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# Blue Peace

IN THE MIDDLE EAST



## Blue Peace in the Middle East - Improving Irrigation Water Use Efficiency As a Catalyst for Collaboration in the Middle East

Dr. Tuğba Evrim MADEN

Turkish Water Institute (SUEN) / Blue Peace in the Middle East Coord. Office

*Sub-RésEAU MENA – 11-13 June, 2022*

**VISION:**

*"Transforming water from a potential source of conflict into a potential instrument of cooperation and peace through concrete actions"*

Track 1.5  
Diplomacy

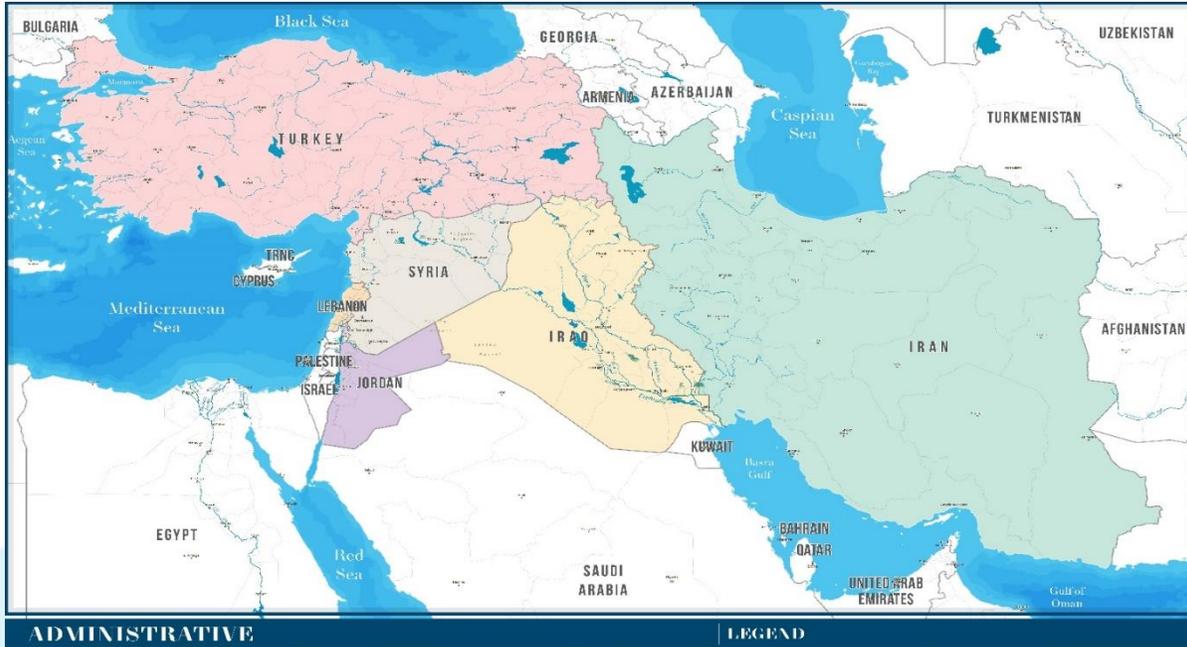
**GOALS**

*Blue Peace Middle East focuses on three key pillars to sustainable water management in the region:*

- Improving the reliability of water resources data collection
- Enhancing capacity building and confidence building
- Developing dialogue among partner countries

