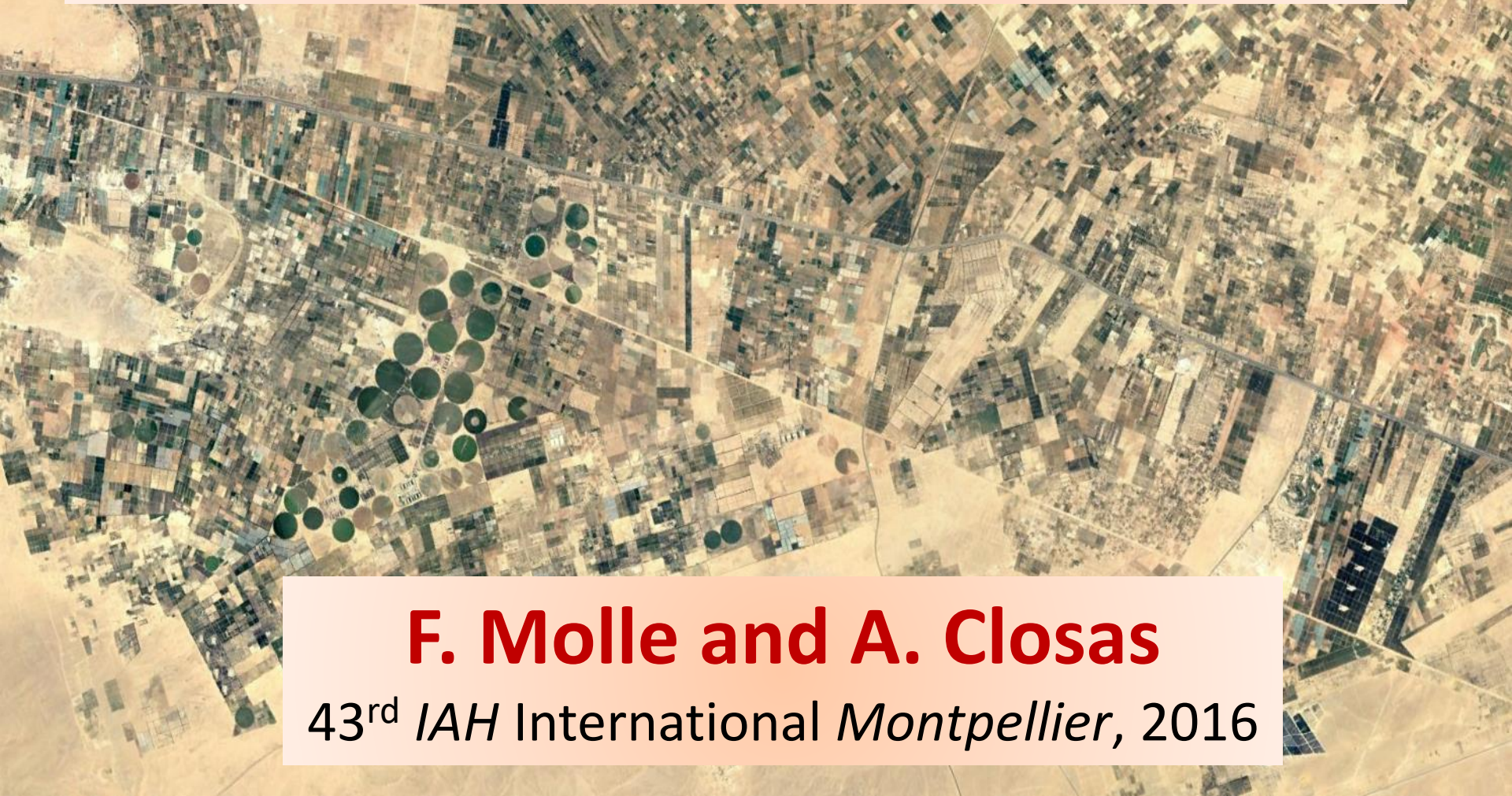
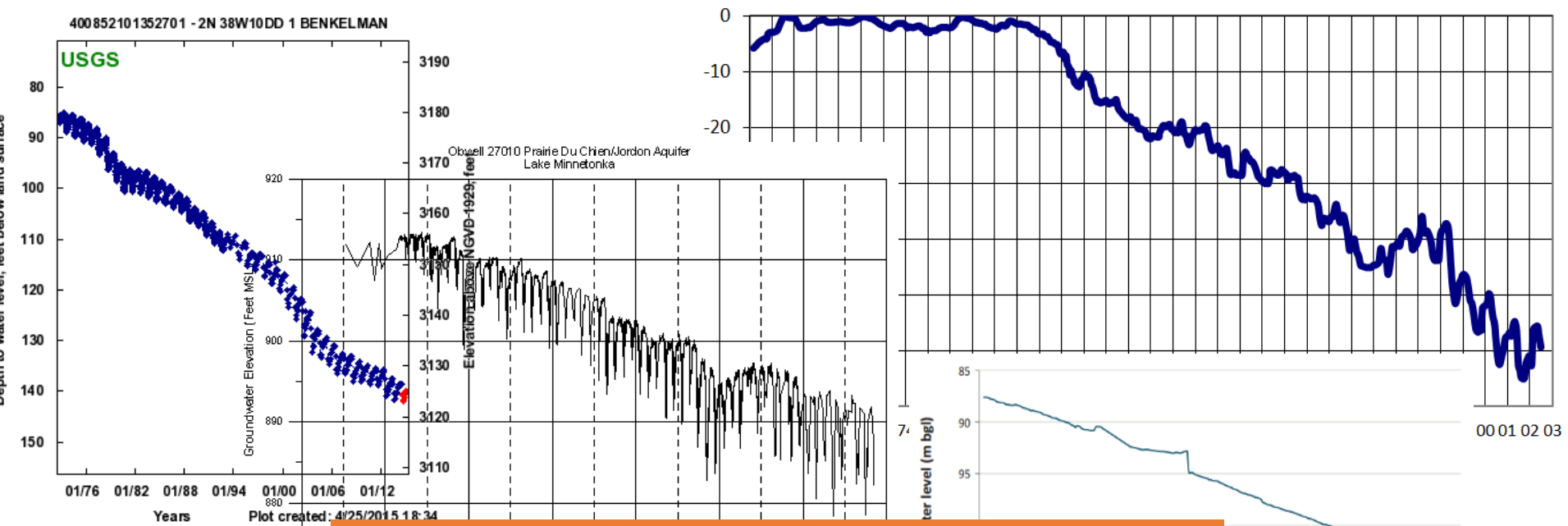


