

Water simulations – can they work in contested contexts?

The case of participatory planning by means of a water allocation simulations

Derick du Toit & Sharon Pollard

The Association Water & Rural Development (AWARD)
and Nils Ferrand, CEMAGREF (France), Stefano Farolfi (IWEGA),
Geraldine Abrami &
Heleen de Fooij (CEMAGREF)
derick@award.org.za

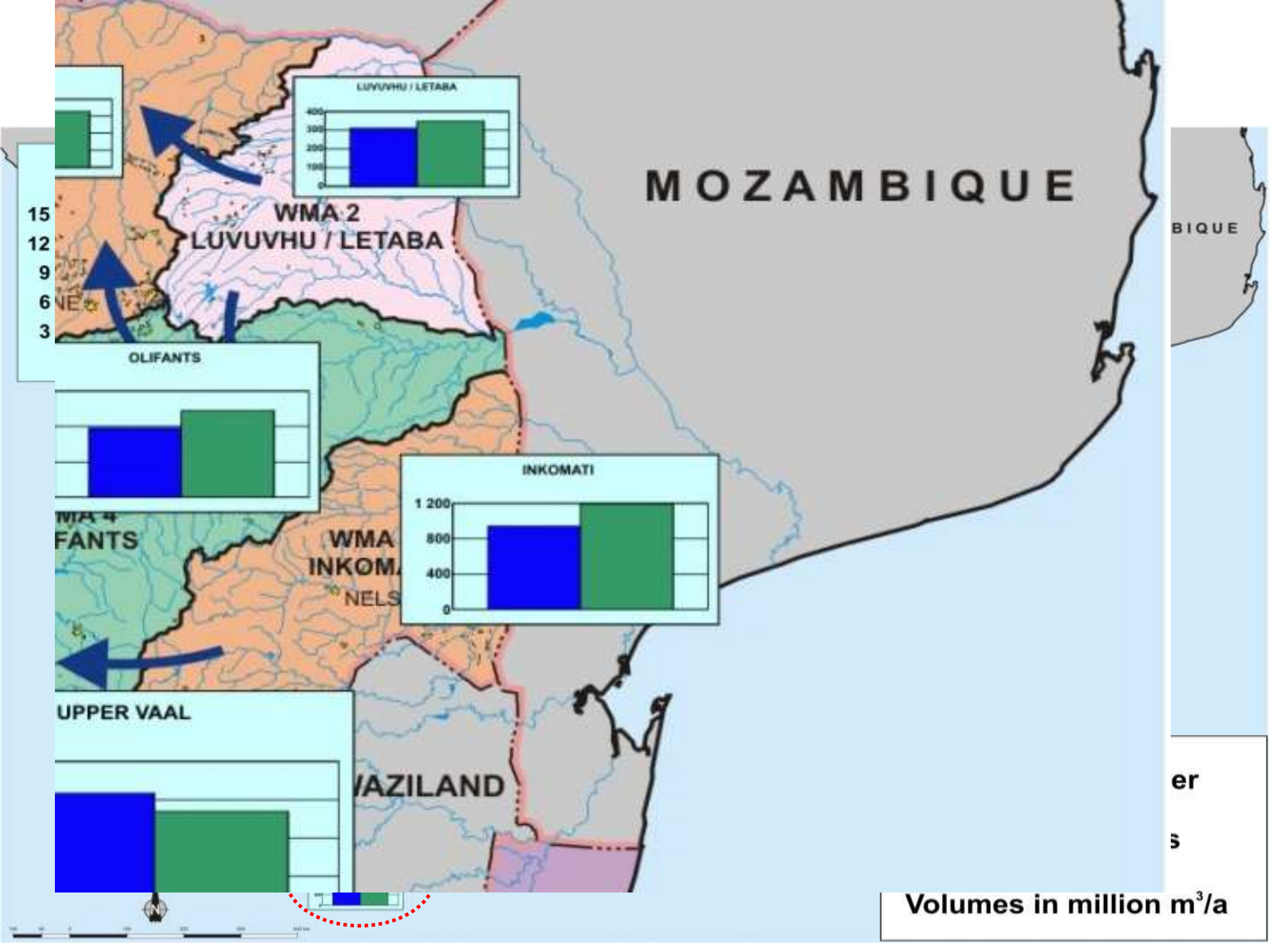


Seven catchments in southern Africa

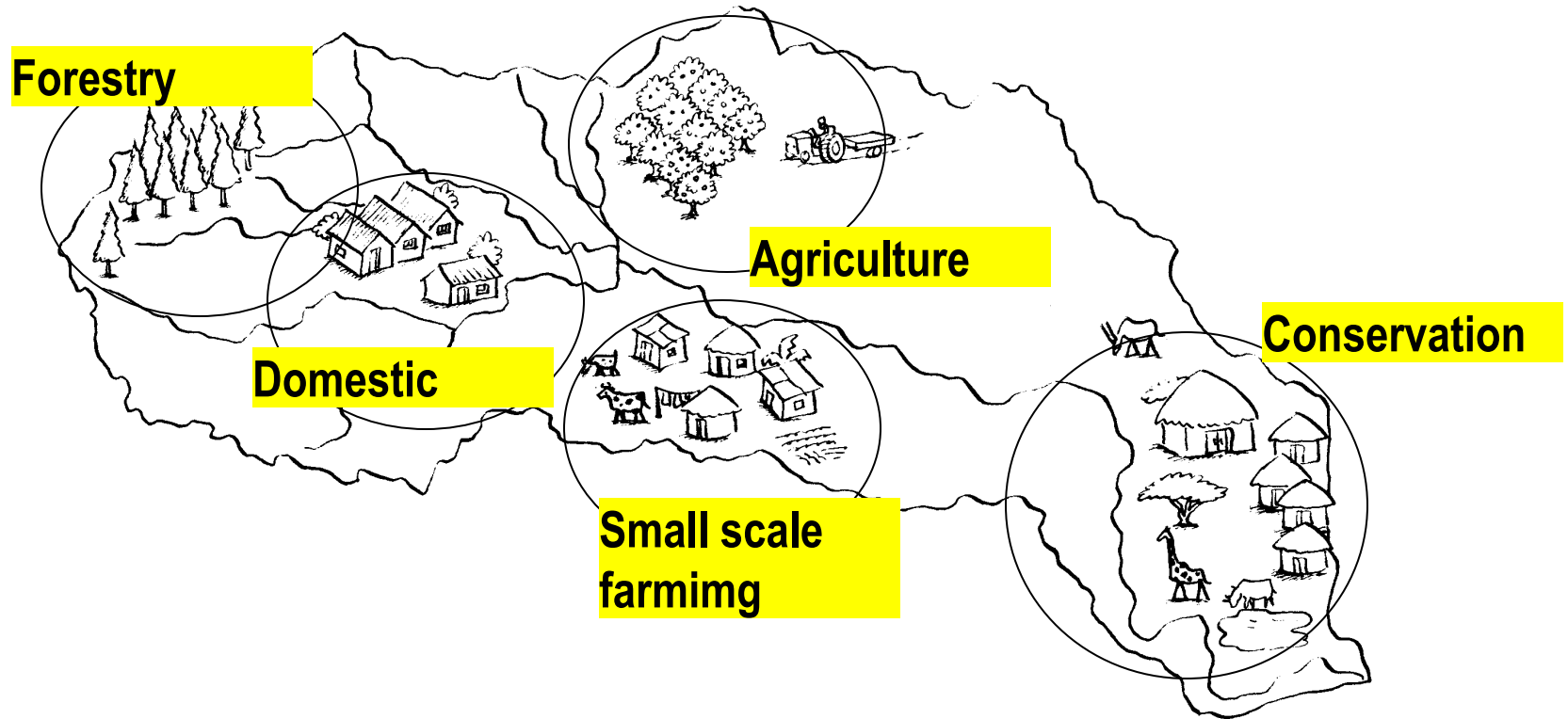


Contested contexts?



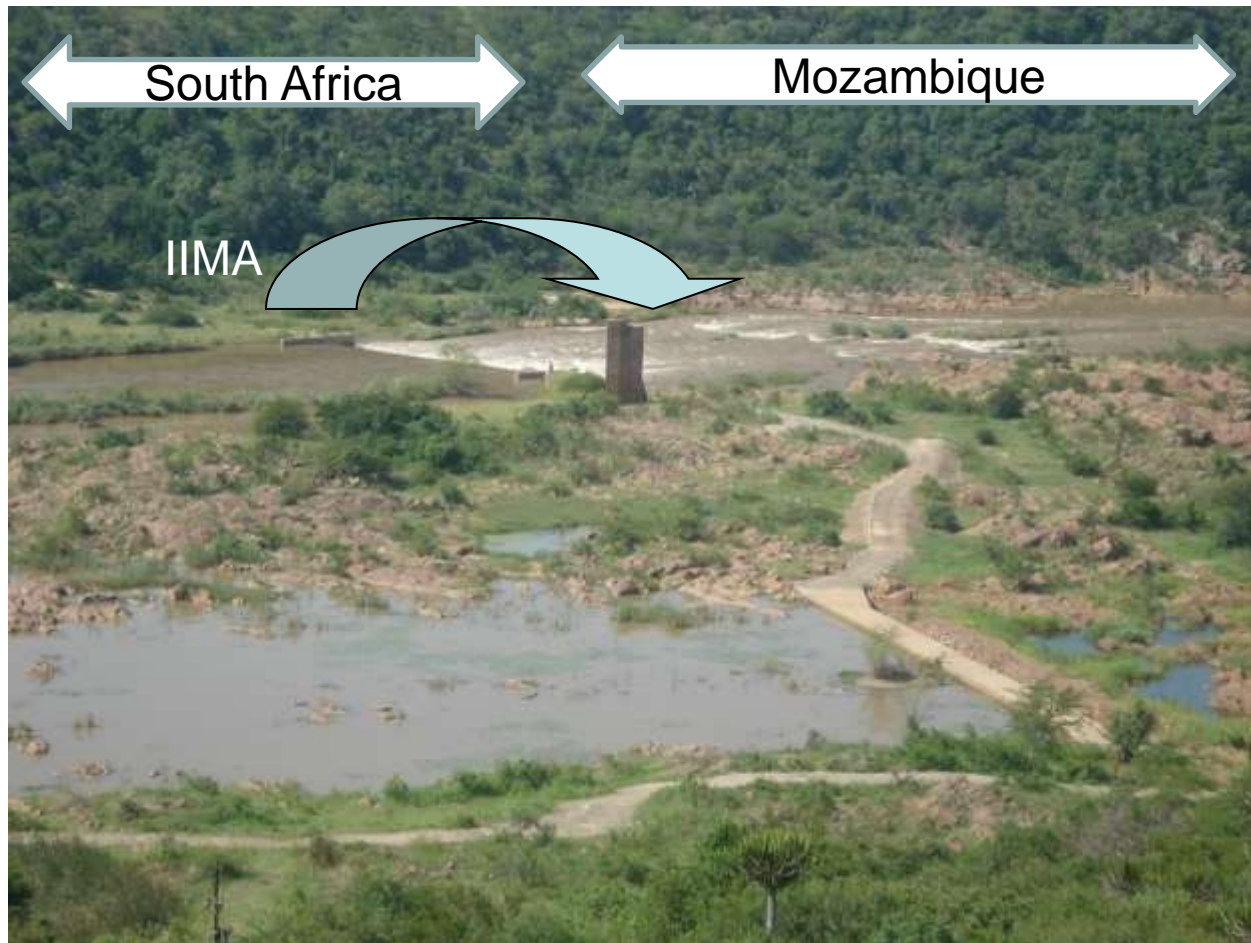


What do the sectors want?