# Blue Peace

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**ADMINISTRATIVE**

**WATER USE EFFICIENCY IN AGRICULTURE IN THE MIDDLE EAST**  
 SUEN/ ISTANBUL 2021

**Blue Peace** IN THE MIDDLE EAST

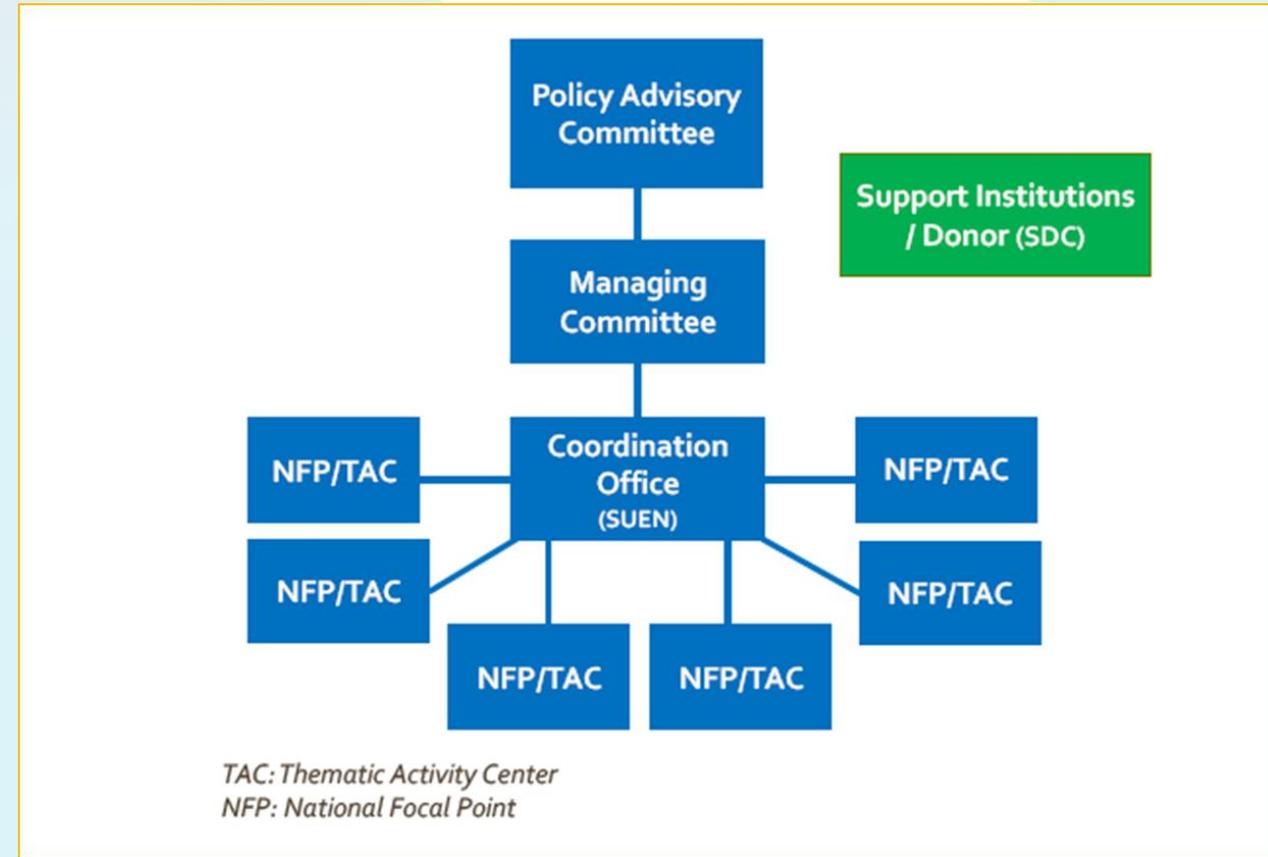
**SUEN** TÜRKİYE SU ENERJİSİZLÜĞÜ

**LEGEND**

- International Boundary
- Administrative Boundary
- Sea
- Lake/Reservoir
- Major River
- National Capital
- Other City/Town
- City/Town

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## Current Structure



## 1<sup>st</sup> PROJECT - “Disseminating Knowledge to Improve Agricultural Water Use Efficiency”



**The Report on Water Efficiency in the Middle East:** The importance and potential of agricultural water use efficiency in the Middle East to be presented in a collectively produced report.

**Capacity Building Activities:** Based on a training needs assessment, capacity building activities in the form of trainings and learning journeys to be carried out to increase technical knowledge and raise awareness of regional experts involved in water management.

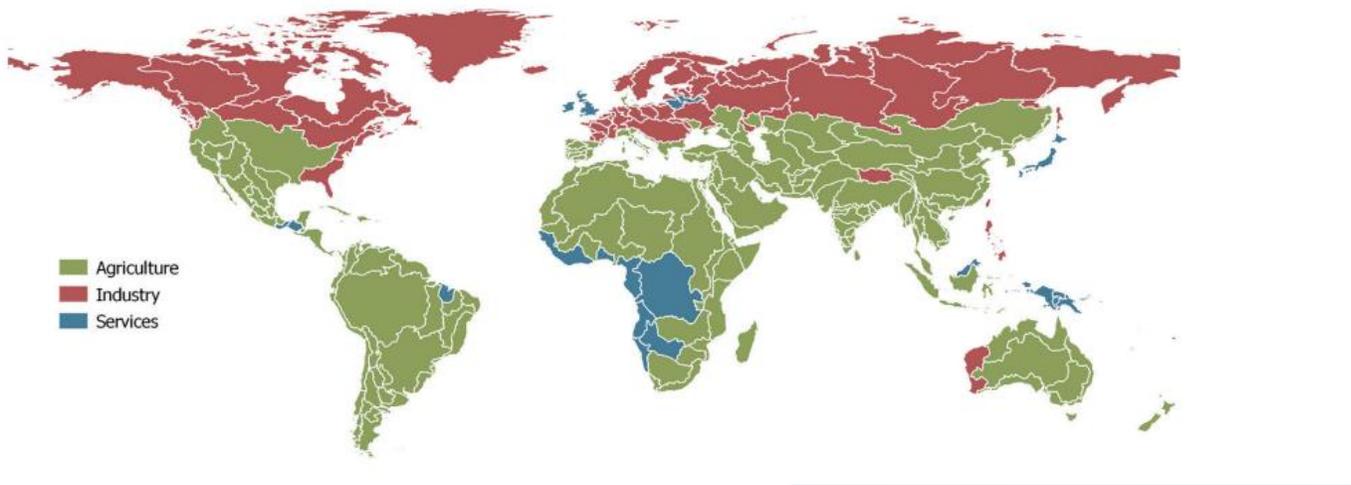
**Training Manual:** A training manual to be prepared as a synthesis of options to support capacity development in "improving irrigation water use efficiency".

