



منظمة الأغذية والزراعة  
للأمم المتحدة



# Guidelines on Improved Water Allocation for Agriculture

Meeting of the Joint Water-Agriculture Technical  
Committee of the League of Arab States

26 October 2021

# Background

INFO

- Commissioned by the High-Level Joint Water-Agriculture Technical Committee of the League of Arab States
- Preparation undertaken by FAO and ESCWA
- Interviews, analysis, literature review
- Writing team and reference group
- Review by expert group – written and discussion

# Water allocation: often a blind spot and missed opportunity

Definition: 'Who is able to use water resources gets what, how, when and where' (OECD 2015)

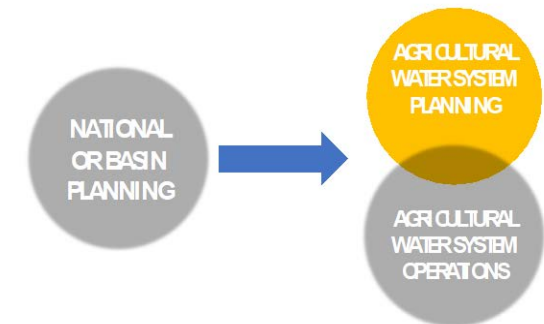
## Blind spot

At the heart of water governance and economies and societies at large, but same time often forgotten:

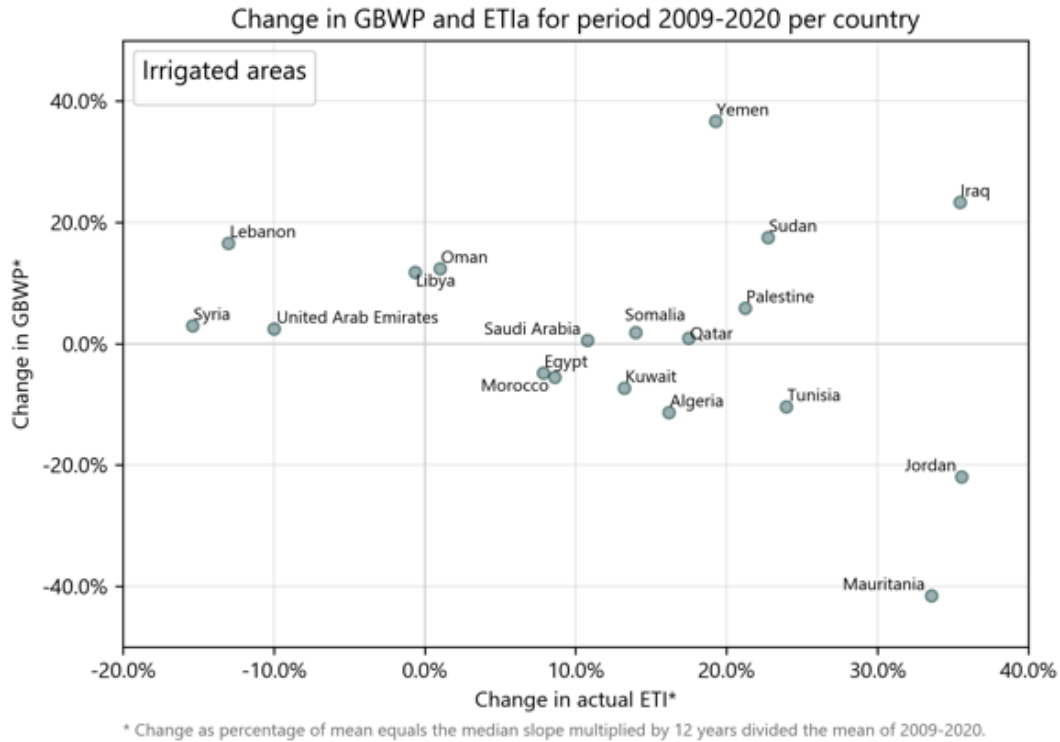
- Practices accepted as they are, with no plan to improve
- No center of excellence or community of practice

## Missed opportunity:

- Chances to do better at different levels
  - (1) Water allocation at national/ basin level to agriculture
  - (2) Water allocation within agricultural water systems: in planning and operations
- Agriculture main water user: 80-92%



