MASSCOTE:

MApping System and Services for Canal Operation TEchniques

A method for auditing performance and planning modernization of irrigation systems

FAOWATER

What is MASSCOTE?

MASSCOTE is a methodology for analyzing and evaluating different components of an irrigation system in order to develop a modernization plan. The modernization plan consists of physical, institutional, and managerial innovations to improve water delivery services and cost effectiveness of operation and management.

While the overall goal of MASSCOTE is modernization of management with the users as central actors, canal operation is the focus and entry point: modern design and management concepts are based on the definition of an operation plan to achieve specific service and performance objectives. Users are central to this Service Oriented Management (SOM) approach.

What do we mean by modernization of irrigation systems?

FAO defines the modernization as following: 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.

Why the focus on canal operation?

"Canals don't lie": they reflect the existing performance and express the constraints, limits and opportunities of the management. Thus the entry point for MASSCOTE is canal operation, but the the goal is management modernization with the objective of promoting Service Oriented Management (SOM). SOM has specific targets that are explicit in terms of cost, water quantity and water quality to maintain agreed levels of service to users.

Canal operation is a critical entry point because: (i) it is the activity that translates management decisions into tangible outputs; and (ii) it is where current management performance is apparent (the symptoms). Hence MASSCOTE evolves from canal operation to management options including institutional partitioning, organization structure, and SOM). A longer-term plan then addresses more systematically other issues related to management such as incentive structure, governance, and financing in a fully-fledged asset management plan

How does MASSCOTE work?

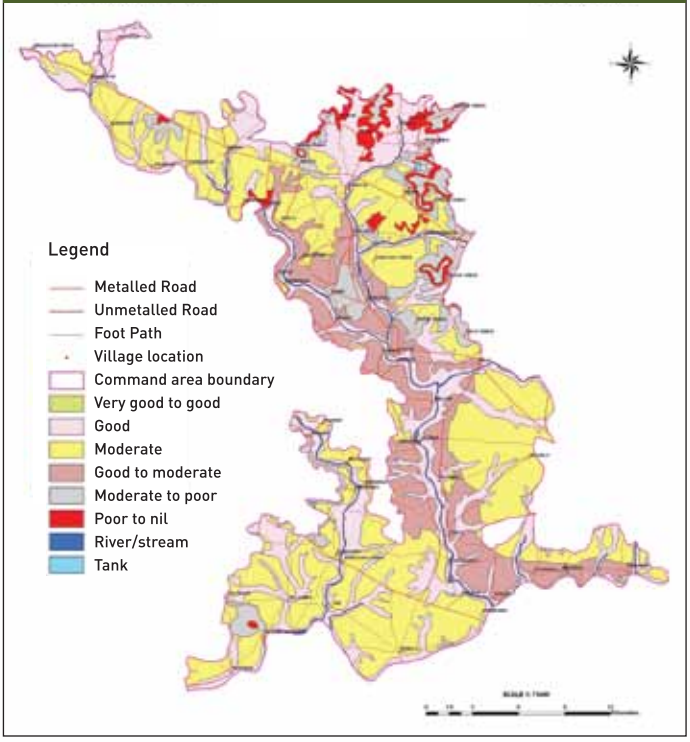
MASSCOTE methodology consists of 11 steps which are grouped into two main parts

- Baseline information and analysis through a Rapid Appraisal Procedure (RAP)
- A vision of water services and modernization plan for canal operation

The RAP deals with evaluation and analysis of the current situation, practices and processes. Subsequently a vision for the irrigation system is developed and targets are established. The modernization improvements are then planned to achieve these targets.

An important feature of the methodology concerns the iterative nature of MASSCOTE. Several rounds of analysis at different levels of the systems (main conveyance, secondary and tertiary canals) might be required before reaching a consolidated analysis.

Mapping ground water prospects: a key step in MASSCOTE – Ex. of Bennithora and Gandorinala Projects (India – Karnataka)



Is Modernization a one shot process?

The short answer is no. Successful modernization programs show that it is a continuing process that also needs an adequate period of maturation before stakeholders converge towards a common understanding and can design tangible interventions. Preparing an integrated RAP as the first step in the modernization process has proved a valid starting point and can generate the necessary momentum to develop longer term modernization plans.

- RAP (see box) = week;
- MASSCOTE = month to run the initial kick.
- Short-term modernization project = year.
- Medium and long term vision and modernization plan: 2-3 and 5 to 15-30 years. These may require more fundamental restructuring and mobilization of substantial additional resources.

Target audience

The MASSCOTE methodlogy aims to assist technical experts, irrigation managers and the wider body of irrigation professionals by addressing modern needs, issues and challenges. It permits 'smart' analysis of the physical and institutional components of medium to large irrigation canal systems and enables the professionals to embark upon the difficult road of modernization with practical and detailed objectives, plans and solutions.

