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#### Modernization of Management, Operation, and Maintenance of Large Irrigation Systems





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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.



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## **WATER**

#### 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



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## **WATER**

#### **IRRIGATION SYSTEM MODERNIZATION**

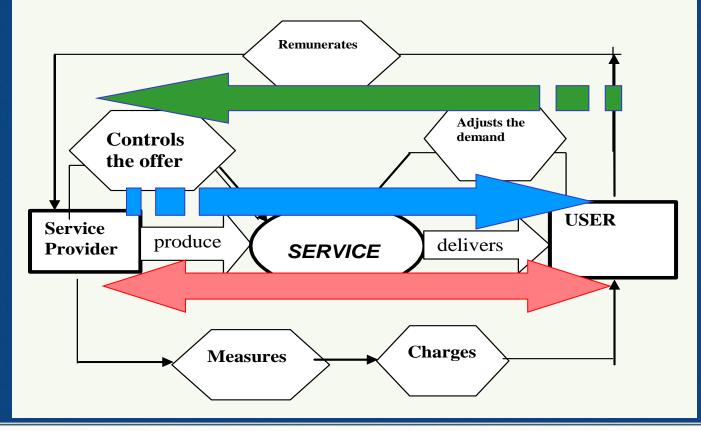
FAO 1997 Definition of Modernization:

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.

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#### Service Oriented Management 3 basic flows WATER - INFORMATION - MONEY



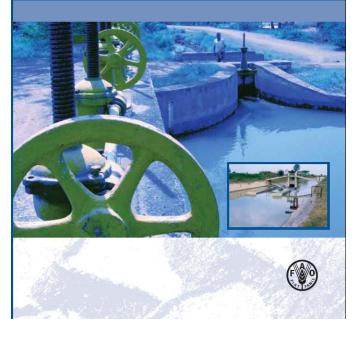
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#### MApping System & Services for Canal Operation Techniques



Based on FAO experiences in Asia on Modernization of Canal Operation Modernizing irrigation management – the MASSCOTE approach Mapping System and Services for Canal Operation Techniques



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### WATER 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.

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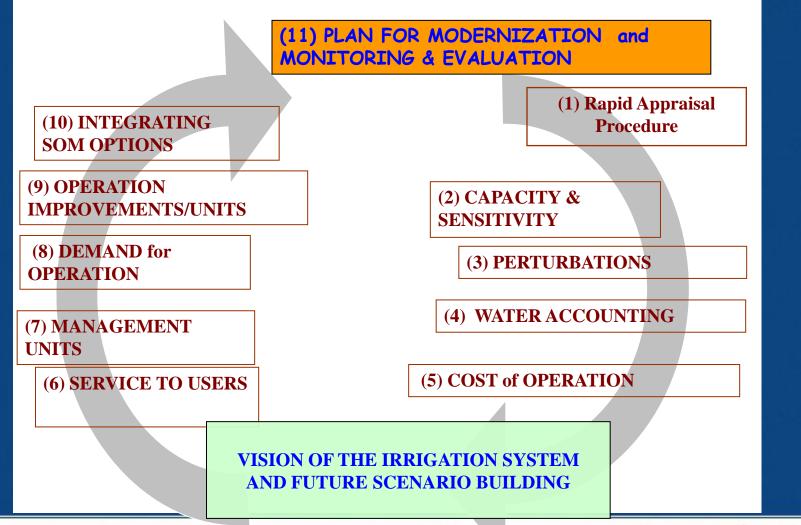
### WATER

