Basic elements of Effective Water Resources Management

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EFFECTIVE WATER RESOURCES MANAGEMENT

When the outcome “at the bottom” reflects the priorities set “at the top”

An observable fact...
GOOD WATER RESOURCES MANAGEMENT

When we approve of the outcome at the bottom

A personal opinion...
ABCDE...

COMPONENTS OF AN EFFECTIVE PROCESS

NOT

RECOMMENDATIONS FOR THE OUTCOME
109. We recognize that a significant portion of the world’s poor live in rural areas, and that rural communities play an important role in the economic development of many countries. We emphasize the need to revitalize the agricultural and rural development sectors, notably in developing countries, in an economically, socially and environmentally sustainable manner. We recognize the importance to take the necessary actions to better address the needs of rural communities through, *inter alia*, enhancing access by agricultural producers, in particular small producers, women, indigenous peoples and people living in vulnerable situations, to credit and other financial services, markets, secure land tenure, health care and social services, education and training, knowledge, and appropriate and affordable technologies, including for efficient irrigation, reuse of treated waste water, water harvesting and storage. We reiterate the importance of empowering rural women as critical agents for enhancing agricultural and rural development and food security and nutrition. We also recognize the importance of traditional sustainable agricultural practices, including traditional seed supply systems, including for many indigenous peoples and local communities.
Perhaps we need something simpler...
ABCDE OF WATER...
The components

- Understanding how much water is available
Understanding how much water is available

- Precipitation
- Hydrology/hydrogeology
- Committed inflows, committed outflows to specified uses

Scarce? Plentiful? Variable? Seasonal?…
The components

● Understanding how much water is available
● Prioritizing Allocation
Prioritizing Allocation

A political process involving:

- Sectoral priorities (food security, poverty)
- Economics (productivity, growth)
- Special interest groups (wetlands, fish...)
- Historical rights, cultural heritage...

DEBATE, ARGUMENT, COMPROMISE...
The components

- Understanding how much water is available
- Prioritizing Allocation
- Setting Rules
Setting Rules

Translation of the priorities into laws, regulations and procedures

- Surface water rights
  - Drought
  - Flood
- Groundwater rights
- Emergencies
The components

- Understanding how much water is available
- Prioritizing Allocation
- Setting Rules
- Assigning responsibility
Assigning responsibility
- Basin Management Authorities (national, international)
- Regional agencies
- Project operators (municipal, hydro, irrigation)
- Farmer organizations

*Note that “intersectoral” competition can occur at every level!*
The components

- Understanding how much water is available
- Prioritizing allocation
- Setting Rules
- Assigning responsibility
- Developing the facilities
Developing the facilities

- Dams
- Canals
- Well fields
- Drainage/sewerage collection and processing

The facilities must be able to deliver the agreed service
Summary

- Understanding how much water is available
  - **ACCOUNTING**
- Prioritizing allocation
  - **BARGAINING**
- Setting Rules
  - **CODIFICATION**
- Assigning responsibility
  - **DELEGATION**
- Developing the facilities
  - **ENGINEERING**
ACCOUNTING (HYDROLOGY)

BARGAINING (POLITICS)

CODIFICATION (LAW)

DELEGATION (INSTITUTIONS)

ENGINEERING
Implications of the “Key Elements”…

● Feedback—one intervention, many impacts

● Successful water management is multi-disciplinary
  ● Disciplines must respect each other
Implications of the “Key Elements”… (2)

There is no unique “right” outcome

Government *always* has “stewardship” functions that cannot be delegated
Other people are trying to use ABCDEF
## PILLAR I: RELIABILITY of IRRIGATION WATER

<table>
<thead>
<tr>
<th>NO</th>
<th>SUBSTANCE OF MODERNIZATION</th>
<th>ACCOUNTING</th>
<th>BARGAINING</th>
<th>CODIFICATION</th>
<th>DELEGATION</th>
<th>ENGINEERING</th>
<th>FEEDBACK</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Water use right</td>
<td>Political right</td>
<td>Bargaining process among stakeholders</td>
<td>Setting up Government rule on water right</td>
<td>Implementation of Government rule on water right</td>
<td>Information and communication Technology, ICT</td>
<td>Participatory level</td>
</tr>
<tr>
<td>2</td>
<td>Water Supply and Water Saving</td>
<td>Water balance study</td>
<td>Agreement among stakeholder</td>
<td>Adjustment with stated pattern of water management in the basin level</td>
<td>Basin manager</td>
<td>ICT</td>
<td></td>
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<tr>
<td>3</td>
<td>Water availability</td>
<td>Study on calculation of water consumption for both irrigation and non irrigation sector</td>
<td>Agreement among stakeholder in the meeting of basin water management coordination team based on water right rule</td>
<td>Rule of chairman of basin water management coordination team</td>
<td>Basin manager</td>
<td>Setting up water allocation model</td>
<td>Monitoring and evaluation</td>
</tr>
<tr>
<td>4</td>
<td>Watershed sustainability</td>
<td>Study on calculation of watershed capacity to support water supply</td>
<td>Agreement between stakeholder and asset owner in the watershed</td>
<td>Some rules on watershed sustainability, agrarian, space planning</td>
<td>Water resources council as coordinator</td>
<td>Watershed Asset Management Consistency between space planning and land use</td>
<td>Monitoring and evaluation</td>
</tr>
</tbody>
</table>
Thank you...