The governance of groundwater and the state-community comanagement continuum

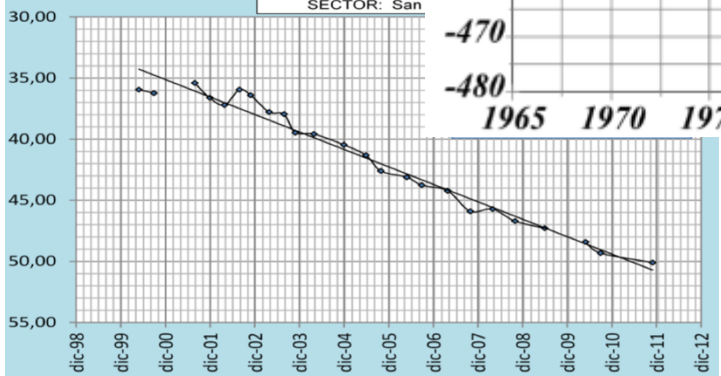
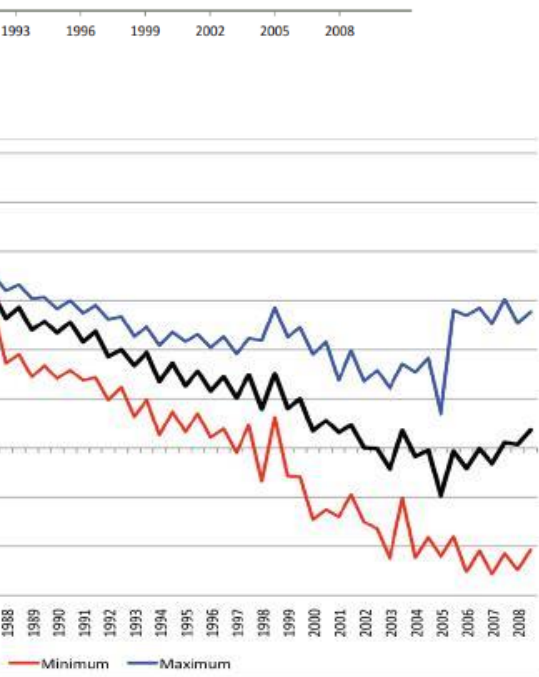
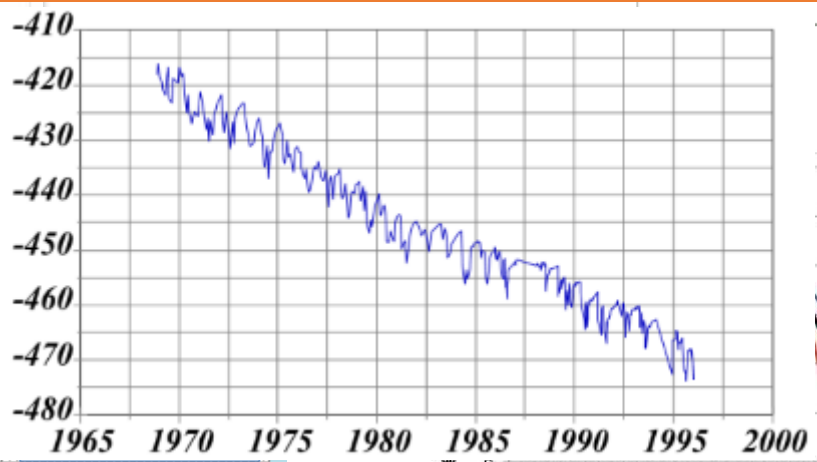