# Disseminating Knowledge To Improve Agricultural Water Use Efficiency

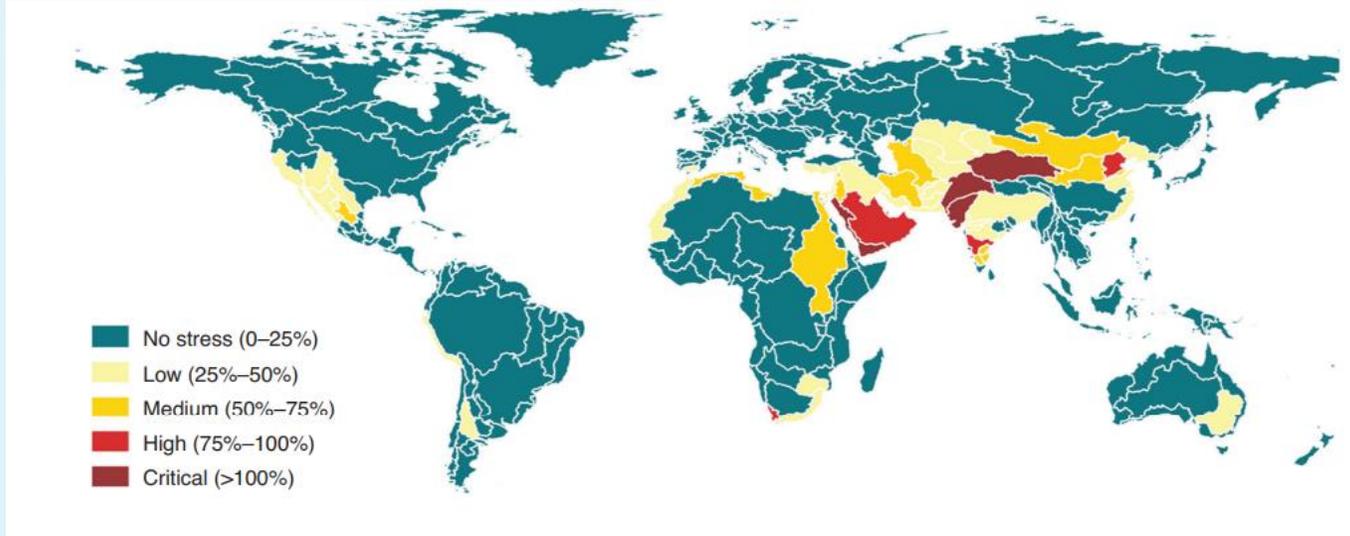
## *Main Project Actions*

- **Managing Committee Meetings:** To review and give guidance on the on-going works
- **The Report on Water Efficiency in the Middle East:** The importance and potential of agricultural water use efficiency in the Middle East to be presented in a collectively produced report.
- **Capacity Building Activities:** Based on a training needs assessment, capacity building activities in the form of trainings and learning journeys to be carried out to increase technical knowledge and raise awareness of regional experts involved in water management.
- **Training Manual:** A training manual to be prepared as a synthesis of options to support capacity development in "improving irrigation water use efficiency".
- **Policy Brief:** Main strategic outcomes and recommendations for key decision makers and political leaders to be presented to bring up water efficiency to the agenda.
- **All-Hands Meeting:** Dissemination of results of the project to the larger community of Blue Peace in the Middle East.

# Global map of the dominant economic sectors for freshwater withdrawals by major river basins (2018)



# Water stress indicator calculated using the water consumption (percentages).(2018)



## The main causes of the water-related problems in the Middle East:

- semi-arid and arid climate,
- low precipitation rates,
- high evaporation
- Droughts
- unequal distribution of water resources
- rapid population growth,
- mismanagement of water resources
- insufficient water storage units & water networks
- traditional and inefficient irrigation methods, excessive water loss
- climate change

