Planning for Modernization: MASSCOTE Approach

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Modernization to improve performance

Irrigation performance often lower than expected - improvements are critically needed.

Modernization a continuing process that aim to bring about improvements.
Irrigation Management and operation: more complex more demanding!!

- Service to users more diversified (diverse cropping pattern; multiple uses)
- Cost effective Management and Operations
- Participation of farmers and other water users in the governance of the irrigation systems

An urgent need to tackle complexity!

IRRIGATION SYSTEM MODERNIZATION

FAO 1997 Definition of Modernization:

“a process of **technical and managerial upgrading** (as opposed to mere rehabilitation) of irrigation schemes with the objective to **improve resource utilization** (labor, water, economics, environmental) and **water delivery service** to farms.”
Service Oriented Management
3 basic flows WATER – INFORMATION - MONEY

MAppling System & Services for Canal Operation Techniques

Based on FAO experiences on Modernization of Canal Operation
MASSCOTE elements

• **Focus on Canal Operation BUT Scope on Management**: Canal operation produces the service – Canal examination is critical for the appraisal (canals don’t lie).

• **Service Oriented Management**: the service to users is the central and only goal of Management, Operation and Maintenance of an irrigation system.

• **Heterogeneity of service**: based on the physical constraints, opportunities, demand for service, willingness to pay

MASSCOTE elements

• **Cost effectiveness**: modernization means for each users the right service at the right cost.

• **Users=payers=decision makers**: Users are the clients, the beneficiaries, the payers and the decision makers

• **Professionalism!!!**: Management, operation and maintenance of large scale irrigation systems are complex tasks and needs skilled professionals.
MASSCOTE FRAMEWORK

RAPID APPRAISAL PROCEDURE (RAP)

Systematic set of procedure
- Establish water delivery service at different levels of an irrigation system;
- Identify bottlenecks, constraints, and opportunities;
- Provide insights into internal processes; and external inputs and outputs
- Benchmarking
Land Productivity at Scheme Level

Water Productivity at Scheme Level
Capacity, Sensitivity, Perturbation

- Capacity: Assessment of the physical capacity of irrigation structures to perform their function - conveyance, control, measurement, etc.,
- Sensitivity: Hydraulic Behavior
- Perturbation: Disturbances - when, where, how much, cause, coping mechanism

Water accounting; Cost of operation

- Account for water inflows and outflows – availability and use
- Costs associated with current and future services
MASSCOTE FRAMEWORK

Management units; Demand for operation

- Dividing large irrigation system into smaller manageable units;
- Demand for operation depends on vulnerability, sensitivity, and perturbation

Compact management units

Too long management units
Improvements, Integration, M&E

- Improvements with costs;
- Check for inconsistencies
- Plan for implementation and M&E

12 main points & several local control instead of exhaustive M&E

Hierarchical Downstream control 4 main points

MASSCOTE FRAMEWORK

Stakeholder consultation

(10) INTEGRATING SOM OPTIONS
(9) OPERATION IMPROVEMENTS/UNITS
(8) DEMAND for OPERATION
(7) MANAGEMENT UNITS
(6) SERVICE TO USERS

(11) PLAN FOR MODERNIZATION and MONITORING & EVALUATION

Stakeholder consultation

(1) Rapid Appraisal Procedure
(2) CAPACITY & SENSITIVITY
(3) PERTURBATIONS
(4) WATER ACCOUNTING
(5) COST of OPERATION

VISION FOR THE IRRIGATION SYSTEM AND FUTURE SCENARIO BUILDING
MASSCOTE has been used for

- Developing modernization plans for implementation as part of investment projects and programmes (China, India, Kyrgyzstan, Morocco, Pakistan, Sri Lanka)
- Capacity development (Central Asia, East Asia, South Asia, Near East and North Africa)
- As research tools by MSc. students (several from IHE delft)

Irrigation Management and operation: more complex more demanding!!

- canal operation techniques – MASSCOTE
- lift irrigation systems – MASSLIS
- fisheries in irrigation schemes – MASSIF
- multiple use systems – MASSMUS
- gender module of MASSMUS
- pressurized irrigation techniques – MASSPRES
THANK YOU