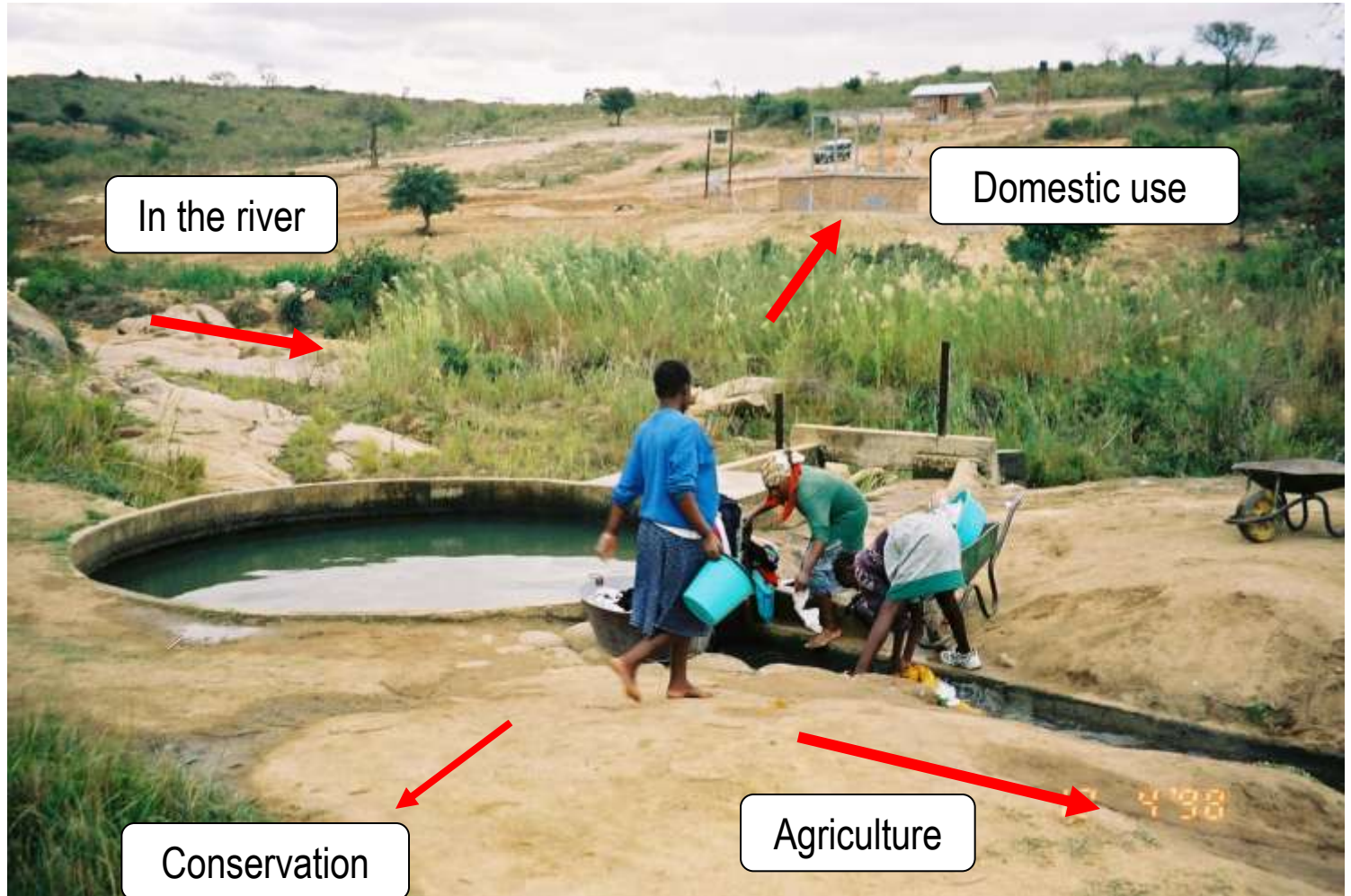




Greater international pressure



Where should the water go?



Sharing?

User group	Land use	Water use		Labour		Economics (GDP)	
	[%]	[Mm3/a]	[%]	[jobs]	[%]	[R million]	[%]
Forestry	17	158	22,0	9990	25,4	657	7,1
Agriculture	9	482	67,2	19362	49,3	1717	18,5
Industry	<2	22	3,1	3461	8,8	5057	54,4
Mining	<1			6500	16,5	1859	20,0
Domestic	~3	55	7,7	?	?	?	?

Data:

IWAAS (2009)

