

Water Stress

Improving efficiency in River Basin Management

Summary of inputs

Discussion themes

The INECO Case Studies on RBM

DAMOUR RIVER BASIN, LEBANON

- ◉ Water stress, especially in the downstream part of the Basin
 - Low quality & insufficient quantity due to upstream pollution & abstractions
 - Overexploitation of groundwater, due also to interbasin transfer
- ◉ Need for
 - Supply enhancement and/or demand management (efficiency improvements in water use)
 - Enabling processes for reaching consensus on water allocation & protection at the River Basin level
 - Enhancing collaboration between central authorities & local authorities

OUM ER RBIA BASIN, MOROCCO

- ◉ Water stress
 - Significant losses in irrigation distribution networks
 - Low efficiency in irrigation methods
 - Water-intensive cropping patterns
- ◉ Need for
 - Supporting demand management
 - Enabling processes for collective management at the users' level
 - Enhancing collaboration between local authorities & user associations

The Structural and the Non-structural approach

○ Supply enhancement options

- Much progress made in terms of infrastructure development
- New dams or inter-basin transfers entail high costs
- Despite technology progress, desalination is still an expensive solution & economically justifiable only for high income uses

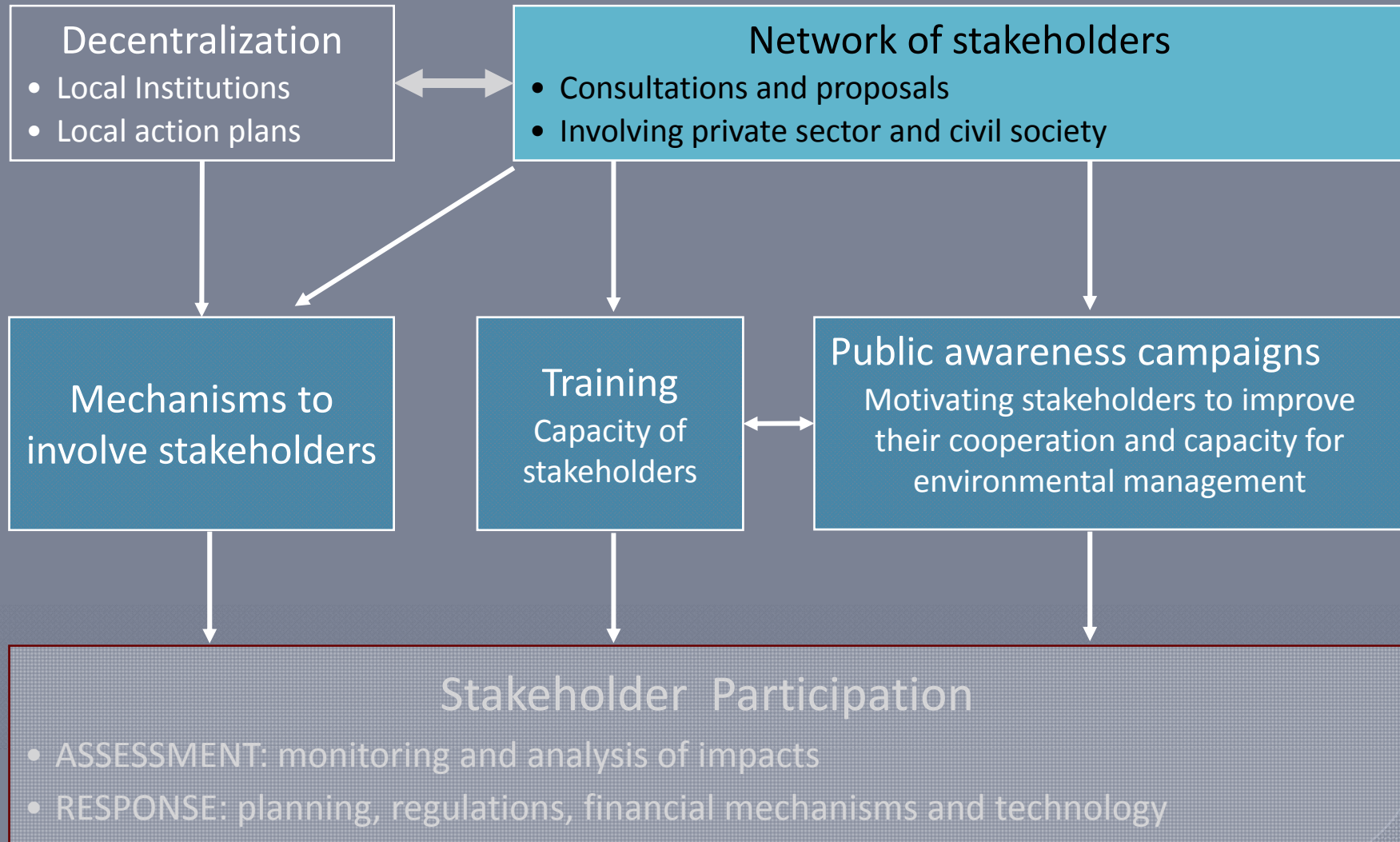
○ Demand management options

- Meeting different needs with the appropriate quality of water
 - Can defer the need for additional infrastructure
- Focus on improving efficiency in water use → saved water can be reallocated to other uses

