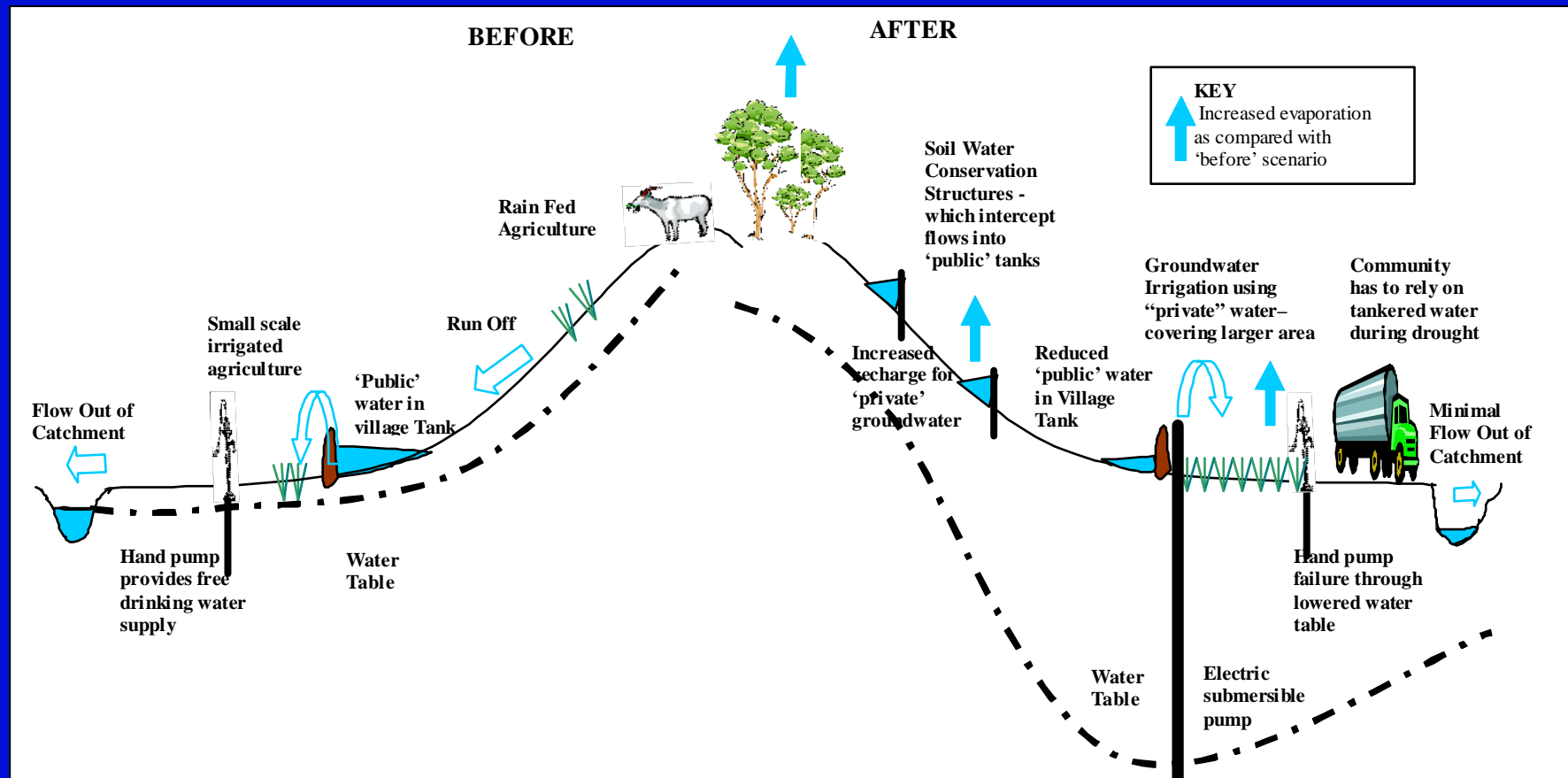


# EXCESSIVE Watershed Interventions: Forestry, soil water conservation, irrigation, may lead to catchment closure – Perverse outcomes