Inkomati Catchment Management Strategy

Inkomati Water Management Area Land use map

WAT-A-GAME

Development of WAG in the Inkomati WMA





WAT-A-GAME

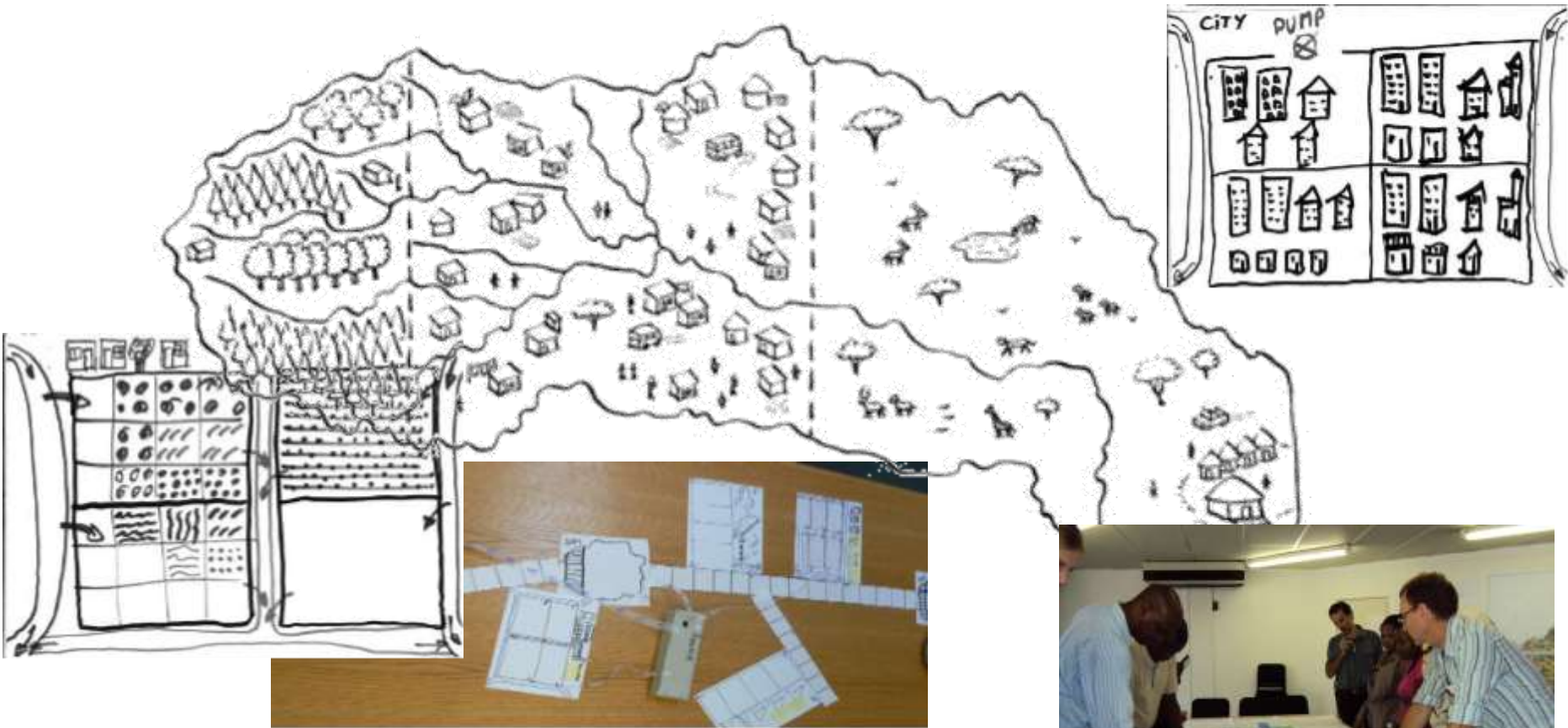


A method & toolkit for supporting and simulating water management in any catchment

- Generic role playing game
- Framework to simulate any catchment
 - Mediterranean and Sub Sahara
- Designed to facilitate
 - Learning
 - Exploration
 - Management of water systems