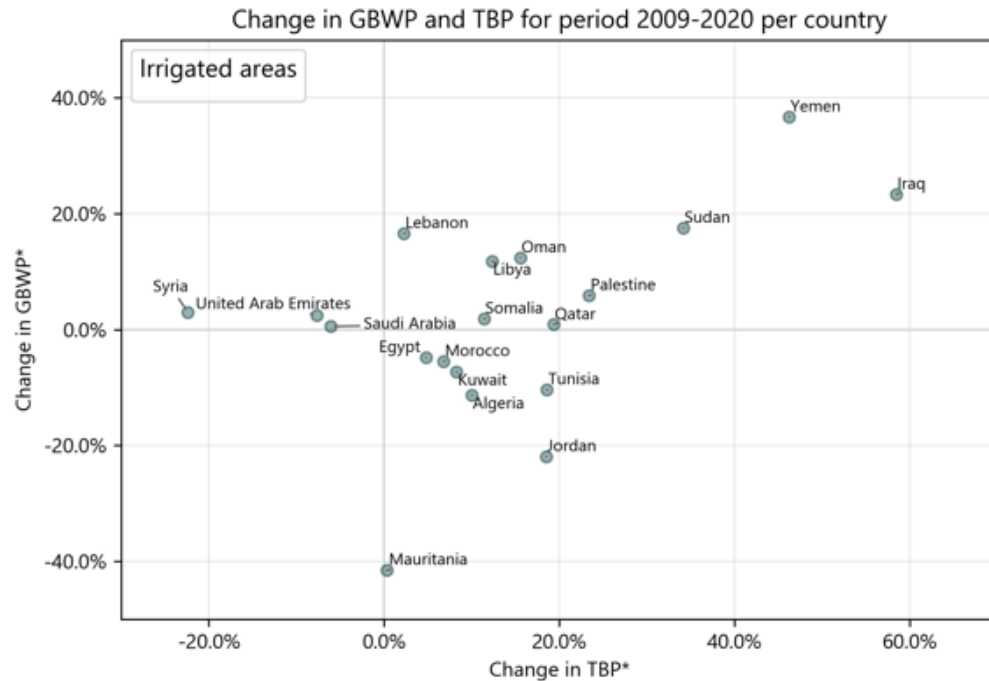
# The urgency/ 1



- In 15 out of 19 countries water consumption in existing irrigated areas increased from 2009-2020
- In spite of concerns on water scarcity, in 12 out of the 19 countries the increase was more than 10%!
- Only for one third attributed to climate change
- This does not account for new irrigation system development: this contributes to even more water