Who can conduct MASSCOTE for modernization

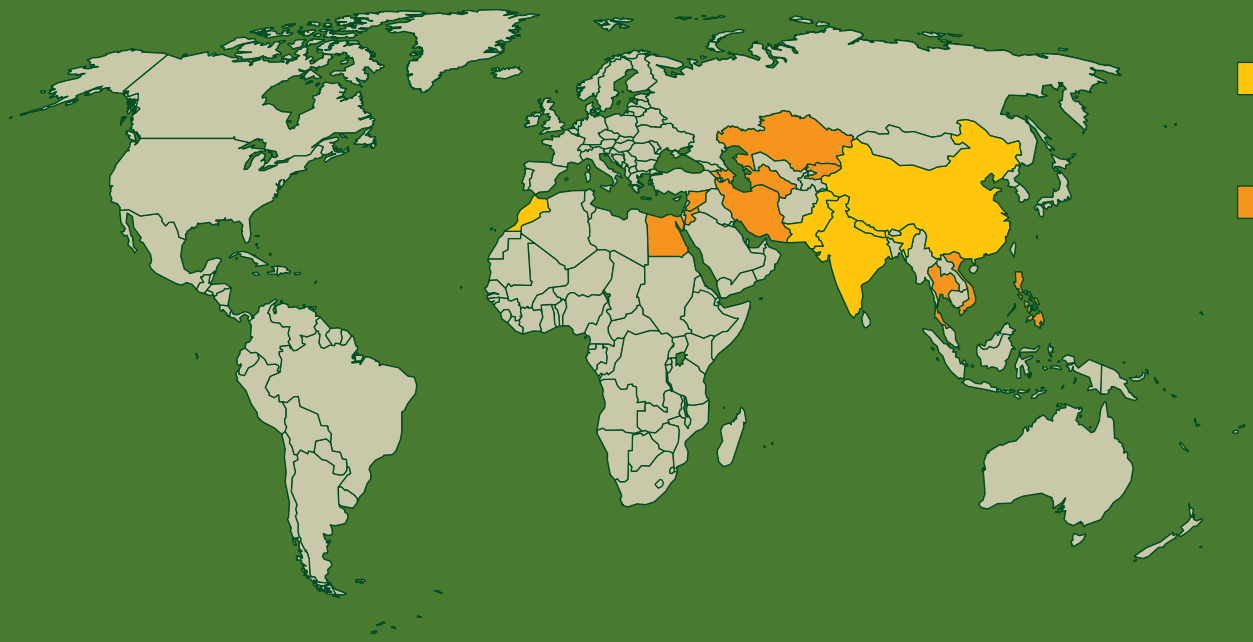
The MASSCOTE methodology can be applied by any skilled professionals, however FAO recommends whenever possible to associate MASSCOTE with a training that allows participants to be familiarized with the various steps of the process as well as with some modern techniques of canal control.

Whose benefits?

Modernization aims to achieve improved overall economic, water-related and environmental performance through improved service delivery to all users in medium to large irrigation schemes. It has to pay particular attention to buy-in from irrigation service provider staff (in agencies and water users associations that employ them) in terms of benefits that accrue to them. in addition to the core objective of improving performance and service to farmers. Those who provide funding (agencies, tax payers and farmers) are also intended as key beneficiaries together with:

- Farmers, who benefit from improved service at the most economic cost, and from management processes that empower them to participate in strategic decisions on system operation;
- Other water users in the systems, through recognition of their service requirements and allocation needs;
- Irrigation staff and managers who benefit from the clear articulation of , targets associated to incentives for performance achievement, and the greater demand for professionalism and accountability by users .
- Decision makers at national and provincial levels, who benefit through improved economic and social performance of the irrigation systems and the development workable strategies for investment with the support of key constituencies.

MASSCOTE at work



Countries where MASSCOTE has been applied

Countries interested in MASSCOTE

Since 2006 Masscote is in use in China (Shanxi province), India (Karnataka - Uttar Pradesh), Morocco and Nepal.

MASSCOTE for multiple services

MASSCOTE aims to put a service approach at the heart of management. The initial analysis of actual water service in irrigation systems show that the multiple uses of water are widespread. Uses of water to sustain aquaculture, trees, environmental services, domestic water water supplies, industrial (including hydropower) supplies, and functions related to the water infrastructure such as flood control, are now apparent. This array of actual uses need be factored in explicitly as services in irrigation management.

MASSCOTE is a key feature in national strategies for modernization

Undertaking a MASSCOTE exercise can serve several purposes At national level the exercise can:

1. Build capacity of irrigation engineers by incorporating modern concepts of management and canal operation.
2. Prepare the ground for designing a typology of irrigation systems in order to develop a nationwide strategy for modernization.
3. As a pre-financing tool to provide the technical basis for planning and financing of of modernization

MASSCOTE a family of products

On the basis of the original MASSCOTE methodology new modules have been recently developed to address specifically:

- Lift irrigation system (MASSLIS)
- Rice and fish system (MASSIF)
- Multiple Uses system (MASSMUS)

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