F. Molle and A. Closas

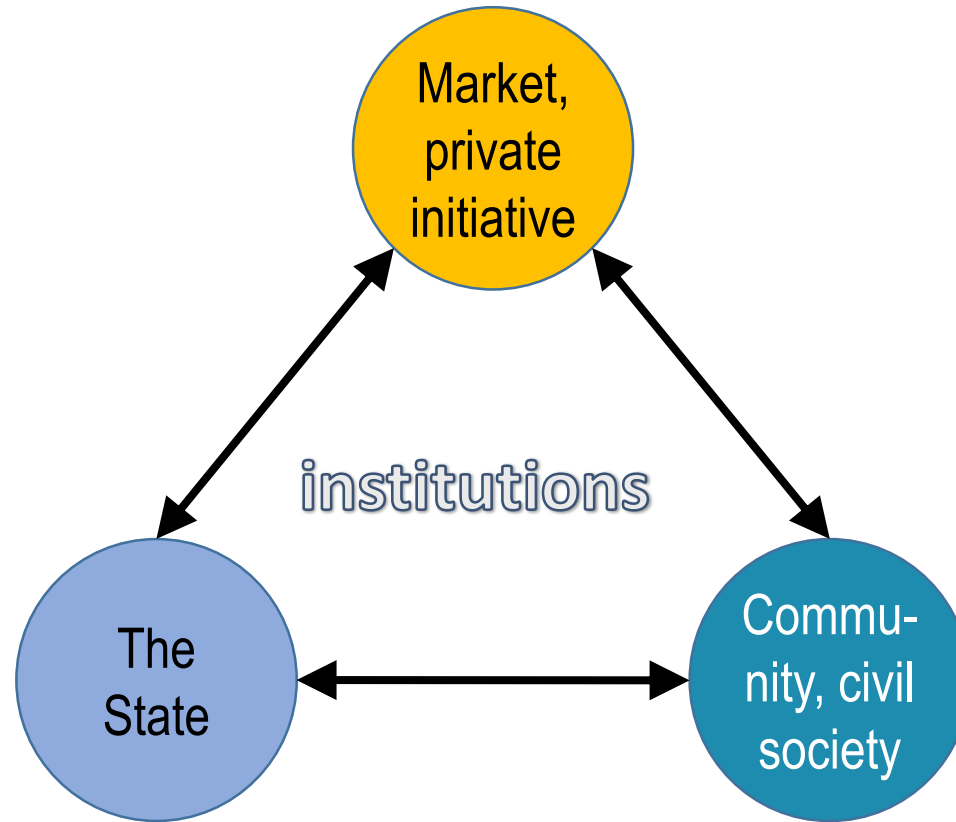
43rd *IAH International Montpellier, 2016*