*Agriculture is the first sector impacted by increased water scarcity*

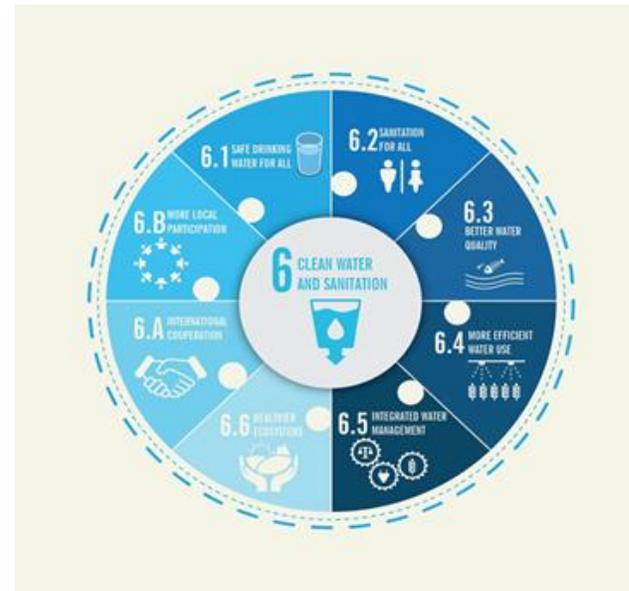
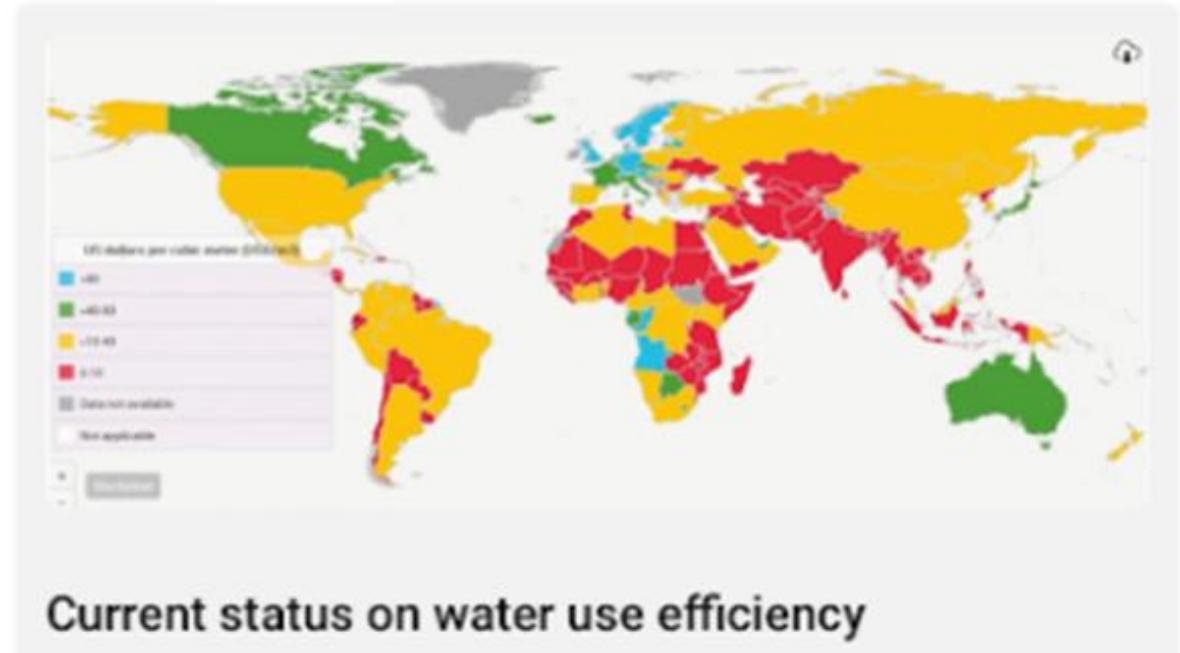
*Thus, in the Middle East region there is a need to focus on the efficient use of all water resources e.g. groundwater, surface water and rainfall, and water allocation strategies.*

*Any work on the issue of water use efficiency in the agricultural sector can be an area of cooperation that has regional and transboundary dimensions, and one that can produce benefits for all countries involved.*



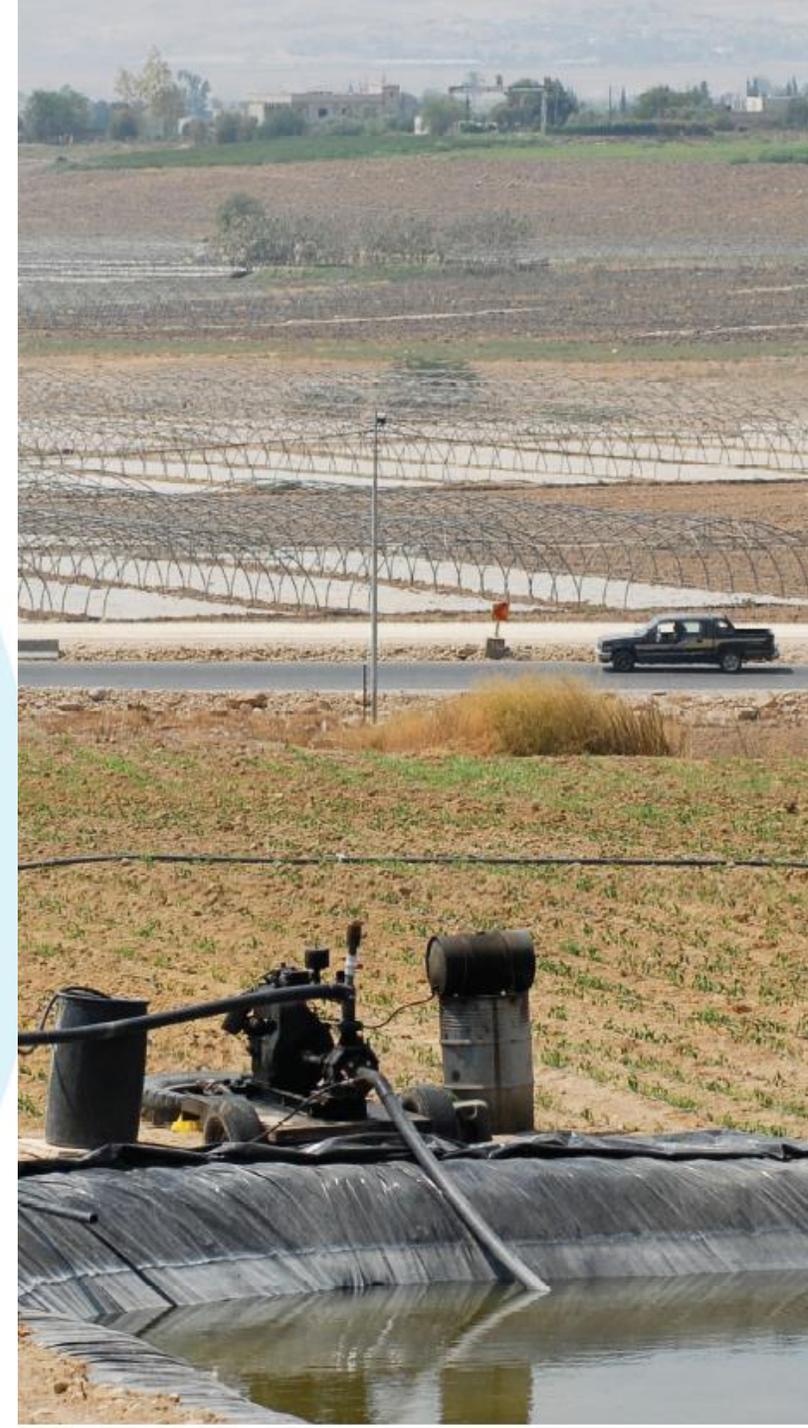
## Why to focus on agricultural water use efficiency?