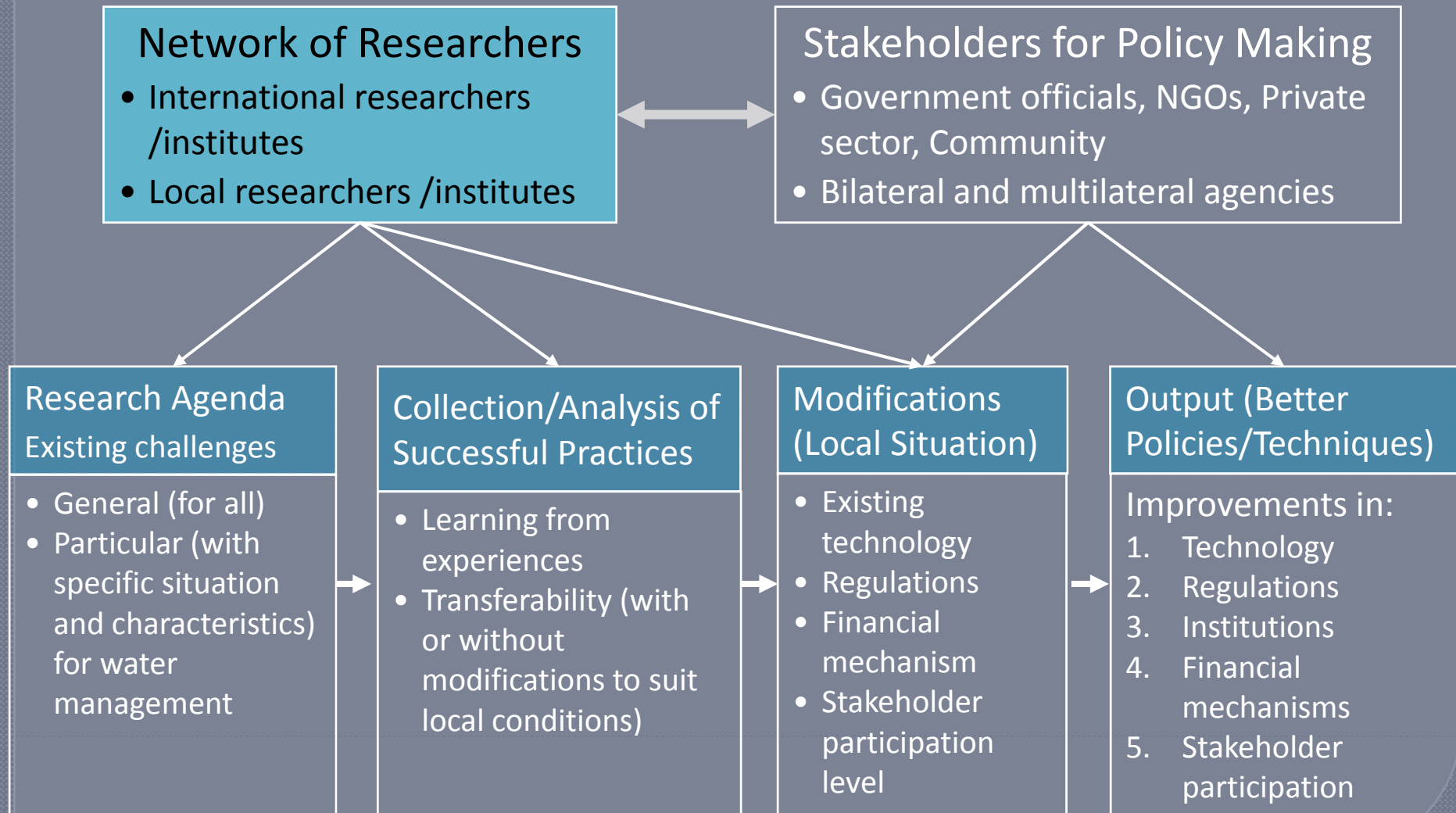
Hardware vs. Software

- “Hardware” (infrastructure) needs to be accompanied by “software”:
 - Incentives for improving efficiency
 - Strengthening institutions so that they can manage services at the lowest level appropriate
- Capacity building
- Engaging communities in decision-making & improving societal awareness on water issues

Building local capacity (1/2)



Building local capacity (2/2)



Summary of Proposed Options

DAMOUR RIVER BASIN, LEBANON

- ◉ Stricter standards on water use & discharge – Enforcement mechanisms
- ◉ Grants/subsidies for improving efficiency in:
 - Irrigated agriculture
 - Domestic sector
- ◉ Metering & water pricing for agricultural & urban water use (incentives and sustainability of water services)
- ◉ Abstraction charges & effluent charges
- ◉ River Basin Association – Cooperation and Agreement protocols
 - Citizen/user awareness and participation

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- ◉ Higher grants & subsidies to farmers for modernizing irrigation methods
- ◉ Abstraction charges
- ◉ Tradable water quotas
- ◉ Increase of irrigation charges for abstractions greater than theoretical crop requirements
- ◉ Voluntary agreements supported by training for:
 - Irrigation scheduling, improvement in irrigation methods
 - Shift to less water-intensive crops
- ◉ Institutional mobilization of users & local authorities

