

# 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.



# 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

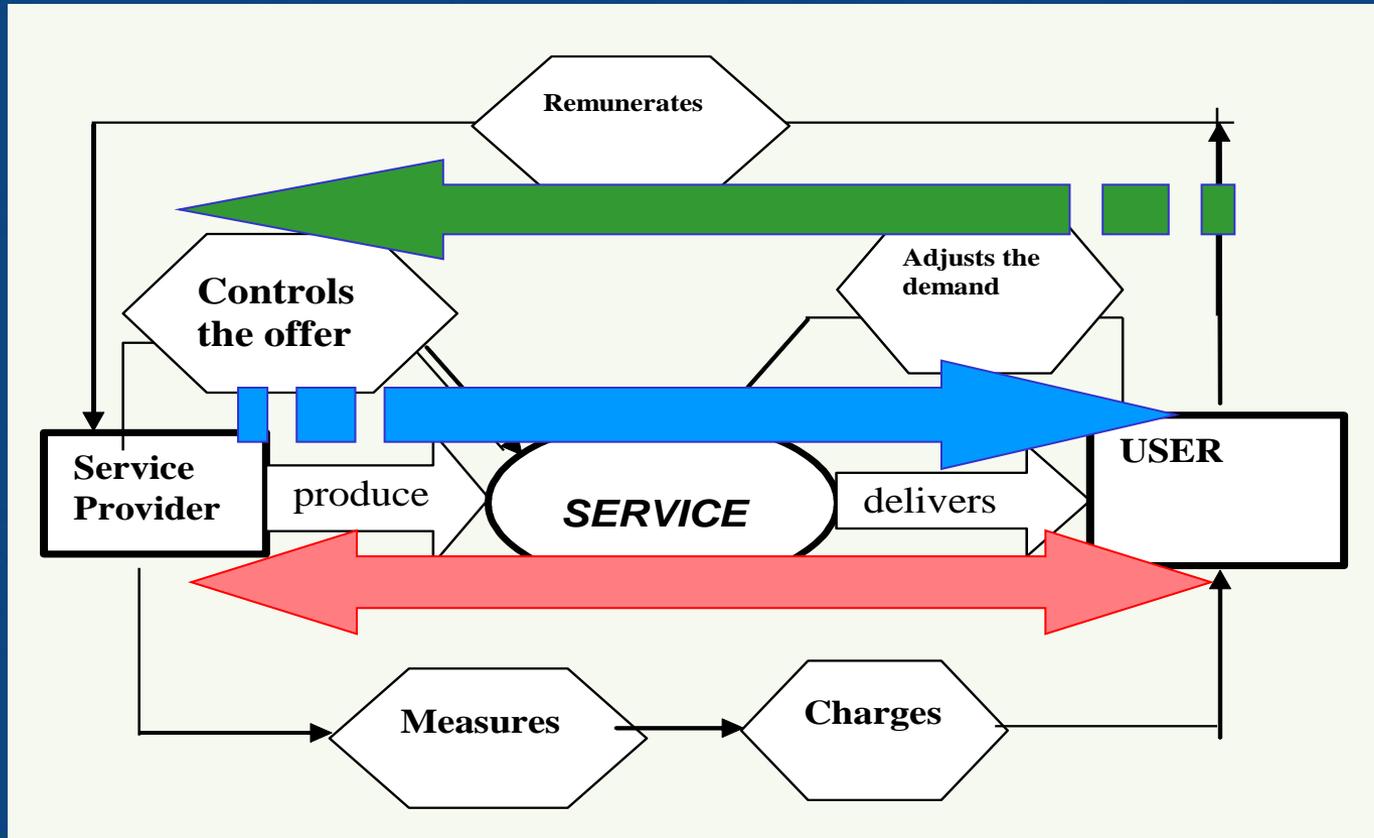
FAO 1997 Definition of Modernization:

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

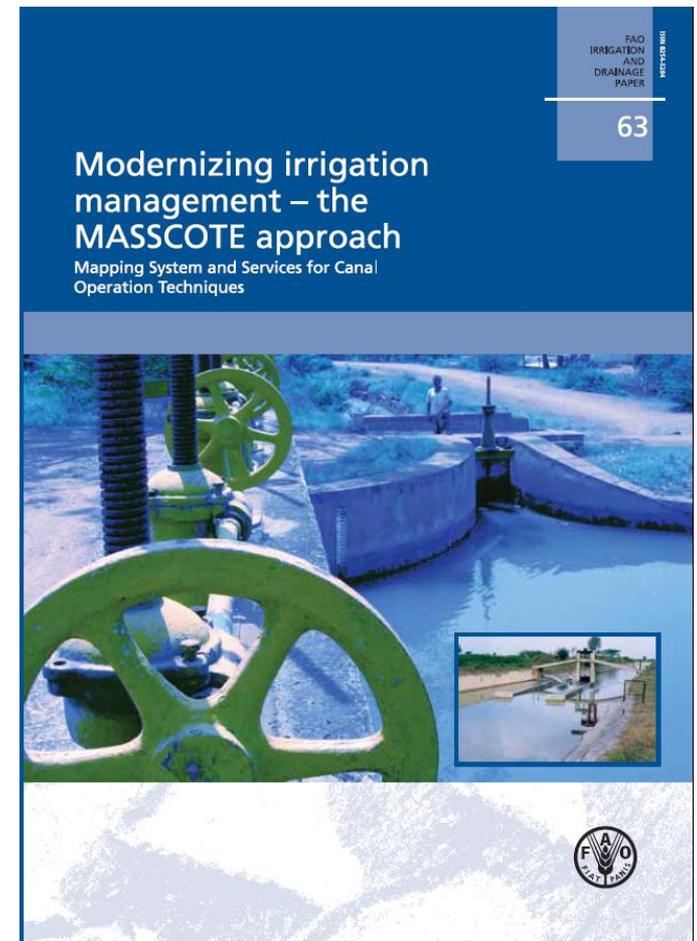
### WATER - INFORMATION - MONEY



# MApping System & Services for Canal Operation Techniques



Based on FAO experiences in  
Asia on Modernization of Canal  
Operation



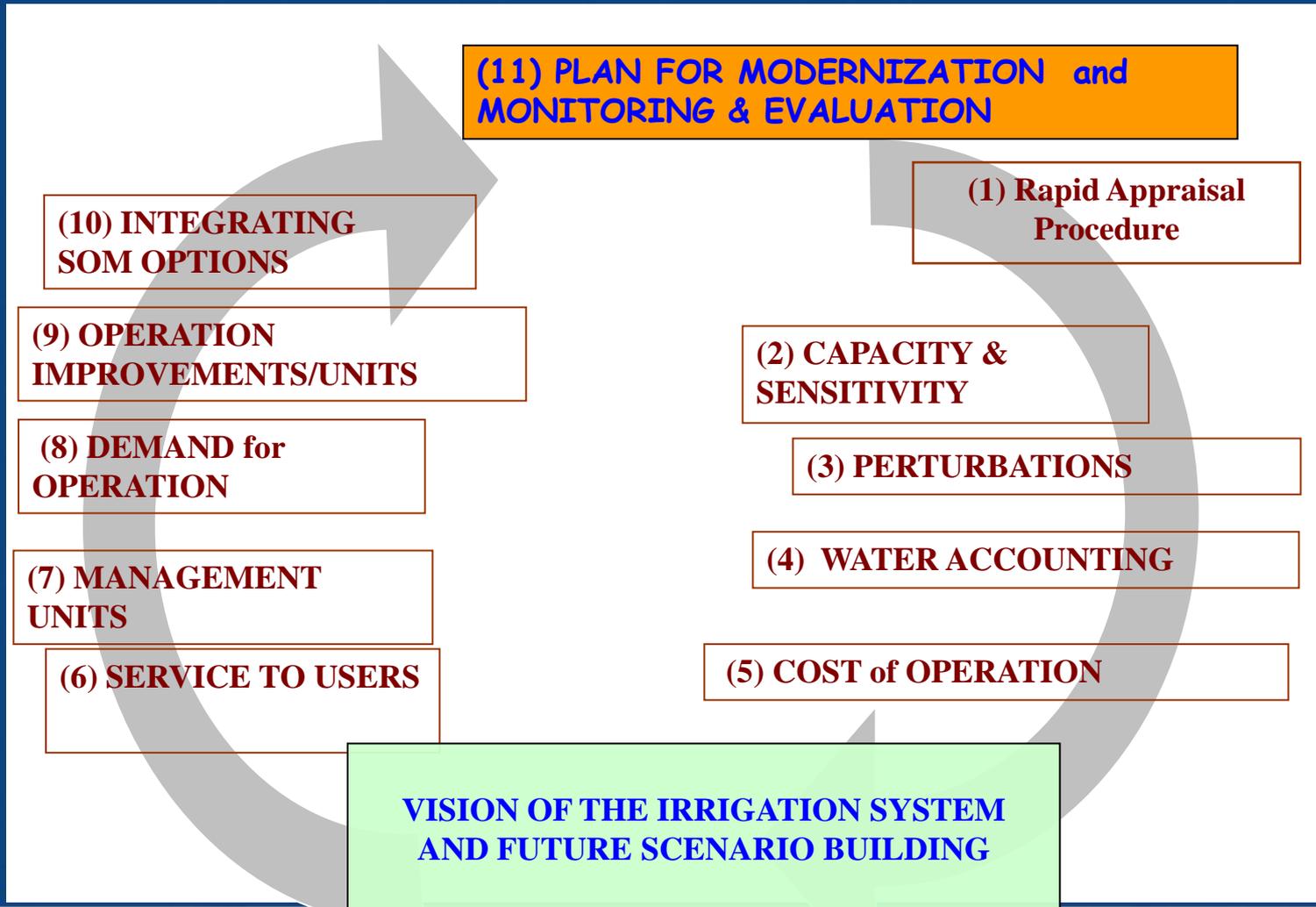
## MASSCOTE elements

- **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.