Unsustainable use of groundwater



Basic patterns of governance/coordination



Basic patterns of governance/coordination



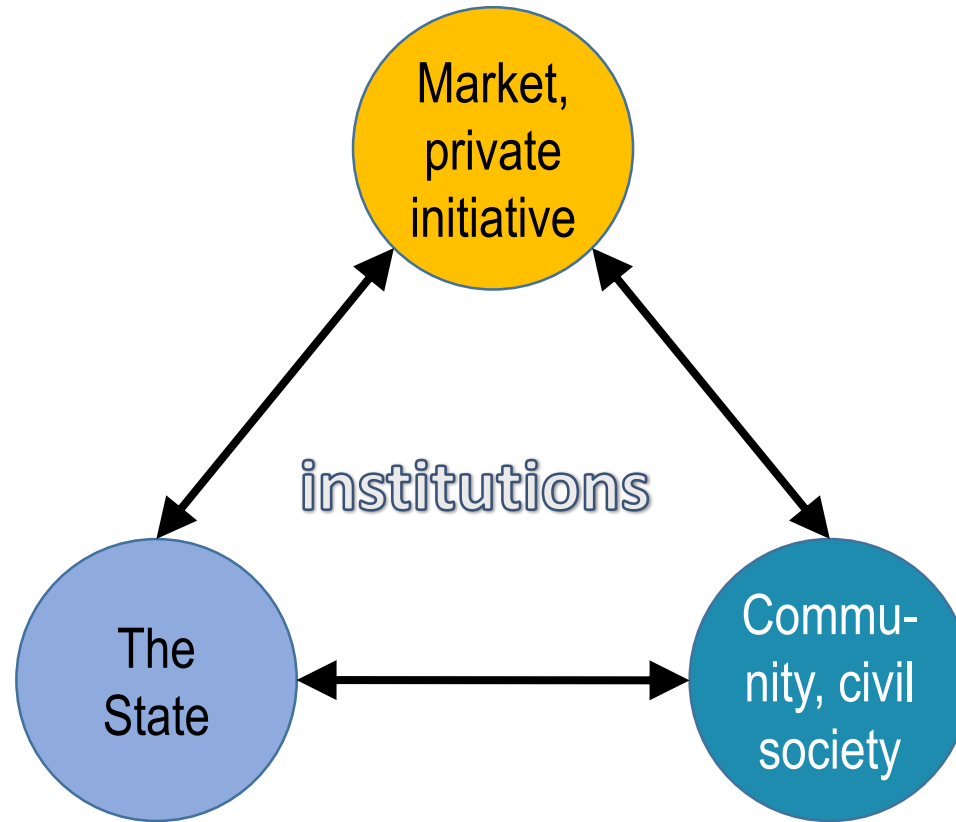
The State

- Licensing system
- Volumetric quotas
- Prohibition zones
- Drilling bans
- Backfilling
- Regulation of drillers

- Water pricing
- Energy policies
- Subsidies (crops, etc)
- Awareness campaigns
- Buy-out of wells/rights

- Supply substitution

Basic patterns of governance/coordination



Basic patterns of governance/coordination

- Rules for drilling new wells
- Collective wells
- Volumetric/time limitations
- Hydrologic monitoring