Participatory planning

The Sand River Case - South Africa

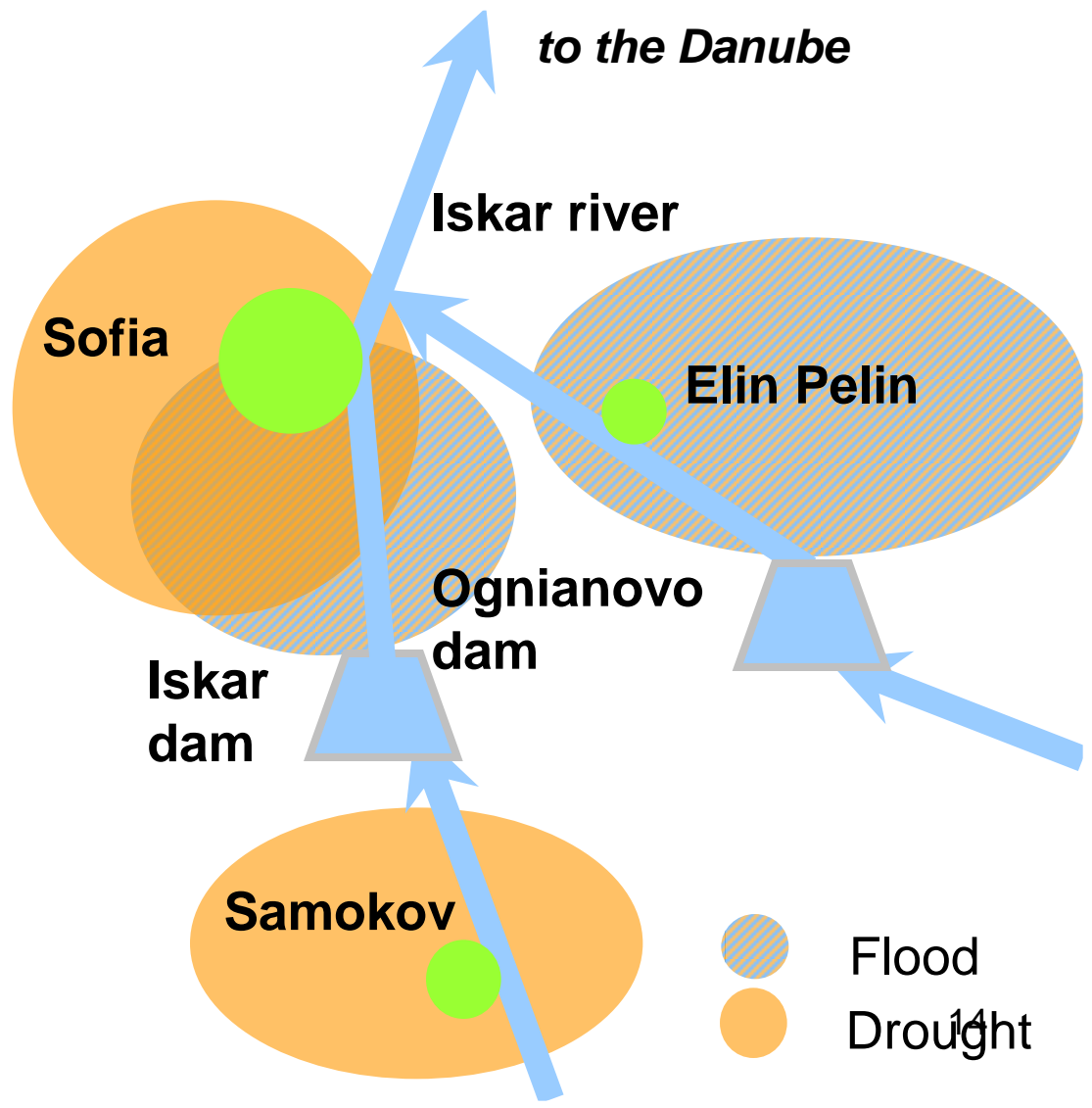


Nils FERRAND, Stéfano FAROLFI, Géraldine ABRAMI, UM
Derick du TOIT, AWARD



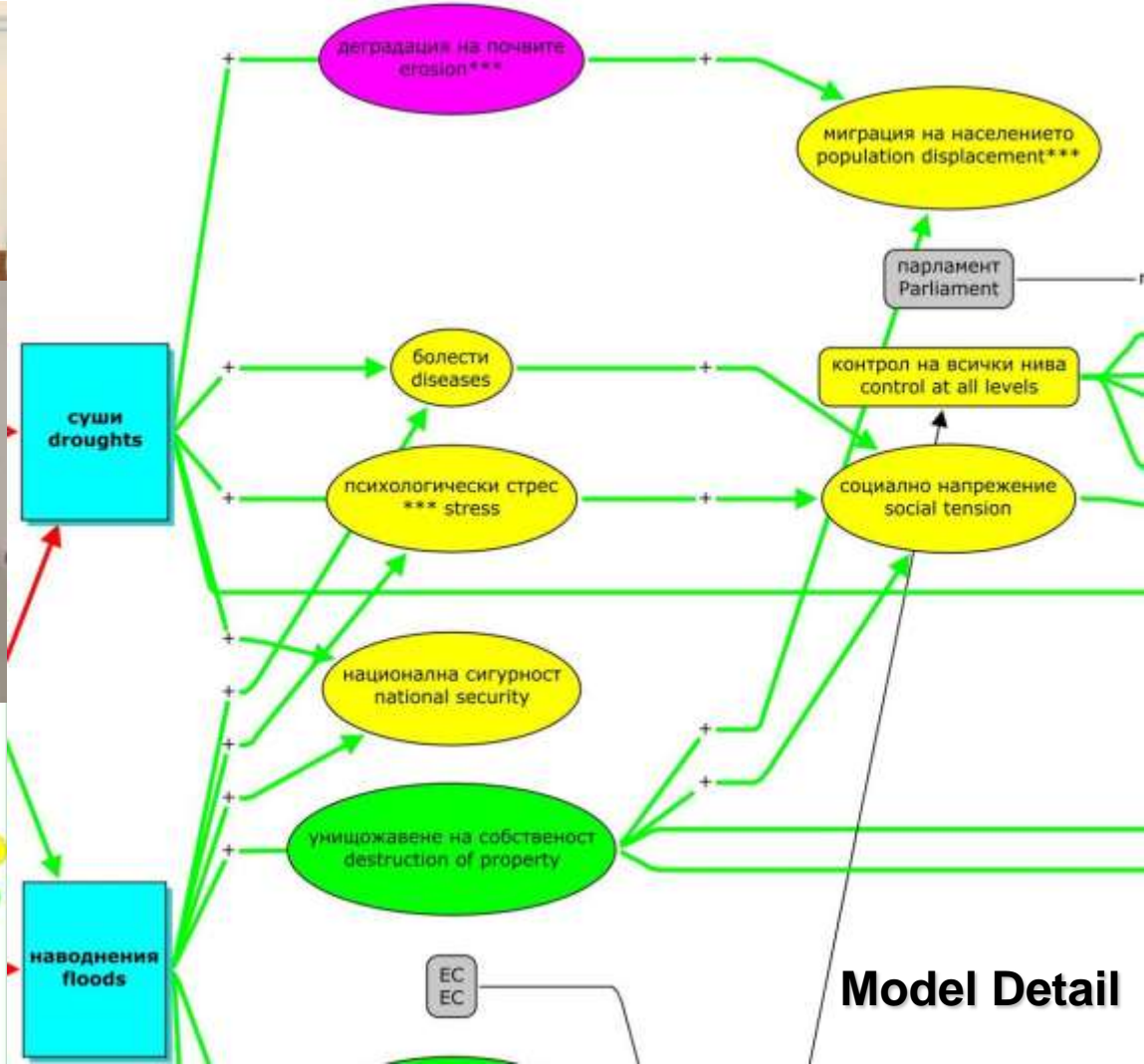
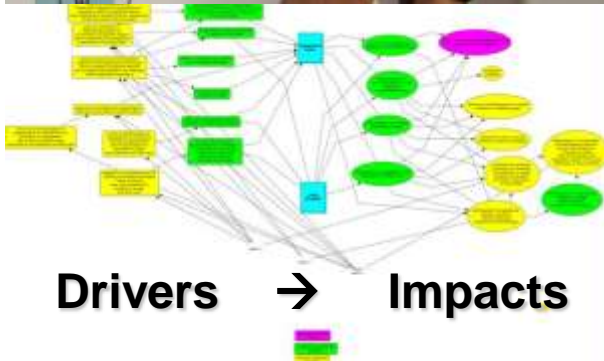
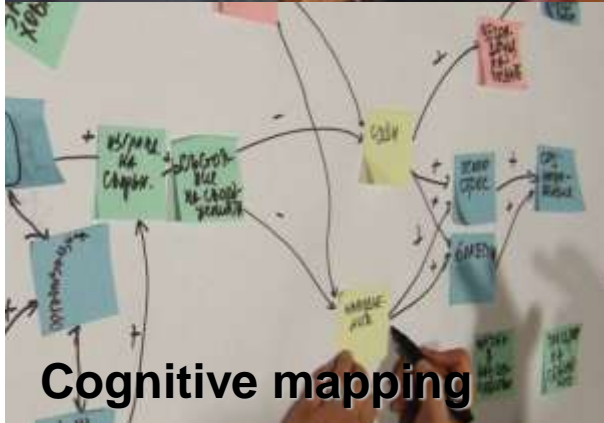
Bulgarian Process Implementation