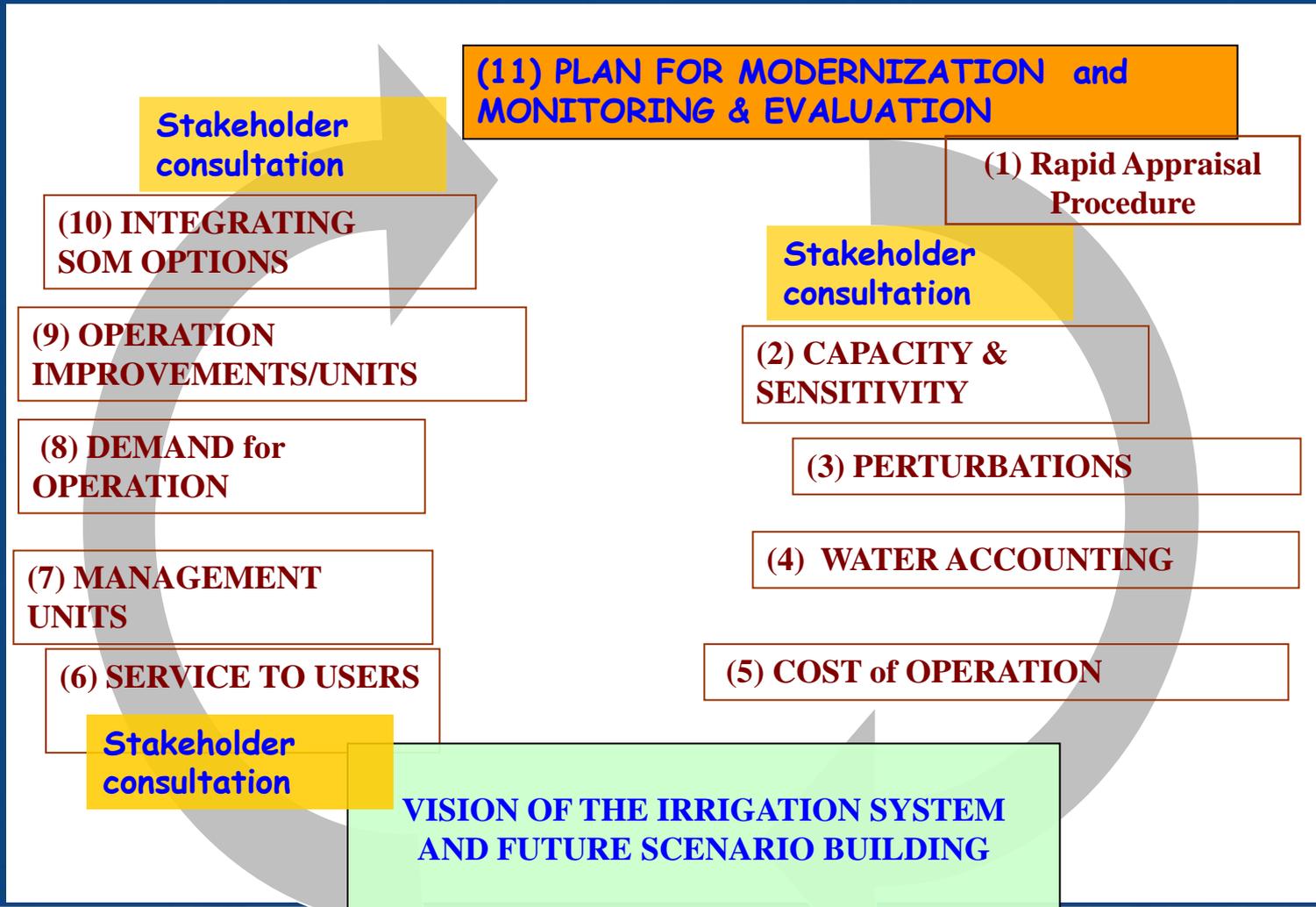
## MASSCOTE elements

- **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



# MASSCOTE FRAMEWORK



## 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)



## MASSCOTE family

Mapping systems and services for:

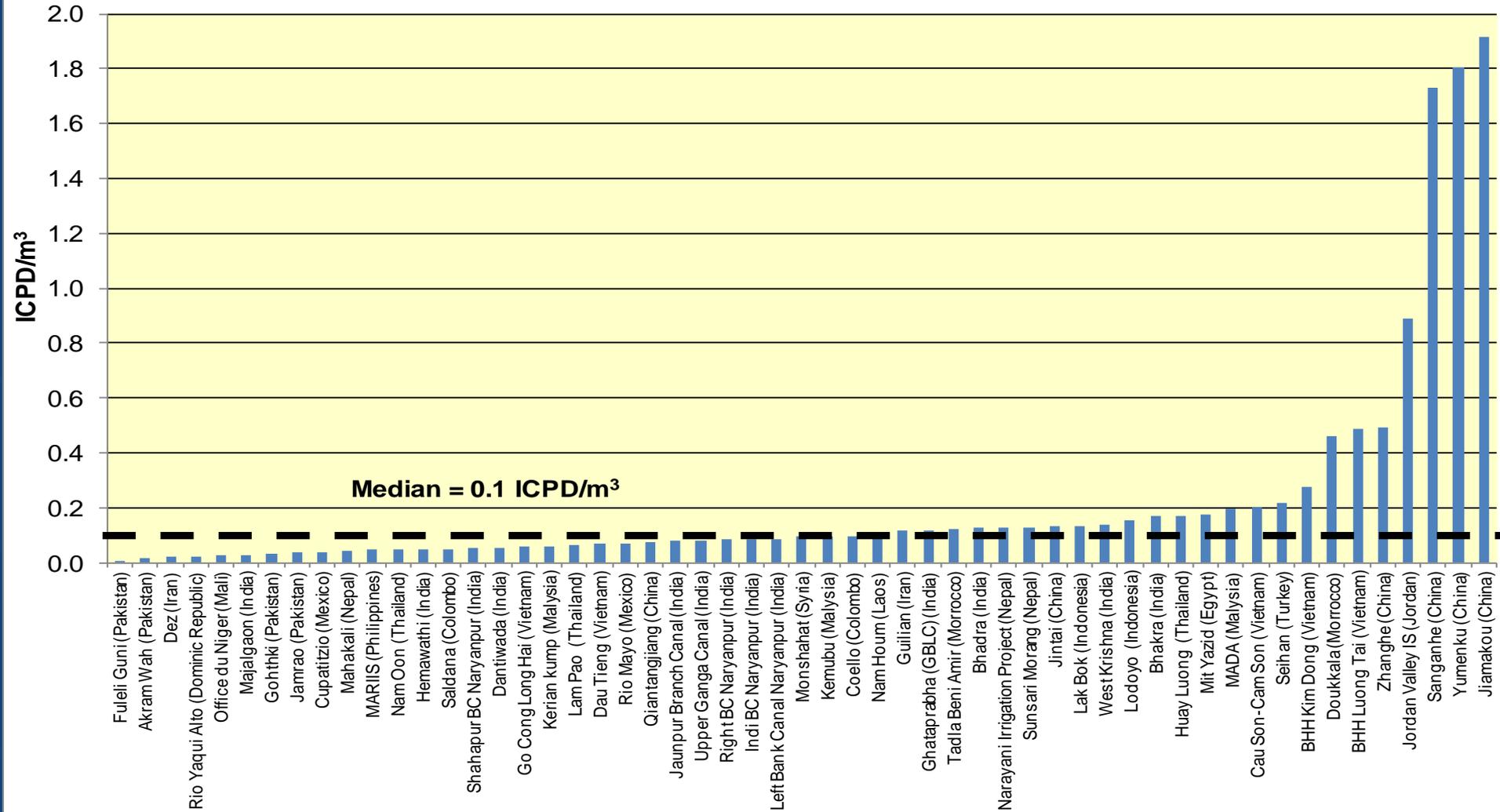
- canal operation techniques - MASSCOTE
- lift irrigation systems - MASSLIS
- fisheries in irrigation schemes - MASSIF
- multiple use systems - MASSMUS
- gender module of MASSMUS
- pressurized irrigation techniques - MASSPRES