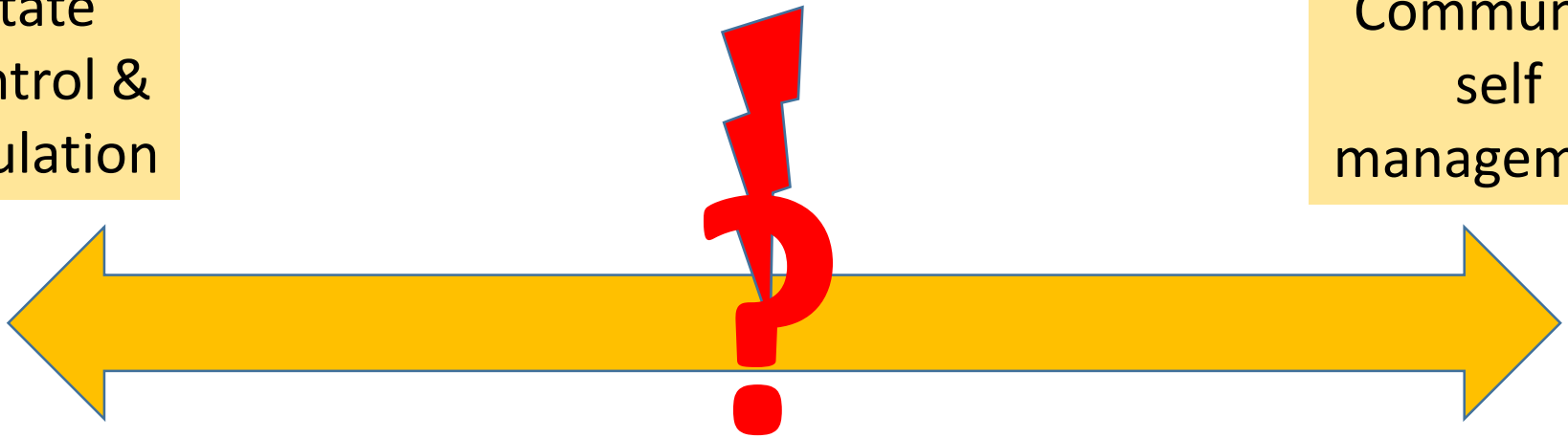


Community,
civil society

Governance continuum

State
Control &
regulation

Community
self
management



Co-management is a *necessity*
But how to find the right mix?

A synthesis

How to measure the effectiveness of co-management?

Process criteria

- Open and transparent process
- Inclusive participation
- Consensus-based decision-making

Socio-economic and empowerment

- Increased knowledge and understanding
- Increased trust
- Fairness in decision-making
- Losers compensated
- Shared roles in water allocation, planning, decision-making but also enforcement

Environmental criteria

- Overabstraction stabilized or reduced
- Water quality preserved
- Springs, wetlands preserved

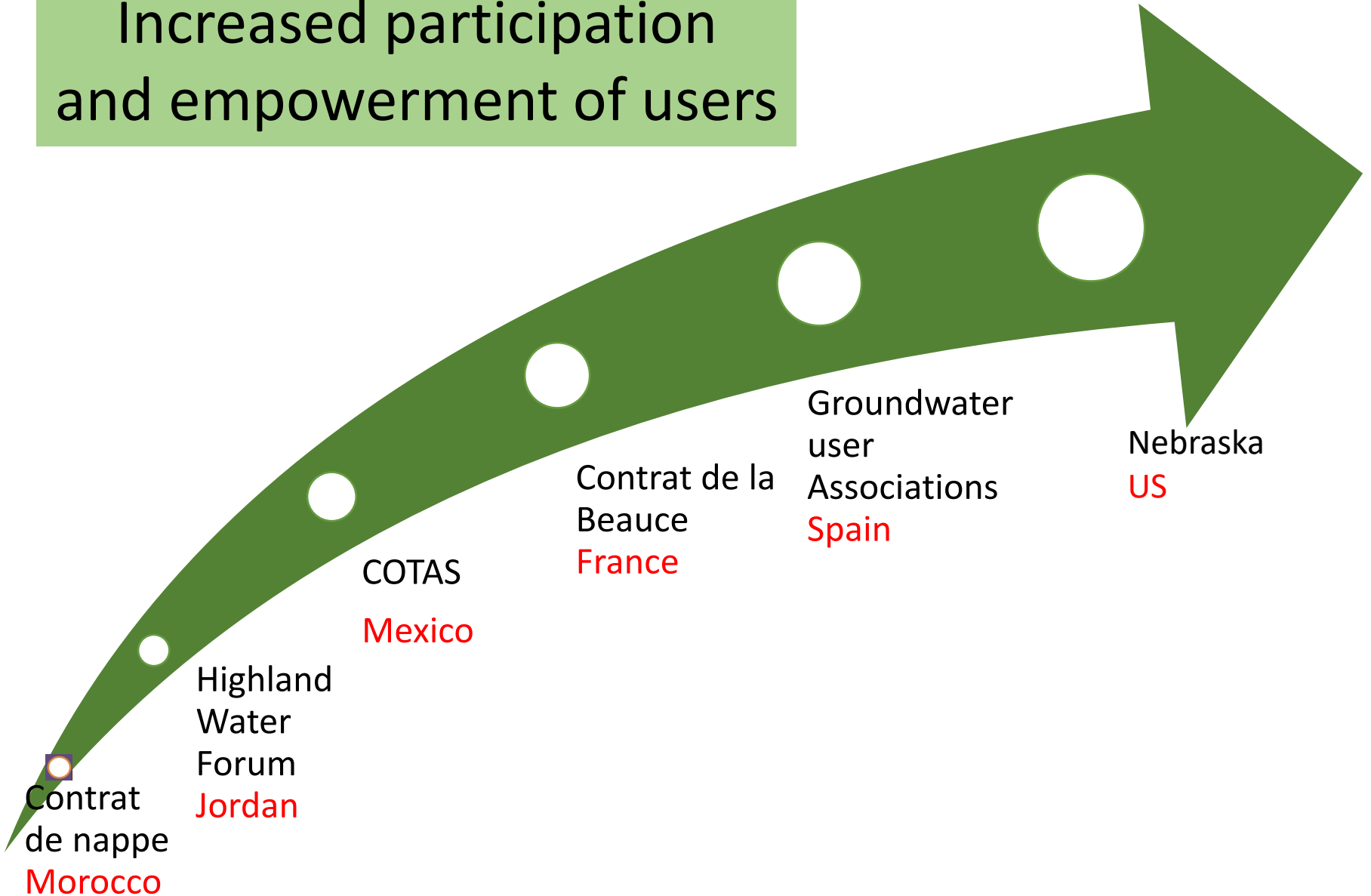
« A successfull cooperative management system in Tampa Bay »