Flood and Drought Risk Management in the Upper Iskar Basin

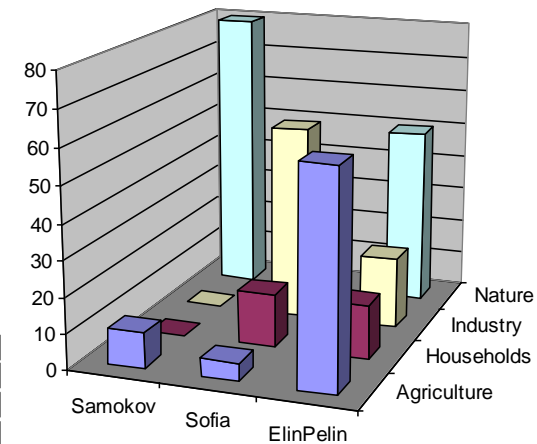
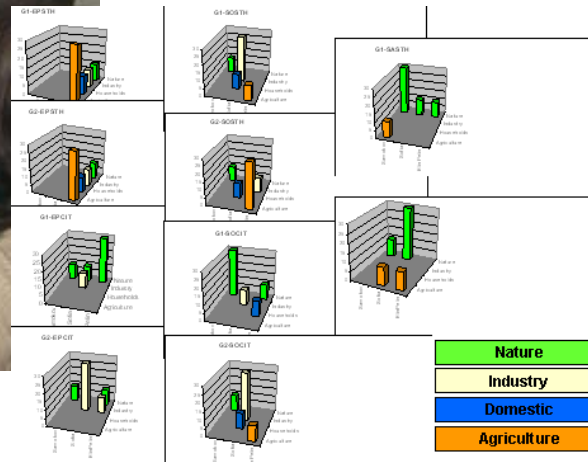


6 Stakeholder Groups:
National Policy makers
to local residents

Assessing the situation



- Spatial and sectorial priorities



- Objectives and constraints formulation



POSITIVE VISION

developed industry, developed agriculture, green and clean fields, people's mentality changed towards care about nature, river beds are kept clean by everyone; active citizens; each stakeholder does his work in a responsible manner; the municipality has a reserve for disaster cases; river beds are kept clean; (EL PEL OSH)

- There is no water stress
- Each community has its own water supply sources and adequate water supply equipment, which ensure the water supply to a bigger extent:

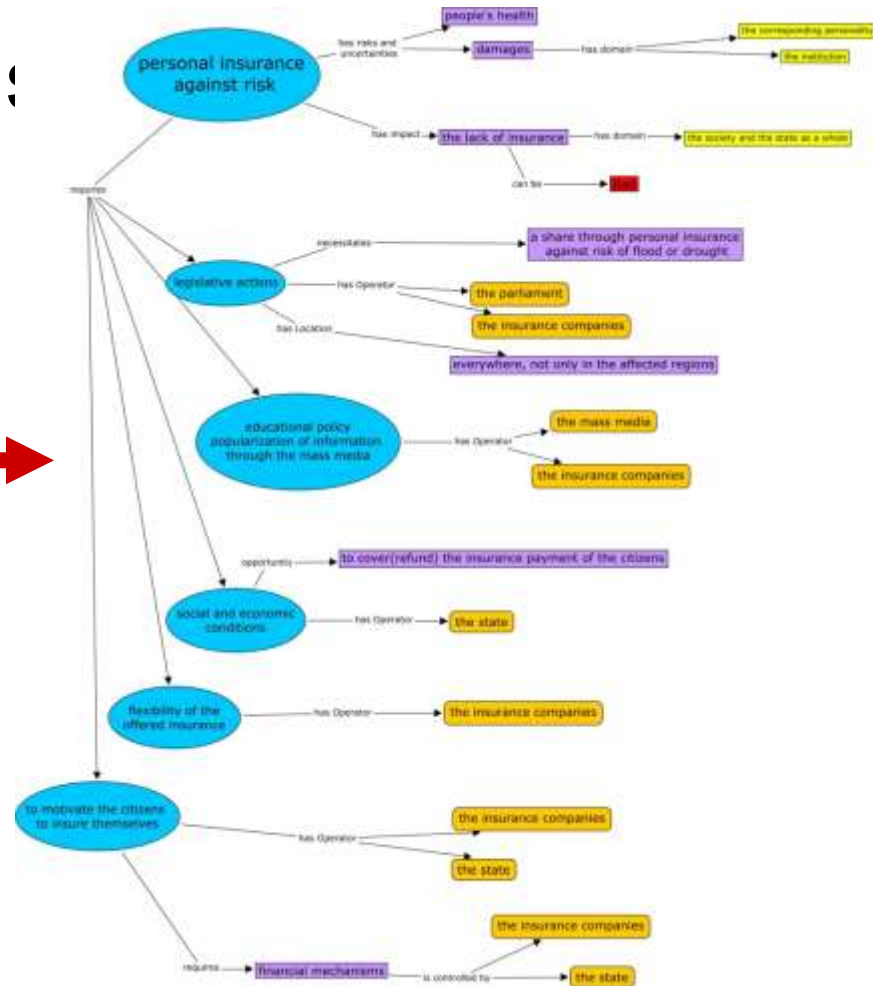
NEGATIVE VISION

no development of industry and agriculture, impoverishment, alcoholism, no one cares about anything. funds are managed at the central level; no money for development in the municipality; no development; poor municipality; big damages of floods. (EL PEL OSH)