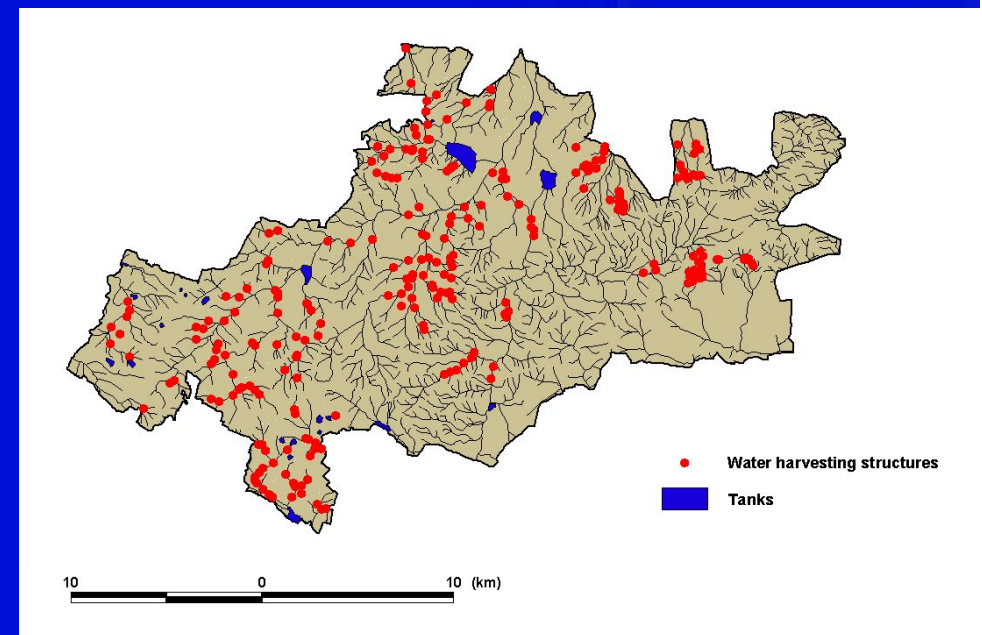


# Furthering Land and Water Policy- Improving Outcomes FAWPIO

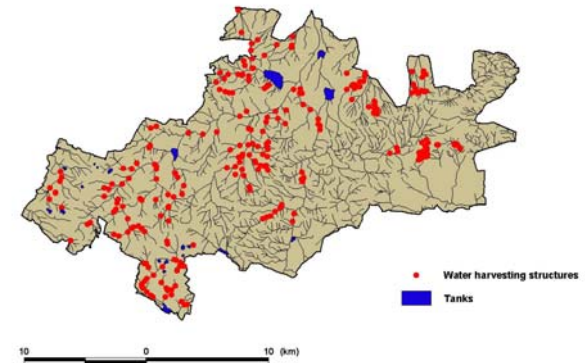
**FAWPIO currently working with World Bank and DFID watershed projects in India to improve outcomes**

◆ **One component -Investigate and model 'winners and losers' from SWC interventions :**