Source: WaPOR big data,  
using robust pixel method

# The urgency/ 2

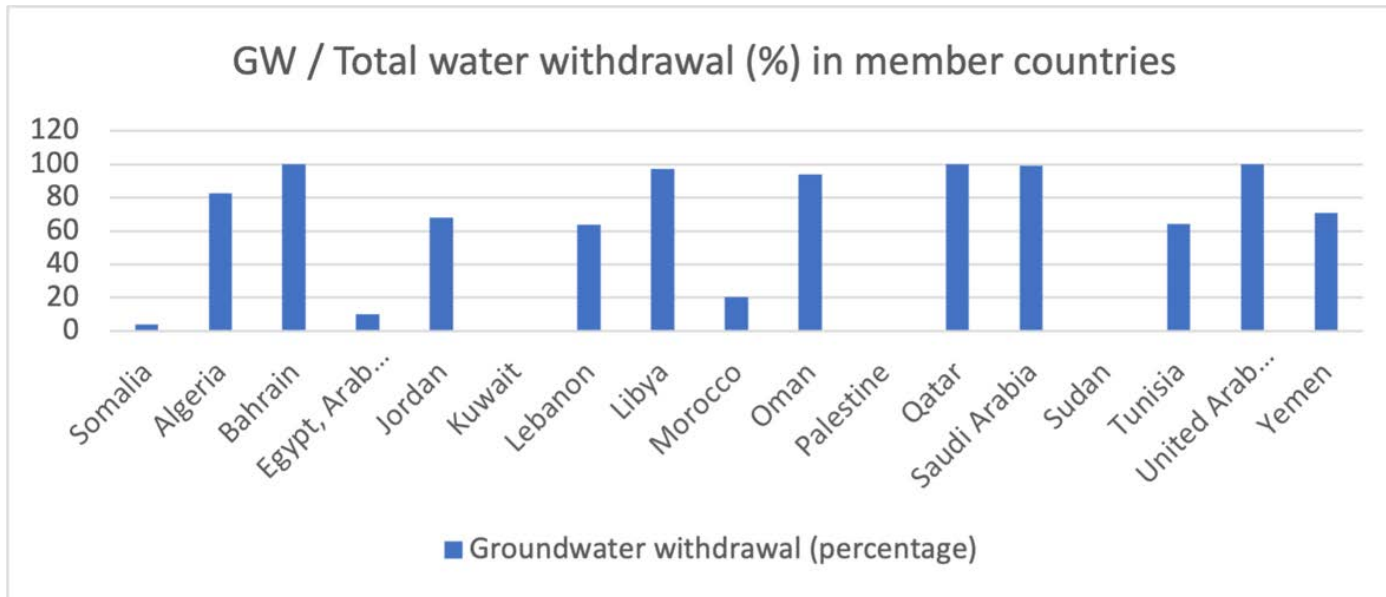


\* Change as percentage of mean equals the median slope multiplied by 12 years divided the mean of 2009-2020.

- Biomass production in irrigated areas increased in 14 out of 19 countries
- Yet only in 3 countries it kept up with the population growth in these 12 years
- No game changer in biomass water productivity: it reduced in 7 countries, was static in 5 countries, improved in 7 countries (often post conflict)



# The urgency/ 3



- Non sustainable groundwater use is a huge concern:
- Use exceeds recharge
- Exhausting fossil stocks
- Pumping saline water from 600 m
- In 11 countries more than 60% reliance on groundwater
- Only partly compensated by desal
- No examples of successful regulation

# Content of Guidelines



Systematic guidance to decision makers, regulators, water resource planners and water system planners in the Arab countries on highly necessary improving water allocation for agriculture

Examples of how/where improving for agriculture got done

1

## Scan

- of the conducive governance arrangements

2

## Systematic assessment

- of improvements of water allocation to and within agriculture

3

## Process guidance

- on getting change started

4

## Agenda tool

- to start implementation

# Scan of the conducive governance arrangements

- Water allocation to be part of water governance, in the management of existing systems and in the development of new systems.
- Different elements of water governance facilitate the attention for improved water allocation and support its implementation



## Governance for improved water allocation for agriculture

- ✓ Accurate metrics
- ✓ Clear policy and regulation
- ✓ Institutional leadership
- ✓ Transparent public private roles
- ✓ Clear water tenure
- ✓ Routine integration in operations
- ✓ Systematic stakeholders and user coordination



# Institutional leadership and responsibility



- Support at political level to optimize water allocation
- Access to implementation
- Institutionalized, not one-off
- Systematic communication between state and water users
- Deal with challenge of no effective state control over parts of the agricultural water management system - as in groundwater

# Clear water tenure

- ‘... The relationship, whether legally or customarily defined, between people, as individuals or groups, with respect to water resources...’ (FAO 2020)
- Clear entitlements
- Define the bundle of rights >
- Codification