### **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.



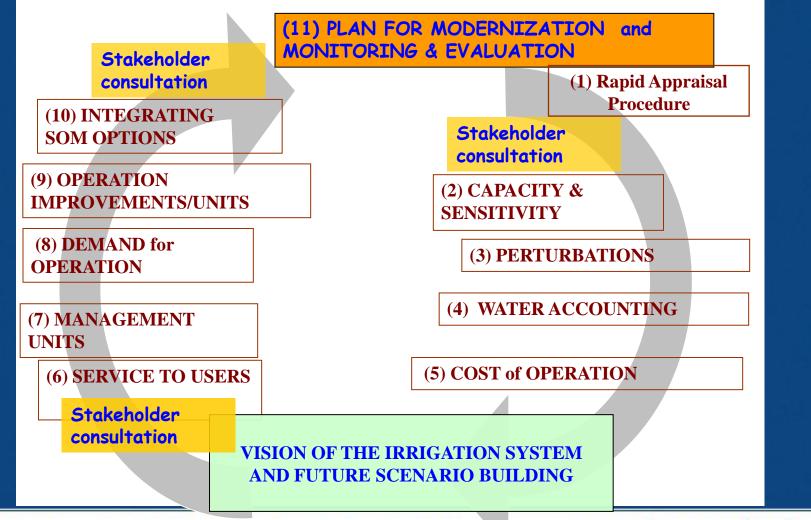
#### **MASSCOTE FRAMEWORK**



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#### **MASSCOTE FRAMEWORK**



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# WATER 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)



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#### FAO WATER

### **MASSCOTE family**

Mapping systems and services for:

- 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

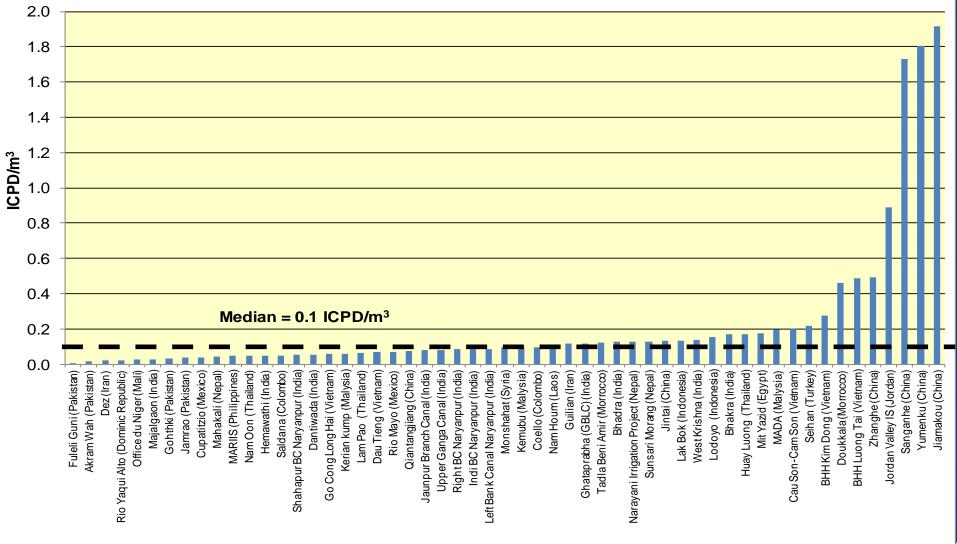




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#### **Results - Example**

#### Water productivity (ICPD /m<sup>3</sup>)



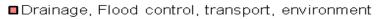
#### Multiple water use - shares

#### Power

Homestead garden & natural vegetation

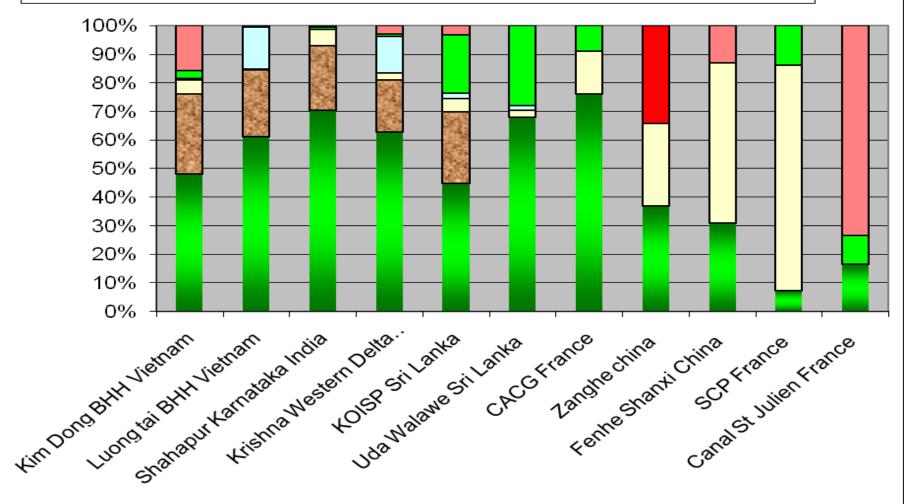
Domestic & Industry (incl tourism)

Crops



Fish

Animals







#### **THANK YOU**

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