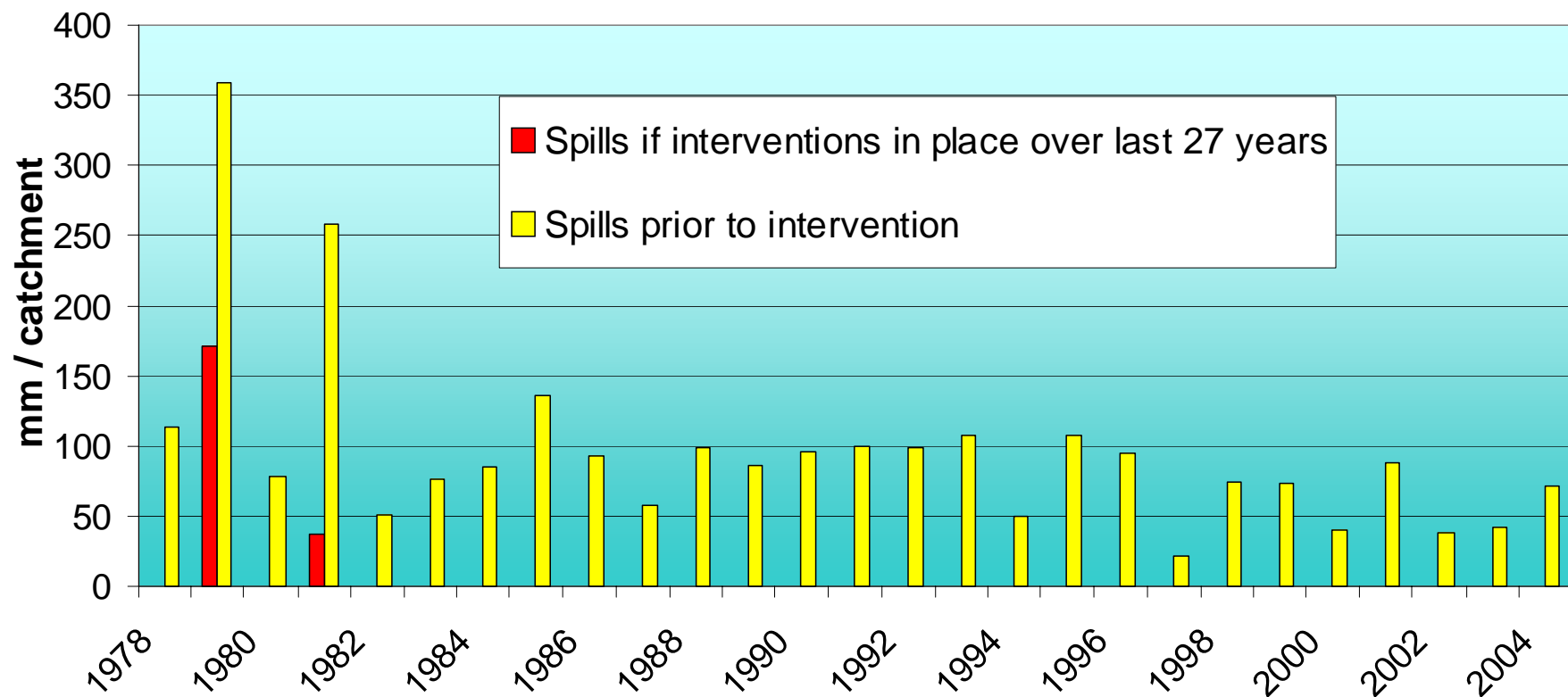
- **Impact of different 'density' of SWC and Tank cascades on water flows and peoples livelihoods.**
- **Modelling involves HYLUC, Bayesian network, EXCLAIM tools**