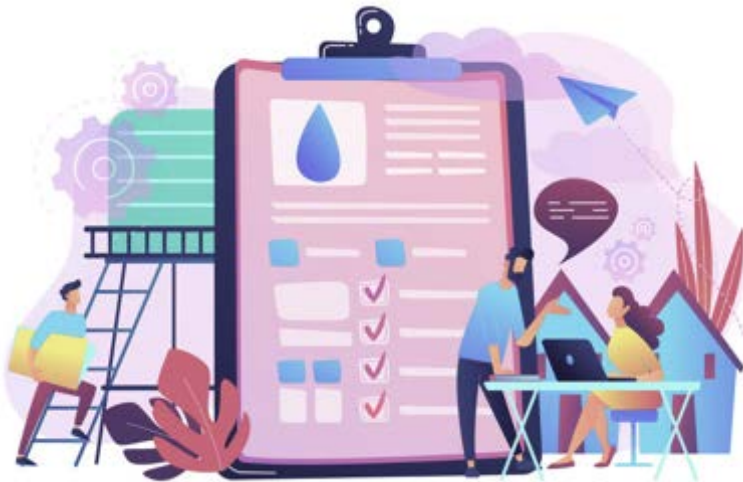


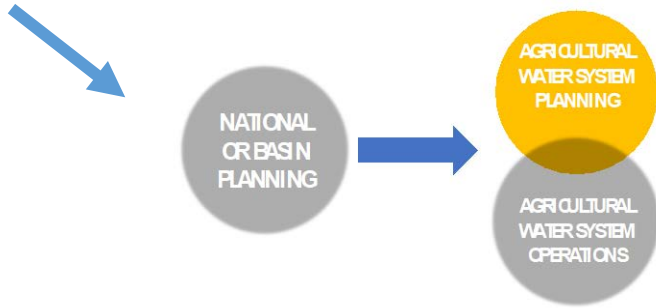
# 2

## Water allocation optimizations for agriculture

### Systematic assessment

- Opportunities
  - (1) Nation/ basin: water allocation to agriculture
  - (2) Agricultural water management system planning and operation: water allocation in planning and operation
- Align with national strategic objectives
- Reallocation contribute to different (complementary) objectives:
  - addressing water scarcity,
  - giving space to non-agricultural water uses
  - dealing with the likely occurrence of droughts and floods,
  - freeing up high quality water
  - creating more flexibility and demand orientation
  - contributing to sustainable water use.





# (1) Water allocation to agriculture

How much water is allocated to agriculture?

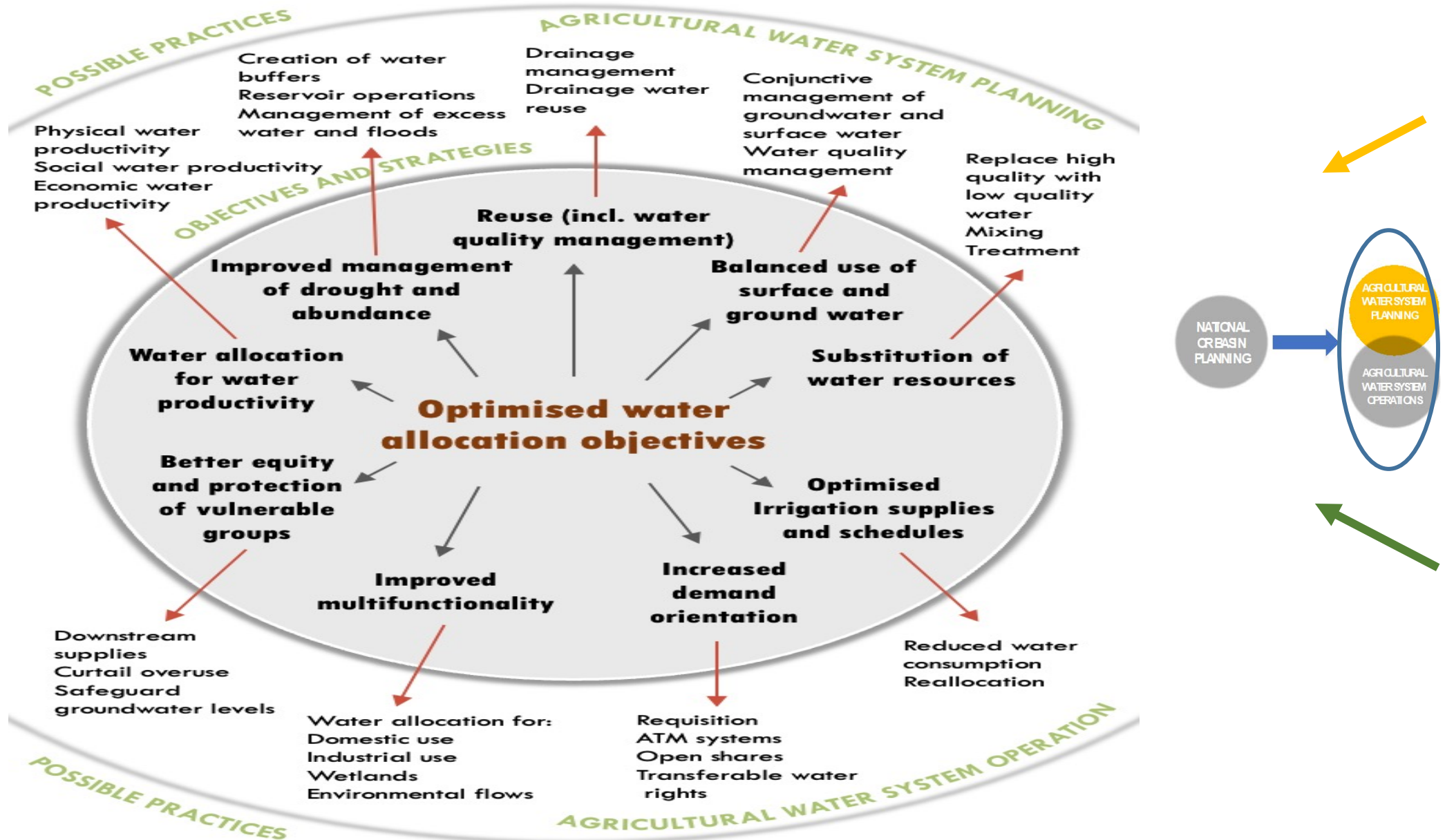
## Surface Water

- Reliable assessment
- Connected to operational hydraulic units, such as irrigation systems, reservoirs, or basins
- Actual number such as maximum quota or volumes of water delivered, compl. by restrictions on crops or perimeter
- Seasonal, annual or multi-annual basis,
- Priority ranking
- A consultative mechanisms
- Enforceable rules