- Agriculture accounts for more than **70 percent** of the world's total water use.
- In the **Middle East** the agriculture sector is the predominant consumer of water.
- **~80 percent** of the region's water is used for agriculture.
- The Middle East region covers 5% (6.52 million km<sup>2</sup>) of the world's surface area. The region is home to 6% of world's population, **yet has just 1% of the world's freshwater resources.**
- The mean precipitation rate **238 mm** & annual average evapotranspiration rate is **2.000 mm**. Precipitation rate is less than **5 mm** annually in the arid regions in the central parts of Middle East.

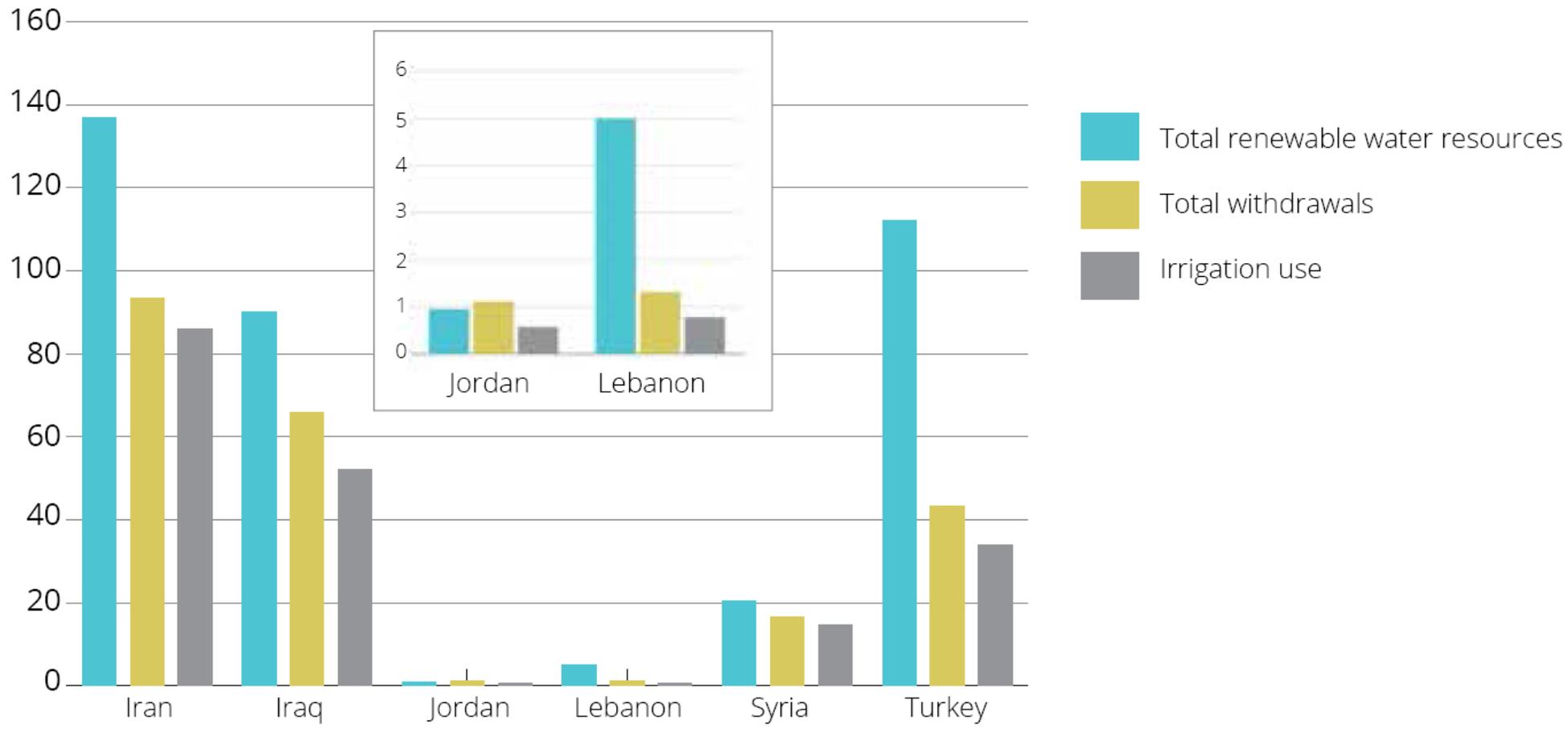


# Improving agricultural water use efficiency and productivity in the Middle East

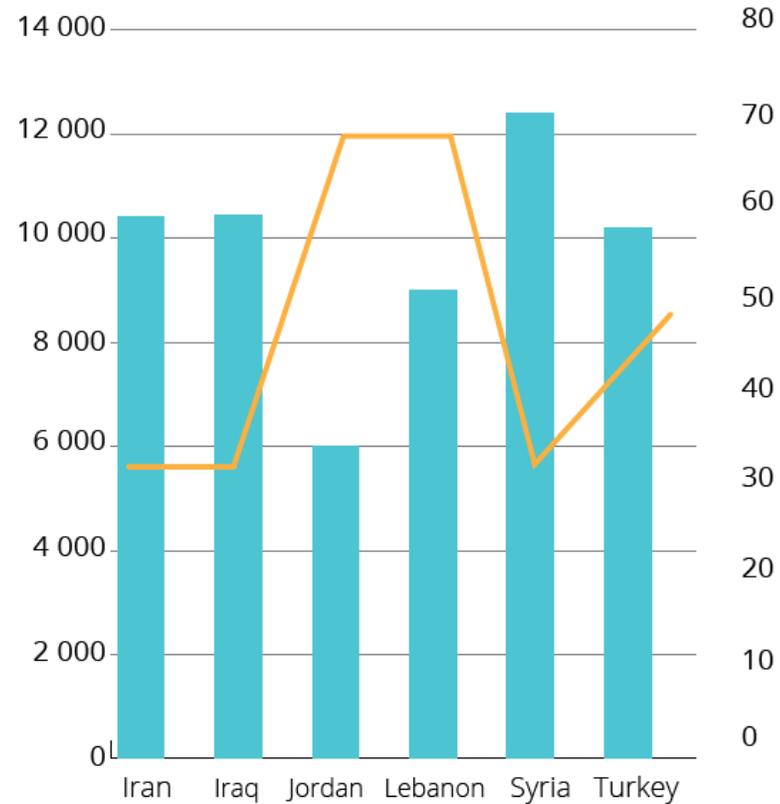
- State of water and agriculture in the ME
- Pressures and risks to irrigated agriculture
- Responses, options and actions
- Conclusions and policy recommendations



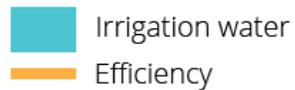