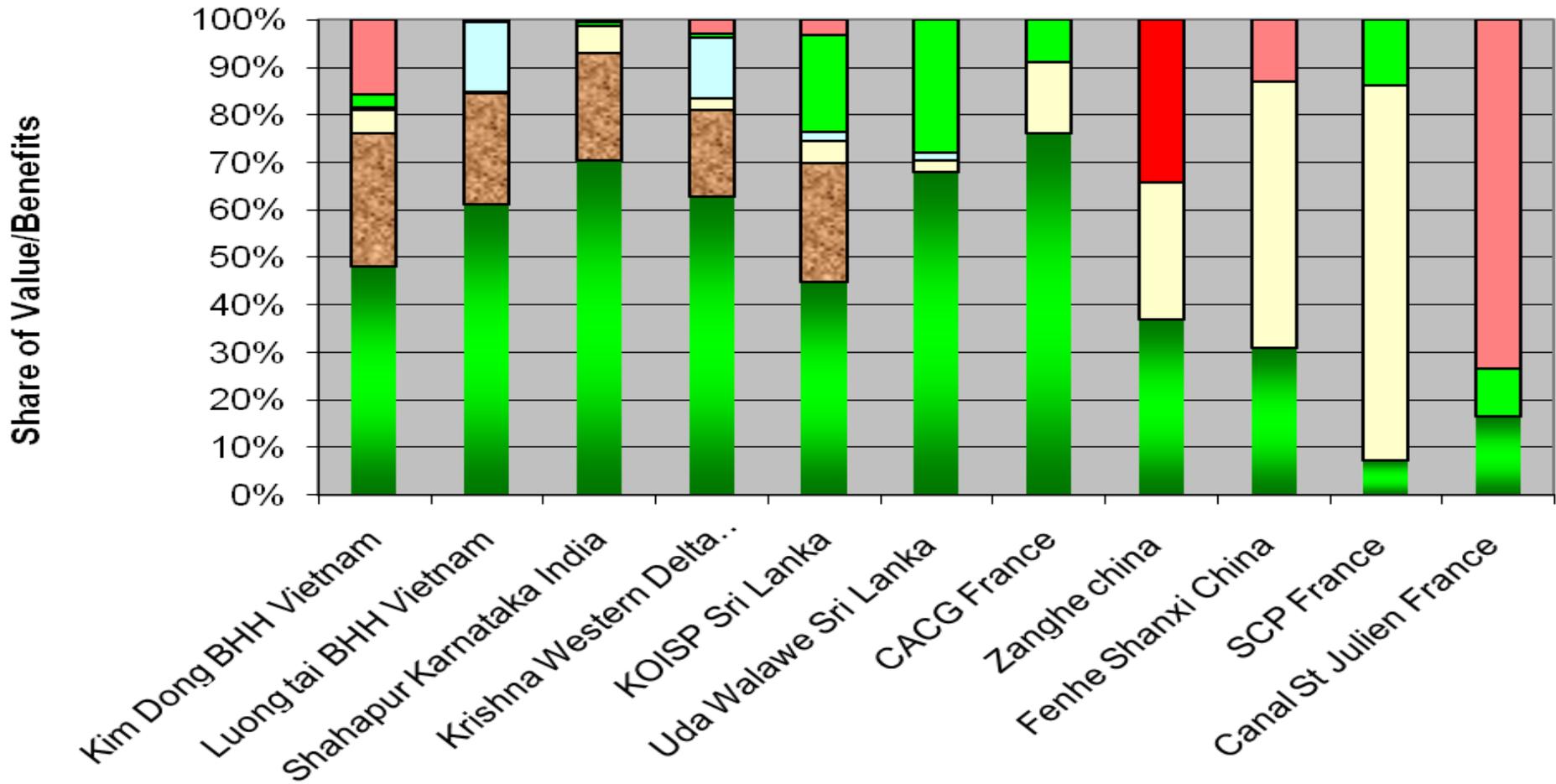
# Results - Example



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



# Multiple water use - shares





**MASSCOTE**

Mapping System and Services for Canal Operation Techniques

**THANK YOU**