## Groundwater

- Intersectoral and intergenerational
- Regulating individual abstractors
- Cap for sustainable use – may need to work on drastic reduction
- Agree on intergenerational use of fossil water too (% per generation)
- Groundwater management plans for most critical aquifers that include recharge and multiple measures

# (2) Water allocation within agriculture



# Water allocation for water productivity

- Tailor water allocation to preferred cropping pattern
- More than bio-physical water productivity ('crop per drop')
- Also:
  - Economic water productivity
  - Social water productivity
  - Water allocation for peace and good relations
- Undertake Social Water Productivity Check





# Improved management of droughts and abundance

- More surface water storage
  - head of the system,
  - decentralized within the system
  - out of the system (i.e. flood escapes)
- Make better use of freshwater aquifers for storage (conjunctive management, routing excess flows)

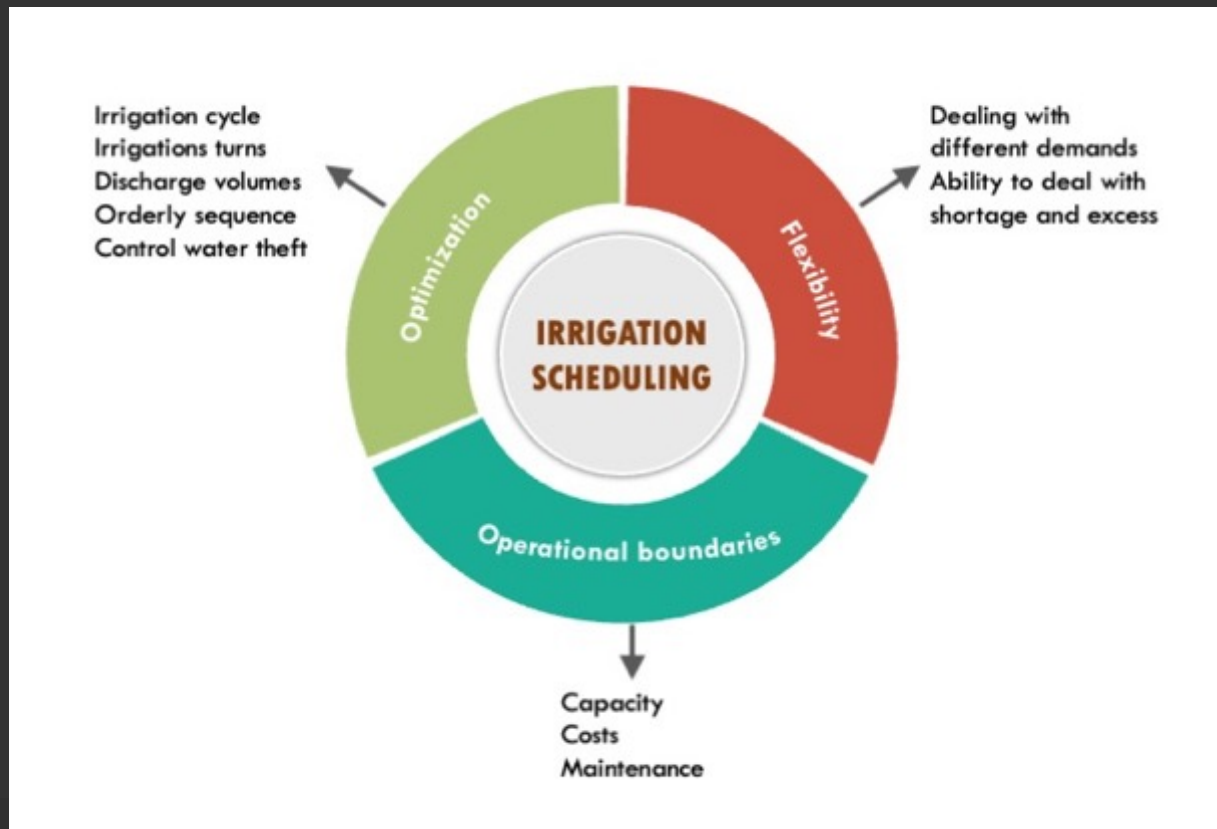


# Reuse and water quality management

- Optimize drainage and reuse
- Safeguard quality of water
- Mixing strategies



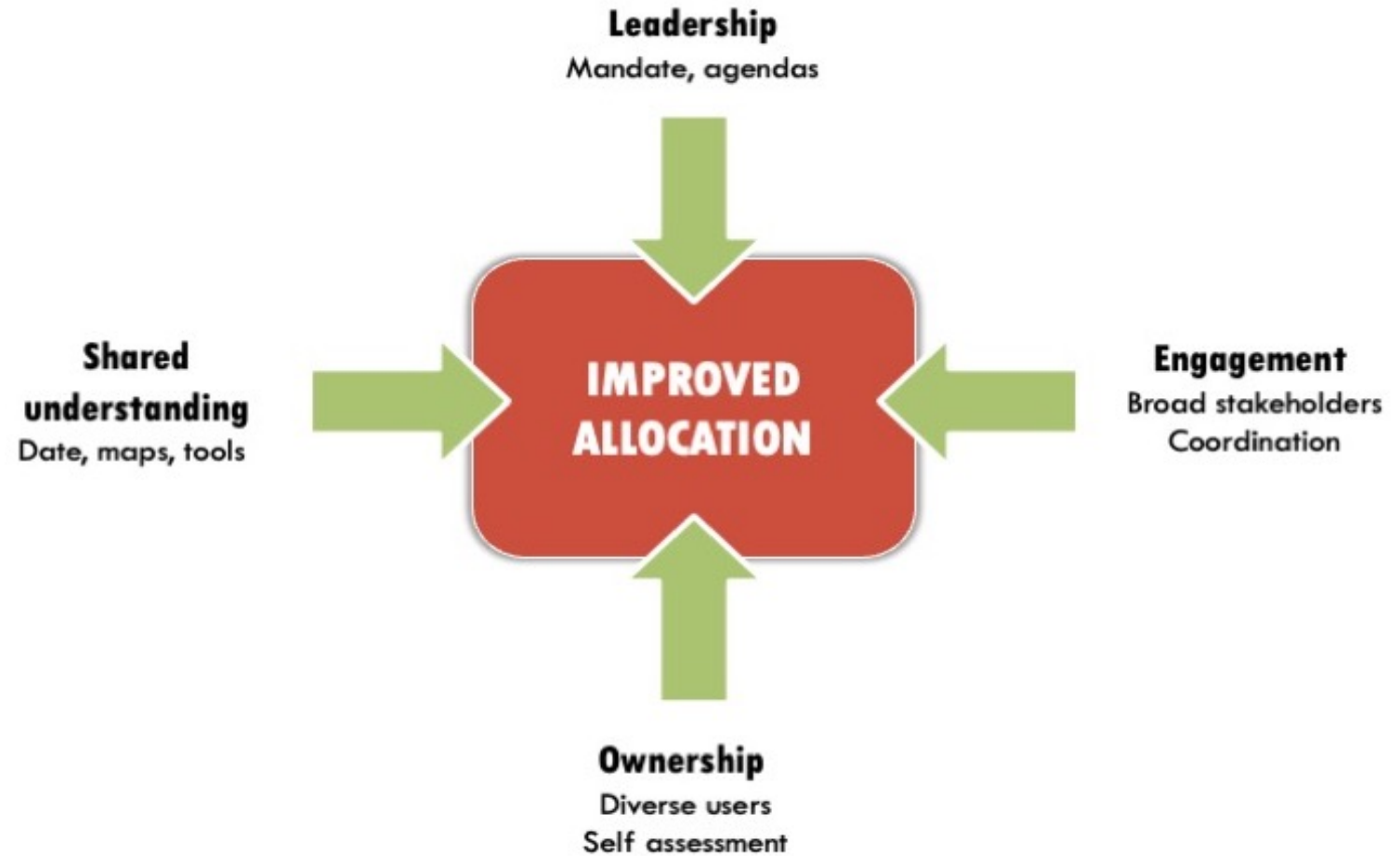
# Optimized irrigation supplies and schedules