### Annual total renewable water resources, total water withdrawals, and irrigation water use (km<sup>3</sup>/yr)



## Irrigation water use (m<sup>3</sup>/ha) and average irrigation water use efficiency (%)



Source: FAO AQUASTAT



## Irrigation methods (% of total)



Source: FAO AQUASTAT

# Pressures and risks



## Strengths

S1	Agricultural products and incomes are diversified
S2	High contribution to employment and GDP in agriculture
S3	The responsibilities of organisations related to water management are clearly defined

## Opportunities

O1	Food security is considered a priority
O2	Water management projects can be implemented with the support of governments
O3	The effects of climate change are well known

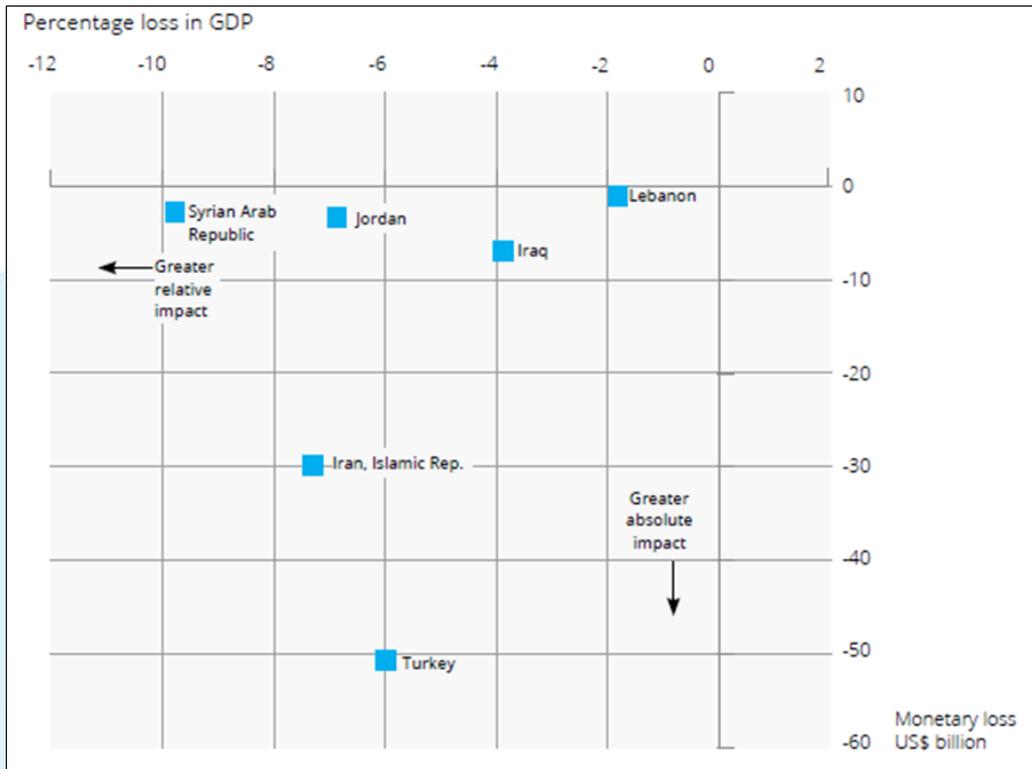
## Weaknesses

W1	The legislation on agricultural water use requires improvement
W2	The unfair distribution of job opportunities between rural and urban areas leads to migration
W3	Surface irrigation widely used