- new period of droughts
- Everybody thinks that they know everything about water supply but do not do anything
- There are fights for water
- Government doesn't take

Discussing possible options

Individual interviews + :



Jointly tackling a question



Co-construction of a shared representation of issue: ARDI method
If necessary, implementing that shared representation in a computer model



Collective visualisation of social and ecological dynamics

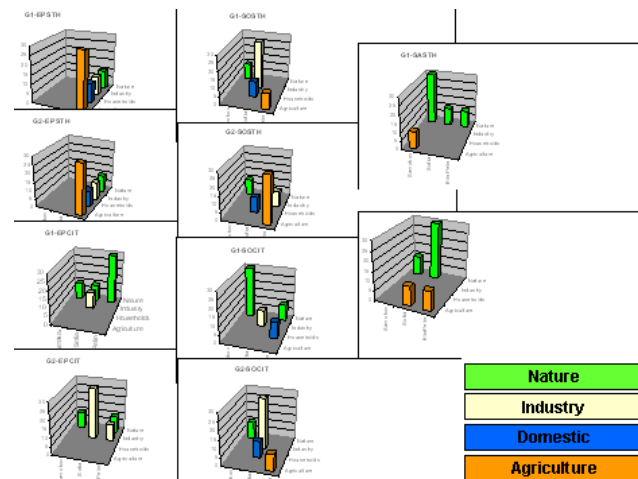
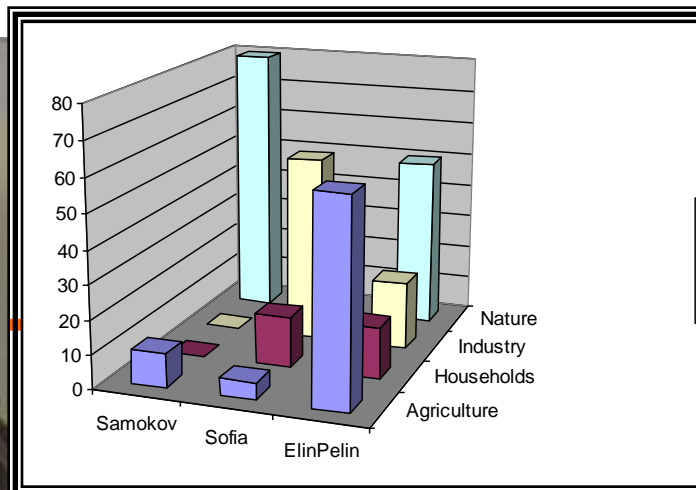


Collective discussion of scenarios

Strategy selection and location



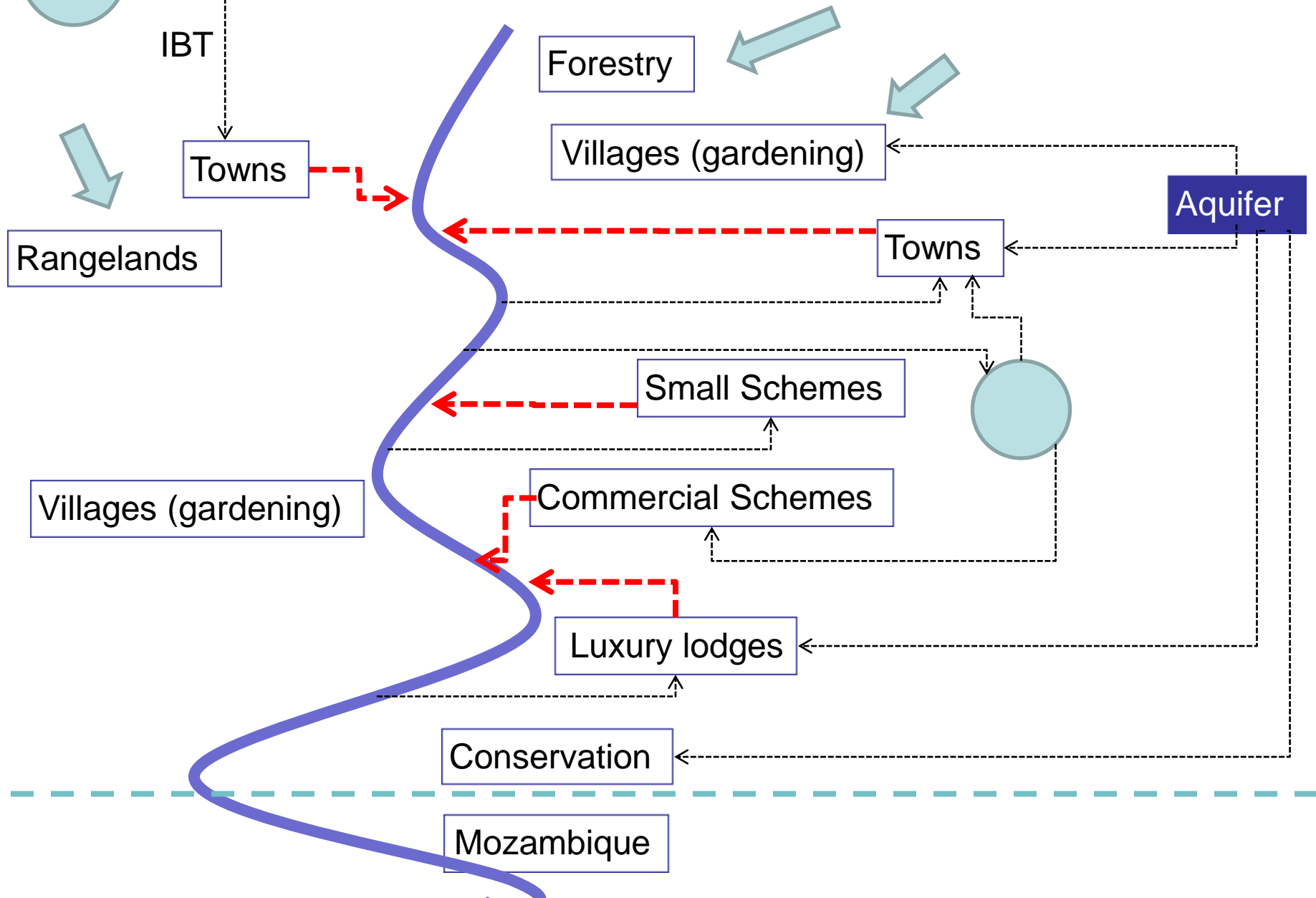
Eliciting preferences for allocation (Bulgaria)