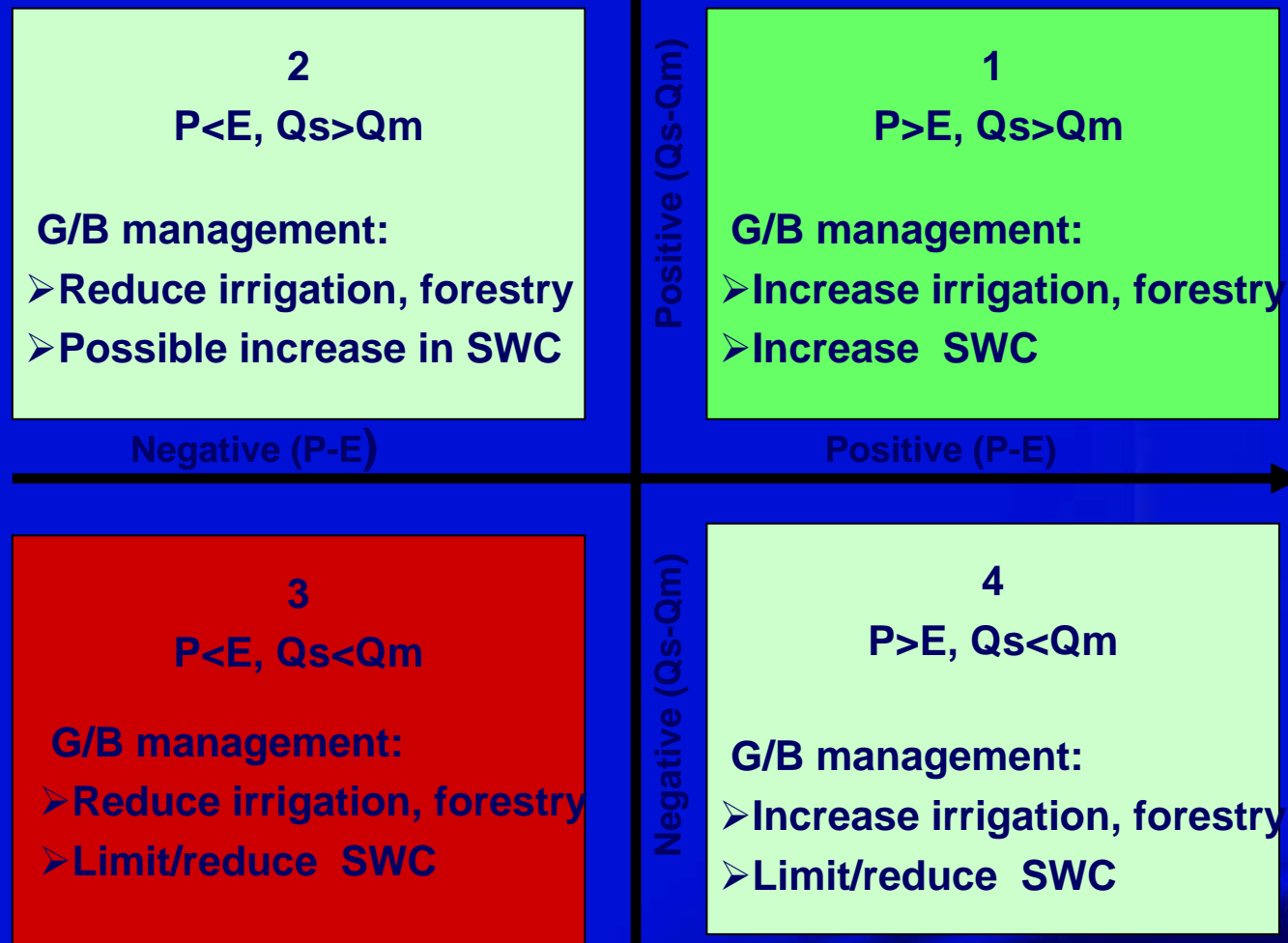
# DFID KAWAD project -Inchigeri



## Annual Spills out of the Jigjivni Upper Catchment - "Before and After"



## Catchment conditions which can be used to identify green and blue water management options



**Notes:** *E* and *P* represent average annual evaporation and precipitation respectively. *Q<sub>s</sub>* and *Q<sub>m</sub>* represent actual and agreed minimum flows respectively..

Quadrant 1 exhibits benefits from further soil water conservation (SWC) measures; quadrant 3 and 4 exhibit no benefits; quadrant 2 shows local benefits but at the expense of downstream users.

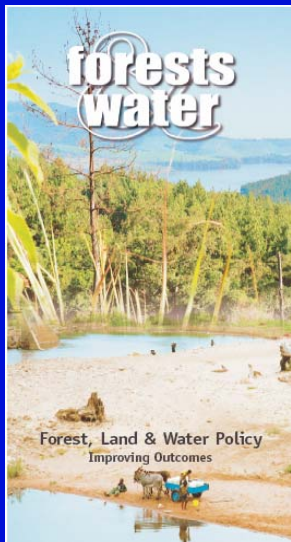
# Furthering land and Water Policy- An Outcome from FRP research