Option Analysis

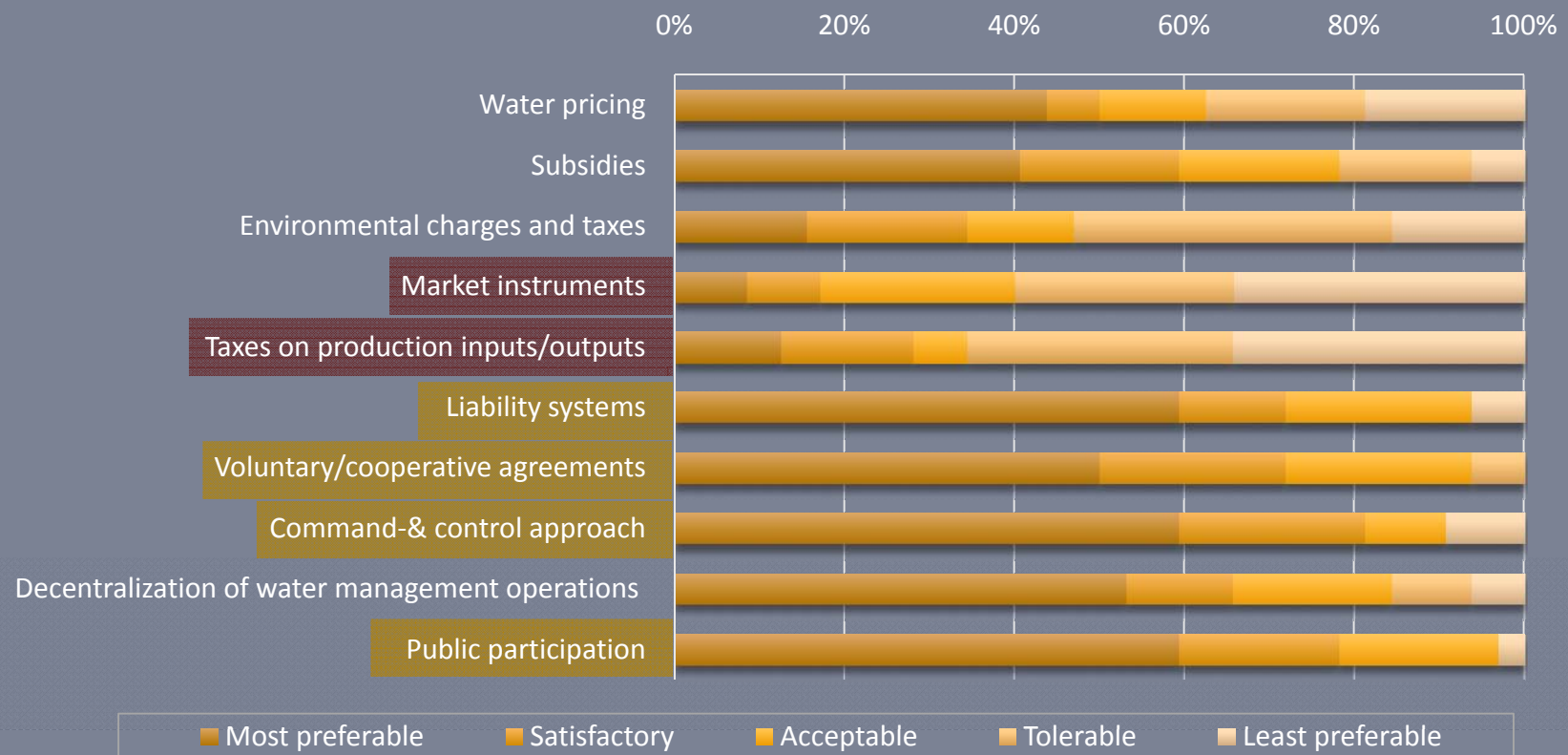
Damour River Basin, Lebanon

- Limited support for water saving in irrigation & domestic use
 - Insufficient metering of water consumption due to lack of funds
 - Limited financial incentives for technology improvements & leakage control
 - Tolerable water tariff increase = two-fold the current
- Lack of alternative water supply & inadequate services → shift to self-supply, which contributes to groundwater overexploitation
- Limited enforcement of environmental legislation
- Abstraction charges are foreseen in the legislation

