's a need to ensure that water risk response and investments from the private sector in agriculture are appropriate, desirable and beneficial to more than just the bottom-line of a single sector.

In this paper we look at some of the potential risks and unintended consequences of private sector interventions in agricultural water management and begin to outline an improved approach to water stewardship. This short primer is intended to outline some key concepts and stimulate ideas. WWF and IUCN will continue to develop more in-depth analysis. We encourage others to contact us, join this work and share examples and experience.

There *is* a challenge...

- There is no clear agreement in this field
- Lack of research to allow us to choose the most appropriate irrigation options (there is disagreement on this also!)
- Despite the importance of irrigation and previous experience, there remain capacity shortfalls
- Getting it wrong has implications on nutrition, food security, land degradation, livestock, livelihoods and economy
- Lack of data and analysis on irrigation system performance, and the socio-economics of systems within river basins
- Irrigation is not just a technical subject – it is the world's largest water consumer and has complex governance challenges
- Large differences in public and private responses to irrigation challenges – guided by financiers, donors, RBO's, national interests, global goals, etc

The Irrigation Rorschach Test:– *What do you see in this photo?*



BL

The Irrigation Rorschach Test:– *What do you see in this photo?*

BL



Do you see:

A flooded field clearly **'wasting'** water,
...creating a large water **footprint**
...that needs **'upgrading'** to **drip** irrigation
...in order to ostensibly **'save water'** and
...to **'grow more with less'** and
...where **efficiency** is assumed to improve
... because we think we **'know'** **efficiency**
... better than farmers do (?)

Or do you see:

A complex socio-technical system managed by farmers,
...using gravity to move water and
...appropriate technologies to control water, in a situation
...ideal for growing a field crop where
...savings are possible but subject to much discussion
...where efficiency depends on many practices & ideas,
... that are not easily understood at different scales,
...and where farmers are central to technological change

Guiding questions for discussion:

SO/JD

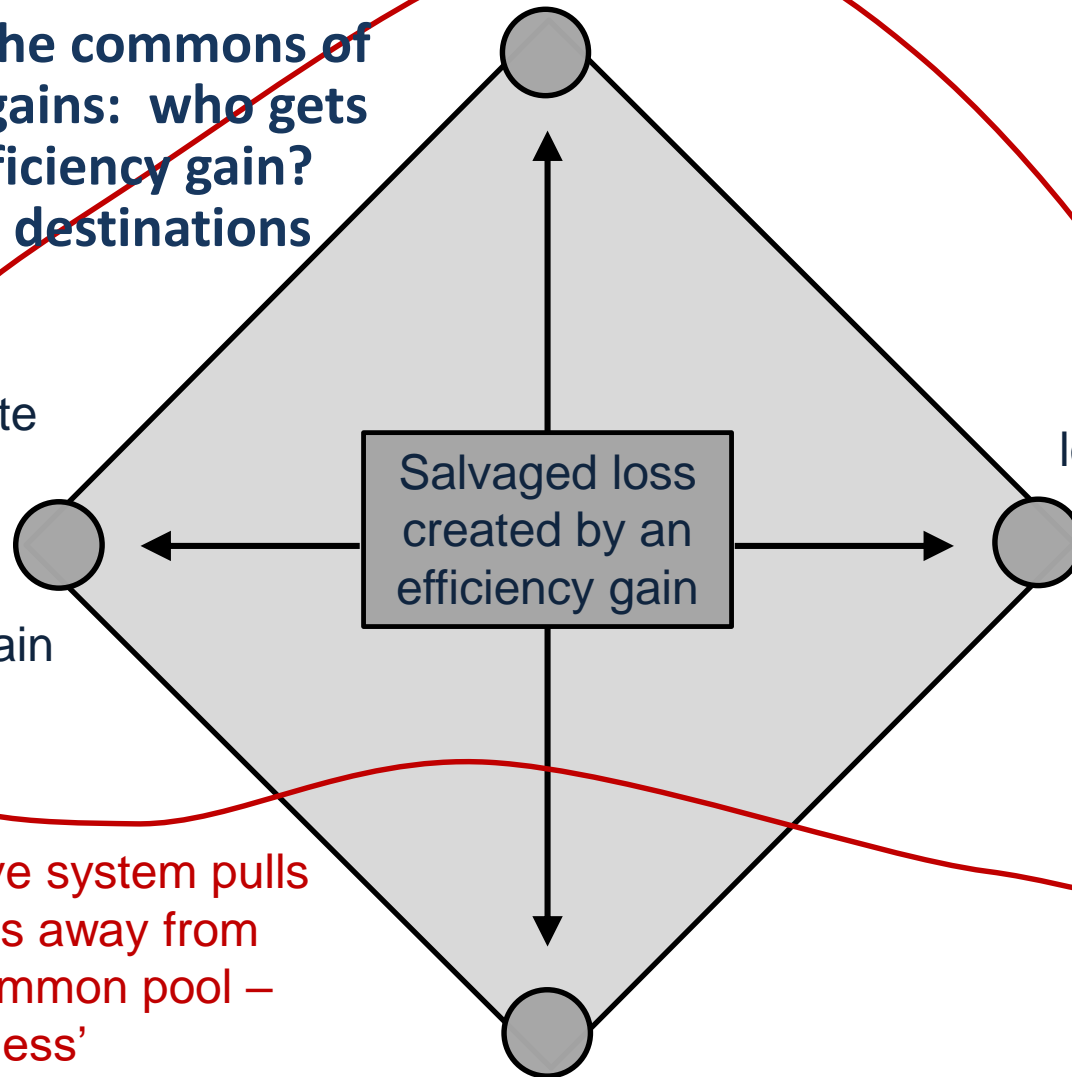
No regrets irrigation that will meet the challenges of the 21st Century