## Background:

**DFID FRP FLOWS cluster, India, RSA, Costa Rica, Tanzania, Grenada- to improve understanding of socio-economic and biophysical impacts of forest and water interactions.**

## Led to realisation:

- ◆ Throughout the World many land and water development policies currently based on myths – leading to perverse outcomes
- ◆ Need to Bridge Research findings and Policy (BRAP) to develop evidence based policies
- ◆ Need for tools and methodologies to support BRAP and support more evidence based policies



**CLUWRR** Centre for Land Use and Water Resources Research





# Forestry – Often still promoted on Myths

**New Research Knowledge contradicts many commonly held beliefs.**



**Research shows forests generally:**

- ◆ Evaporate more than short crops; reduce annual flows from catchments; reduce recharge to aquifers
- ◆ Mitigate small floods but not the largest, most damaging floods
- ◆ Do not increase dry season flows, often reduce dry season flows
- ◆ Do not “attract” rainfall
- ◆ Reduce erosion if natural forest – not necessarily the case for plantation forest



# Key FRP FLOWS Policy Outcomes

## ◆ FAWPIO

- INDIA Currently working with World Bank and DFID watershed development projects in India to improve outcomes – Krishna/Cauvery Basin, IWMI links
- RSA Partner in developing tools for Green water policy instruments

## ◆ GBI

- Research partner on the SEI-SIWI Green Blue Initiative to improve global green water management

## ◆ NSS Development

- Interest shown by: WB, FAO, IIED, WWF, IUCN

## ◆ Watershed Management Group

- Partner on the World Bank Group to improve watershed management policies

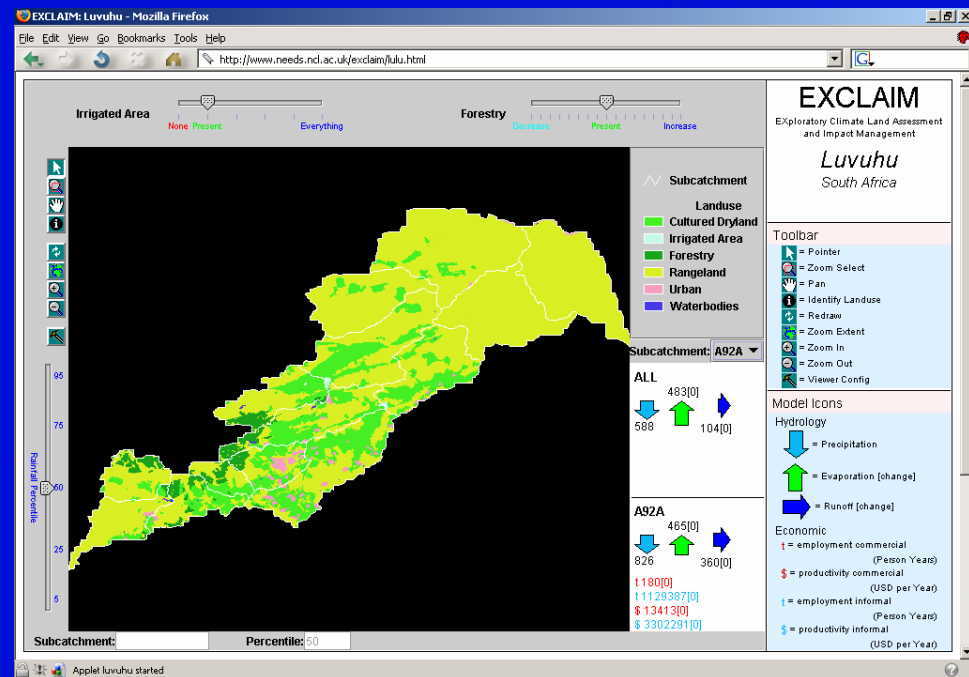


# Modelling winners and losers

- ◆ **Bayesian Networks – HYLUC: investigate upstream/ downstream benefits of SWC measures within SWC-Tank cascades.**