Evaluating instruments

Damour River Basin, Lebanon

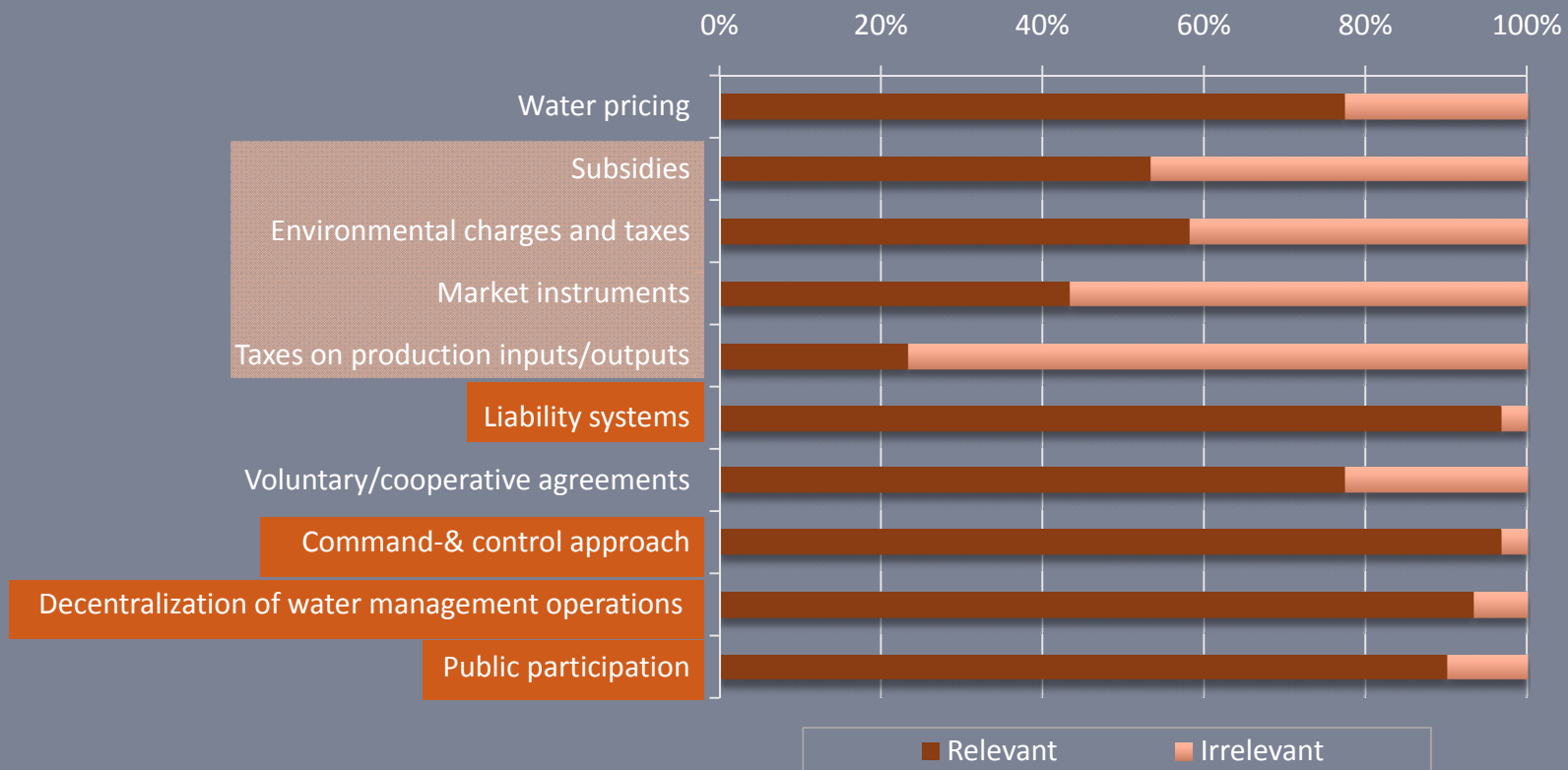
A. Preference on options



Evaluating instruments

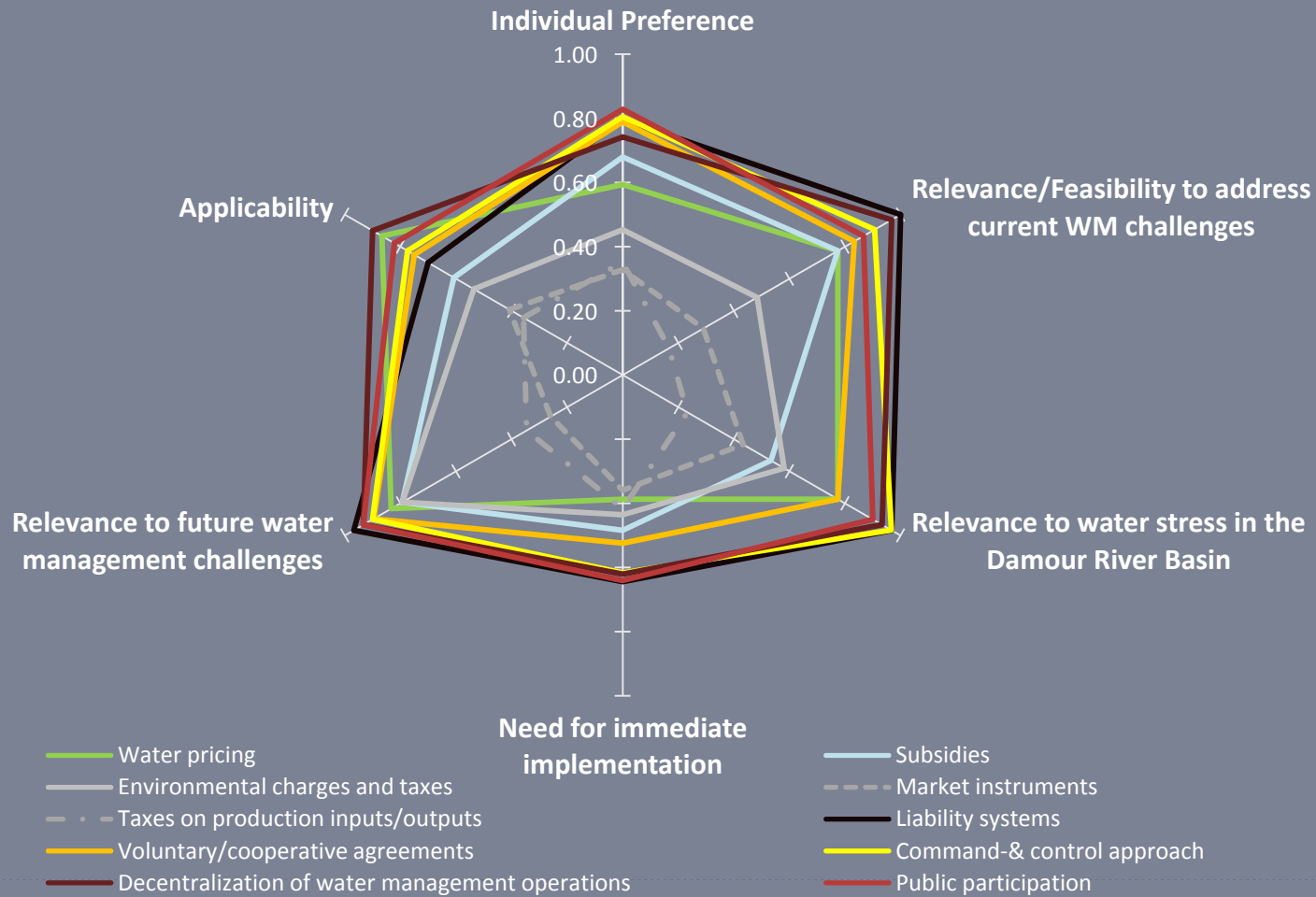
Damour River Basin, Lebanon

B. Relevance to water stress in the Damour River Basin



Most respondents advocate the need for dam construction as solution to water stress

Overall Evaluation: Lebanon



The INECO Morocco workshop

Main actions agreed

- Increase grants on installation of more efficient irrigation systems according to the example of other regions
 - State (60%), ABH resources (20%), users (20%)
- Explore potential of water reuse
- More equitable allocation of cost for the maintenance of irrigation networks
- Strengthening of the role of the ABH in water management, conflict resolution
- Strengthening of the role of user associations & legislative reform
- Better coordination & cooperation among water managers and users



Discussion Themes

○ Supply enhancement ~ Demand management

- Infrastructure financing & cost recovery
- Efficiency improvements
 - In water use (subsidies for technology improvements)
 - In water allocation – phasing-out of low value uses

○ Development of incentive-based participatory mechanisms

- Conflict resolution
- Allocation of water between competitive uses/users
- Public information organizations on local WM issues