« Oman used stringent administrative regulation with great vigor and seriousness »

“Producers and landowners have demonstrated both the need for and the willingness to make management changes that will measurably improve water supply and water quality to sustain the viability of agriculture in the Valley”

Etc: many reported stories of people talking and doing things together but few well-documented success stories

Increased participation and empowerment of users



Contrat de nappe (Morocco)

Initiated in Souss-Massa,
further to some conflict

Minister's support

Joint agreement for a set of
give-and-take measures

Freezing of wells + fees
against subsidies and supply
augmentation

Failed to be applied

Yet, idea promoted at
national level

Highland Water Forum (Jordan)

Ramsar wetland dried up by
intensive pumping

UNDP, IUCN, GIZ successive
initiatives

Multi-stakeholder platform

Way of claiming benefits vs
way of mediating state
policies

Land conundrum untouched

Overexploitation not really
tackled

COTAS (Mexico)

Initiated by the state; need
to have representative
organizations

No real power devolution,
consultative role

Capture by commercial
farmers and agroindustrials

Poor internal democracy
(elections of
representatives)

Contrat de nappe (Beauce, France)

Impact of overpumping on wetland, baseflow, complaint by NGO (1995)

Overall quota allocated to 6 OUGC (*Organisme Unique de Gestion Collective*), in charge of allocation at user level (3600 farms)

Monitoring of water table, System of thresholds triggering required reduction in abstraction

Self-enforcement

La Mancha Oriental (Spain)

Impact on springs and baseflow

Credible threat that the RBO will enforce strict entitlements

Volumetric user entitlement, Self-monitoring, reduction in case of drought, buyback by the state

Monitoring and reporting of new wells by users


Natural Resource Districts (NRD - Nebraska)

NRD based on hydrology not districts

Each district has to maintain a groundwater management plan, reviewed by the DNR

DNR establishes minimum allowable drawdowns

Local rule-enforcement and graduated sanctions

- 
- Participatory process pushed by donors
 - No real empowerment by the state authorities, which retain power
 - Insufficient knowledge of the situation (hydrology, users, etc)
 - Lack of political will/support
 - Capture by large landowners or investors, or political parties

- Credible threat AND/OR High-level injunction (EU, compact, etc)
- Possible management rules when imbalance not too large
- Possibility to identify users and evaluate use volumetrically
- Empowerment? Yes but also a role in enforcing state regulation (not a matter of 'joining hands')
- Overriding constraints and rules
- A series of carrots extended to complying WUAs





Thanks for your attention