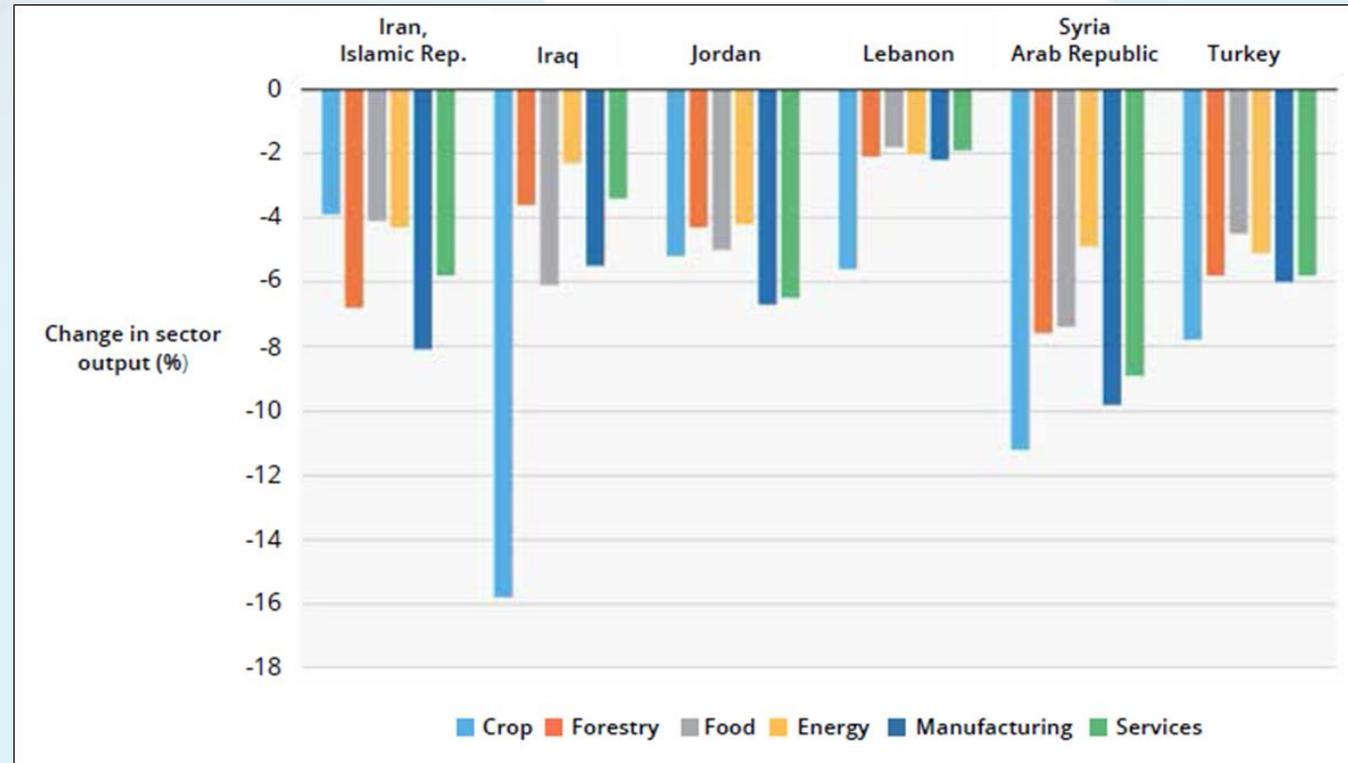
## Threats

T1	Salinity is increasing
T2	Growing population puts pressure on water resources and food security
T3	There is a mismatch between basin boundaries, territorial organisations, and administrative zones