- How do we raise the performance of a challenging and complex sector and major water user?
 - What does high performing irrigation mean to you?
 - Huge areas of canal irrigation can not simply be switched to drip irrigation (with a carbon cost and huge social change)
 - What do you think is required in the near and medium term future to raise performance and/or reduce water consumption per ha/ per system and at basin level
 - What obstacles need to be removed?
 - What new partnerships?
 - What new forms of capacity building are required?

The salvaged loss moves to the **wider economy**, or
to government, urban, and industrial demands.
To 'unrelated neighbours'

Paracommons. The commons of future salvaged gains: who gets the gain of an efficiency gain? Conceptualises 4 destinations

The salvaged loss moves to immediate **neighbours** in a neighbourhood system to raise production or sustain benefits



The salvaged loss moves to or stays with the **proprietor** system to raise production and productivity

Highly appropriative system pulls salvaged resources away from returning to the common pool – away from 'greenness'

The salvaged loss moves to the **common pool** and/or the environment for conservation and productivity

A: Entry points

- Corporate – CEO interest/risk assessment
- Donor – SDG agenda/trade and aid agenda
- National Gov't - Eco growth and tax base development/employment/rural growth
- Local Gov't – Data monitoring/investment

B: High-level drivers

- Global concerns (e.g. food/water security)
- Growth and Development pathways
- Beguiling narratives (e.g. 'save water')

C: Supply-side & simplifying tools

- McKinsey cost curve
- 'Efficient' technologies
- More crop per drop 'transfer'

D: Internal structures and fault-lines

- Schisms between operational and location realities vs high-level corporate targets
- Timelines and urgency of making deals

E: Alliances and partnerships influences

- Regulators, bureaucrats & donors
- Venues, NGOs, meetings, conferences
- Reports, 'success stories', positioning

Insufficient cross-checking

- Debate within or external to organisation lacking
- Professionals do not seek alternative views on ag-water
- Poor stewardship guidance
- Internet search-engine bias
- Little field experience of experts
- Ineffective farmer participation
- Lack of field-to-basin water data

- Simplified diagnoses of problems
- Selection of inappropriate solutions
- Not enough follow-up

Predominantly these result in 'efficiency orthodoxies' and supply-side thinking