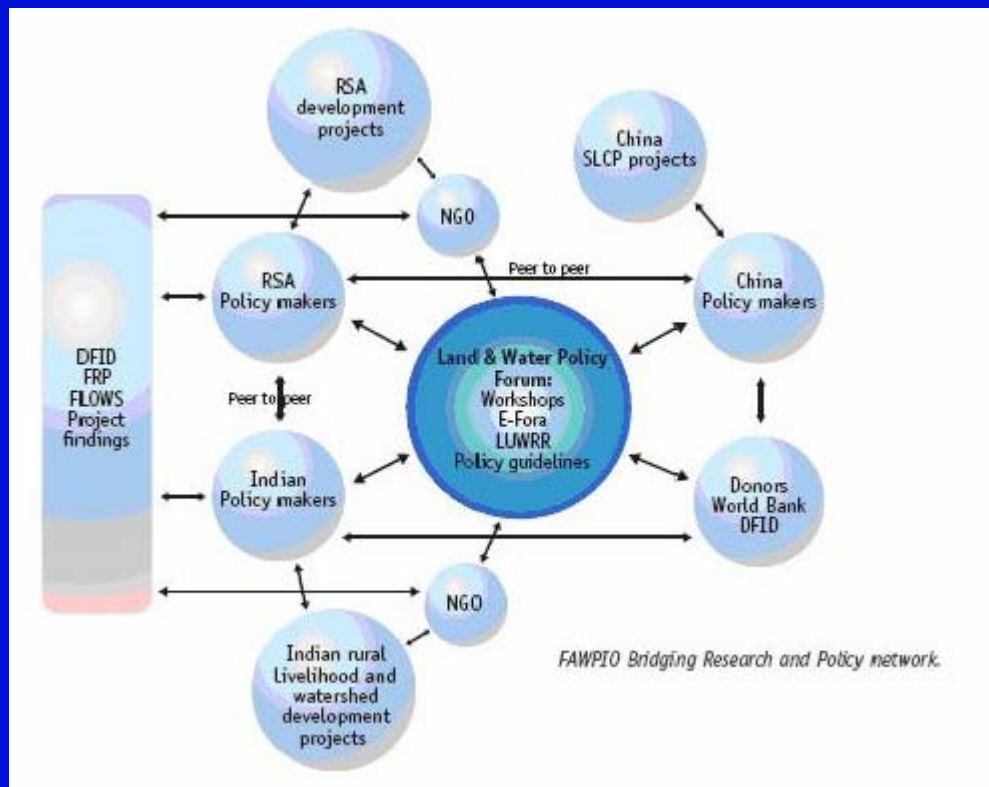
- ◆ **EXCLAIM**  
**EXploratory Climate Land Assessment and Impact Management**

*Model and demonstrate impacts on :  
Green and Blue flows,  
Connectivity,  
Sustainability*





# Programme Outputs: BRAP networks



## BRAP (Bridging Research And Policy) Networks will:

- ◆ incorporate advocacy and promotion techniques-Policy Briefs,
- ◆ connect and disseminate new knowledge of the biophysical and socio-economic outcomes of land and water interventions to policy makers
- ◆ use peer-to-peer networking of policymakers
- ◆ support interactive workshops and innovative media approaches including e-fora and electronic journals, e.g. Land Use and
- ◆ Water Resources Research ([www.luwrr.com](http://www.luwrr.com) hosted by Venus Internet).

# Research Questions

- ◆ **How to connect science findings with Policy ? - BRAP (Bridging Research And Policy)**
- ◆ **How to implement watershed development projects without perverse outcomes? Quadrant diagram, Understanding (and modelling) winners and losers, Biophysical/socio-economic impacts of SWC/tank cascades.**
- ◆ **Green water management – Greater realisation of the benefits of managing evaporation (particularly under changing climates) through GW policy instruments, tools needed? EXCLAIM type?**
  - SFRA
  - China – GEF Et management
  - SEI-SIWI Green Blue Initiative
- ◆ **Soils/forest impacts on low flows – when do benefits of increased infiltration outweigh increased evaporation losses resulting in increased dry season flows?**