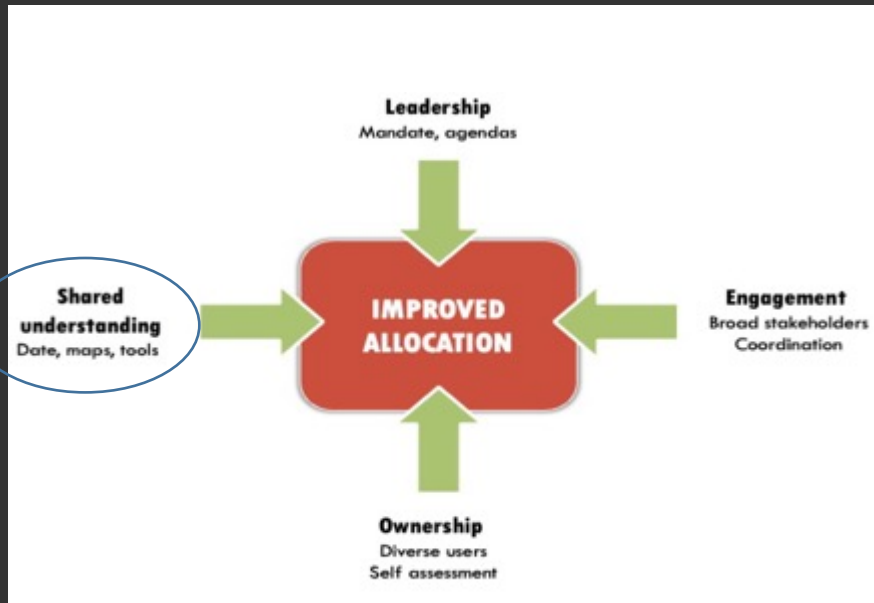
- Allocations should harmonize with the actual or preferred cropping pattern
- Decisions on where to use water that is saved should be part of efficiency improvement plan

# 3 Getting the process to move

Four factors:



# Having a shared data set

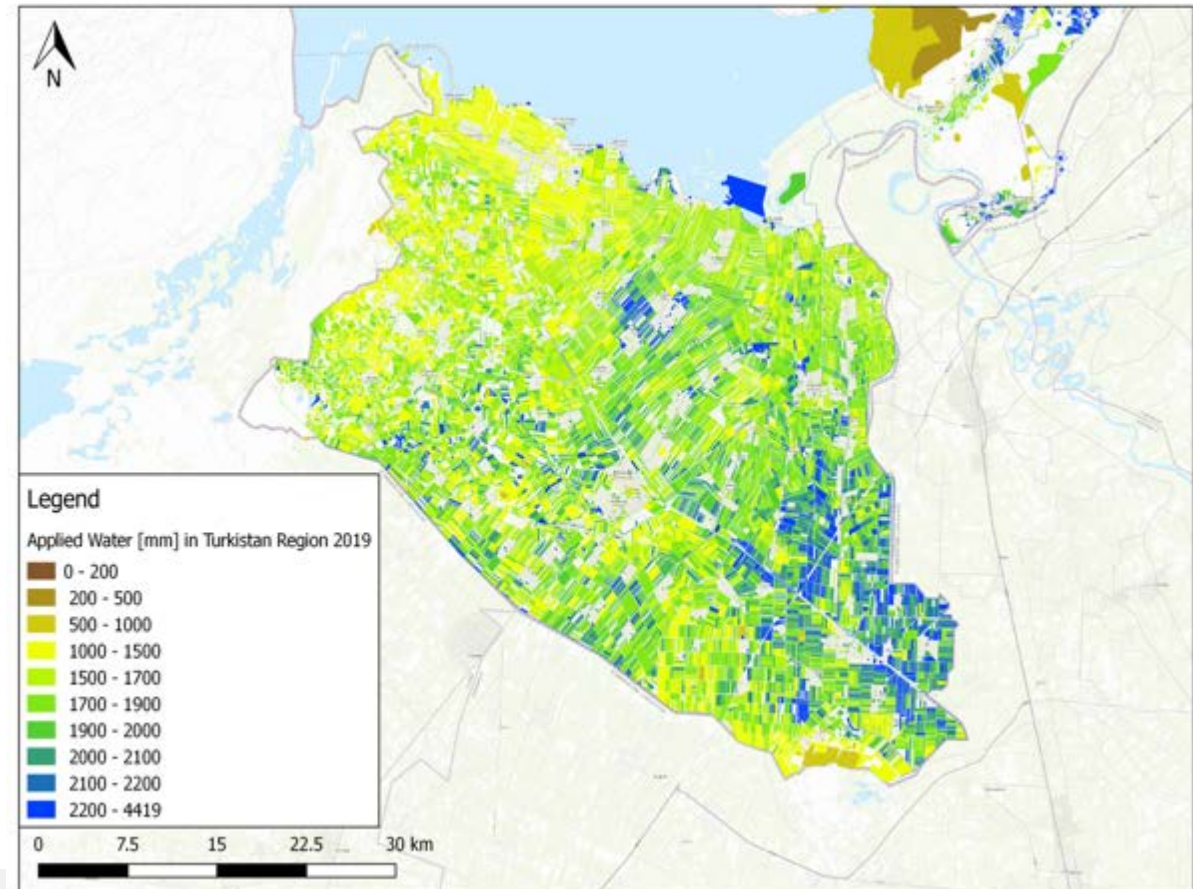


## Catalytic

- Overview
- Discussion
- Agreement

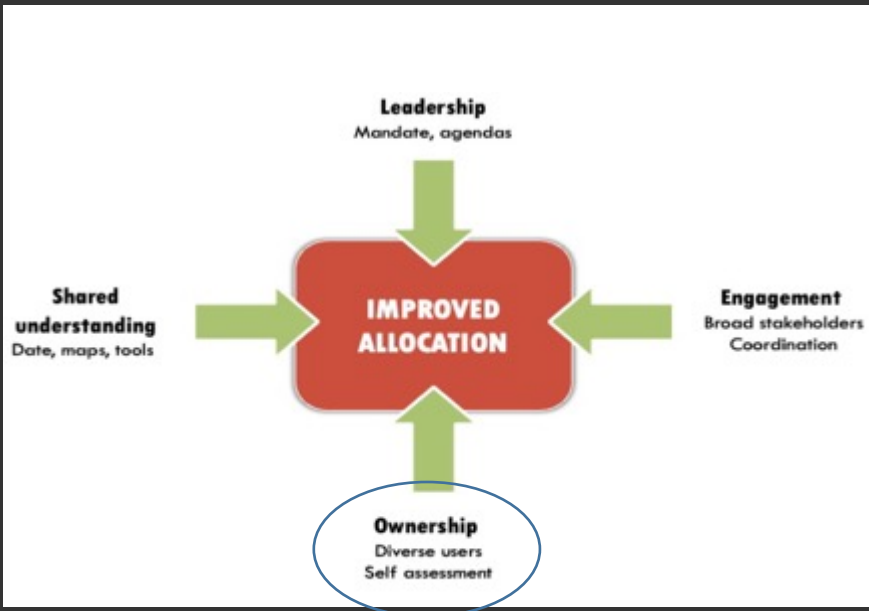
## Instruments

- SCADA
- Water Accounting Plus
- Remote sensing





# Ownership of diverse users



## Diverse users:

- Agriculture and others
- Different parts of the system

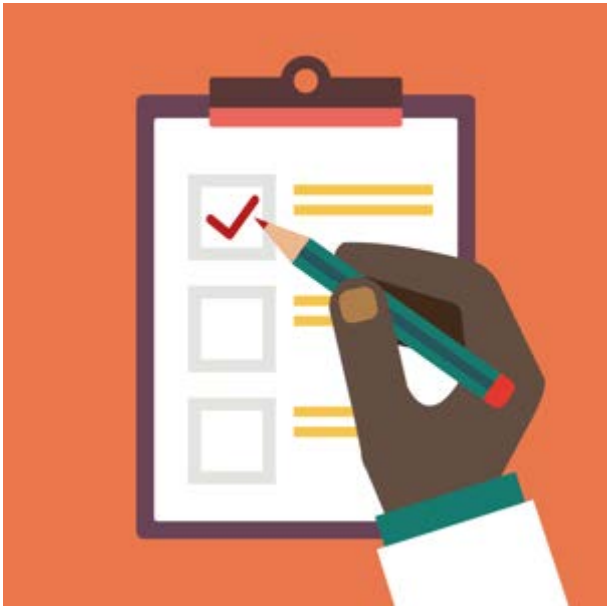
## Self assessment as tool





## 4

# Moving into implementation: agenda tool



- **How to use:**
  - Small preparatory group
  - Large group
- **Systematic assessment**
  - Identify forces for change
  - Identify improved governance arrangements
  - Identify improvements in water allocation
  - Rank, prioritize them
  - Work stepwise
- **Implement to get to started**



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# Thank You