What can simulations do?

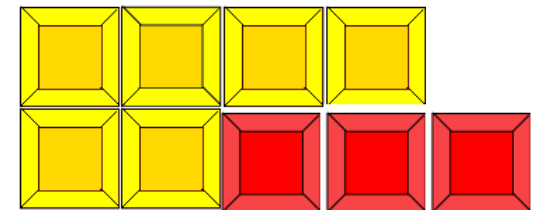
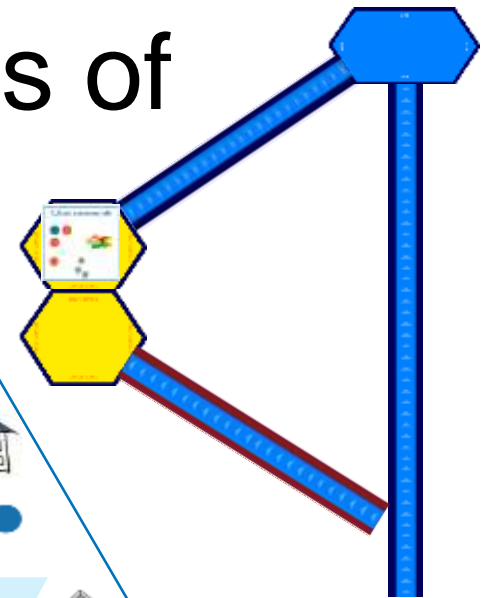
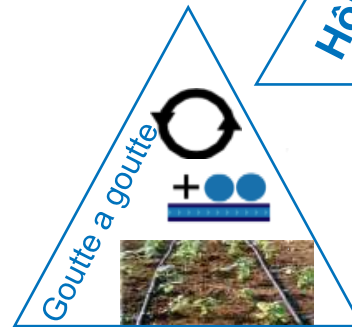
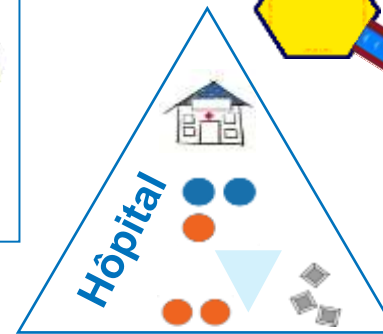
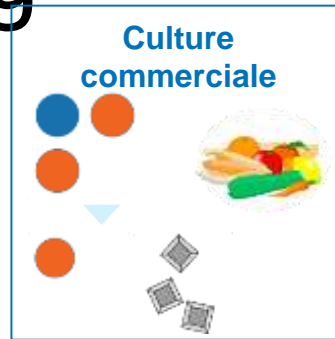
- Promote systems understanding
- Build familiarity with components of a system (catchment)
- *The relationship between up/downstream relationships in strategic planning is extremely important- if not as important as sector related planning.*

Structure of the catchment



Simplification for purposes of understanding

- Water elements
- LActions
 - Land uses
 - Services
 - Infrastructures
- Water tokens
 - Clean & Dirty
- Resources
 - Financial & Non financial
- Events and plot cards



- Assist in the development of partnerships
- Clarify principles for management
- Visualisation is useful
- Understanding starts to emerge **in** the process - start simply and confirm understanding as you proceed
- Step by step introduction of new aspects and elements is important.



• Dialogue is very important.

- Provide a map of outcomes for different configurations of management decisions
- Shift from learning to strategic thinking
- Dialogue is very important.
- Building common language- one of the strengths of this method.


- Shift from learning to strategic thinking
- Language- one of the strengths of this method.
- The use of the term 'game' is problematic in some contexts. In some cultures the playing of games denote 'non-serious' activity or something reserved for children.

Where are the challenges?

- Water deficits and water stress
- Reverts to economic rationality
- Focus on short terms gains
- Role playing can be trivialised
- Issues of trust and relations might not be adequately addressed
- Trust in the method and process
- Takes time

Multiple stakeholder environments:

- Positions: **what** they want from the negotiation process
- Interests: **why** they want it



The most likely site for the emergence of sustainability discourse

- Inter and intra-sector competition is downplayed
- Participants withhold the right to participate
- Participation is delegated to junior staff

Some questions in conclusion

- *Are we getting the application correct?*
- *Are simulations associated with relevant water management practice*
- *Can simulations reduce conflict?*
- *Can we build a culture of stakeholder participation?*
- *Can we institutionalise the application*
- *Are the outcomes taken seriously and is there feedback?*
- *Who will drive the processes?*