## Climate change and cropping

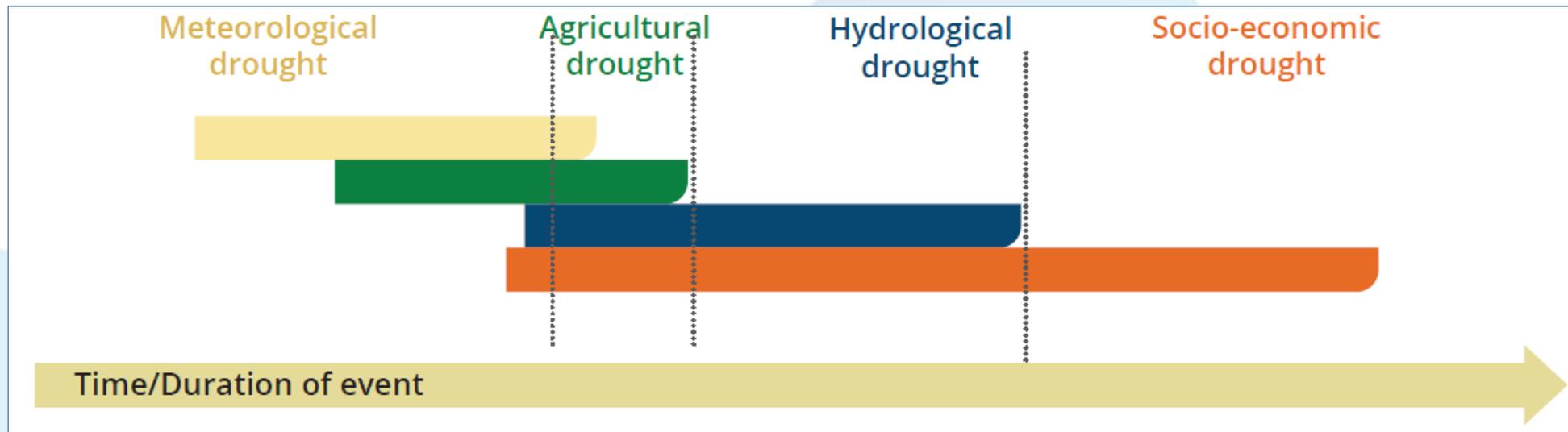


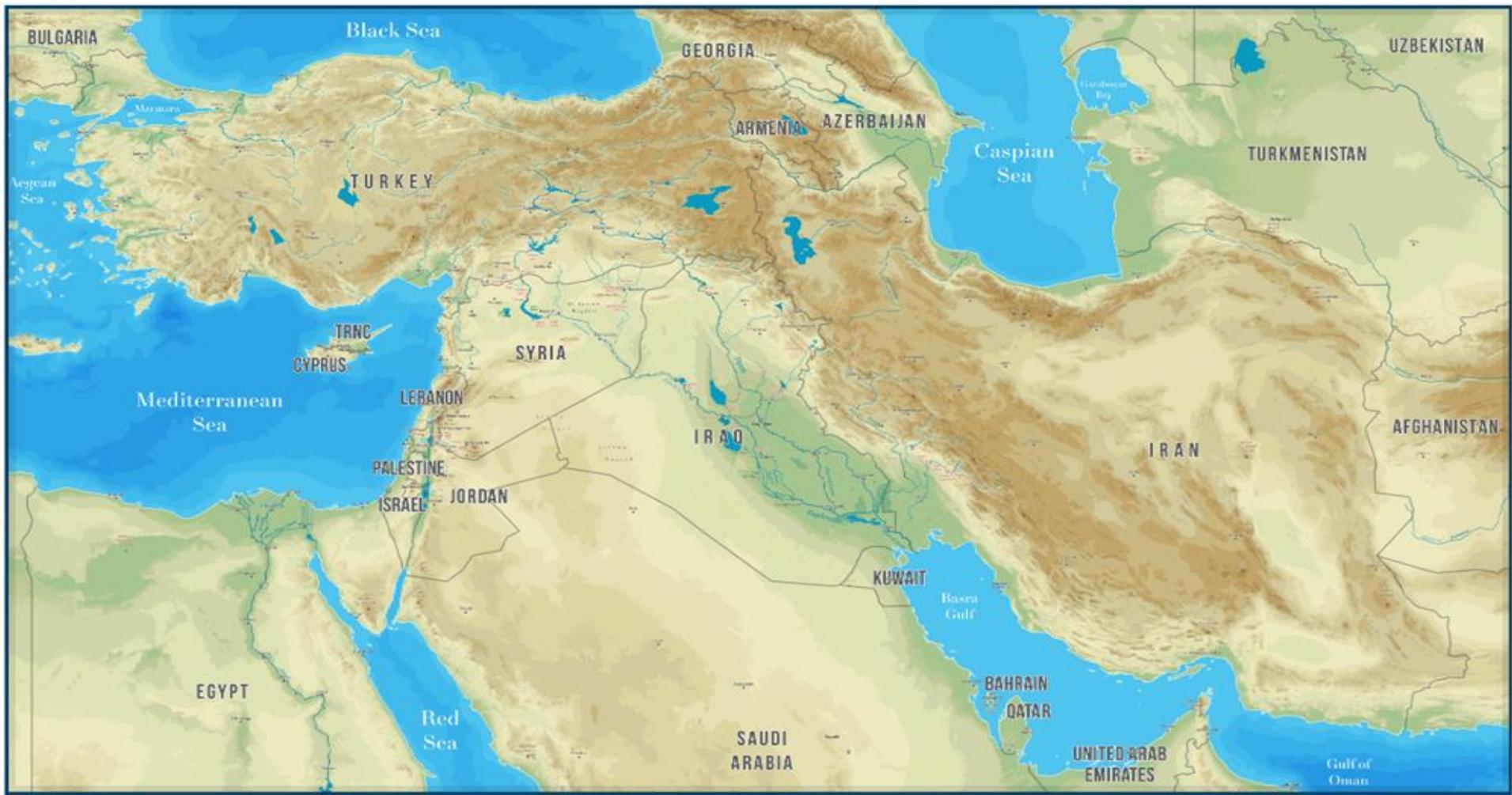
## Climate change and water scarcity



# Climate change and drought

Droughts are temporary and come to an end.  
In contrast, aridity does not





## ELEVATION

### WATER USE EFFICIENCY IN AGRICULTURE IN THE MIDDLE EAST

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#### Disclaimer

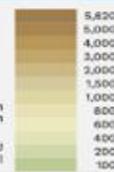
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## LEGEND

### Elevation (m)



- International Boundary
- Region Boundary
- River
- Lake/Reservoir
- Wetland
- National Capital
- Selected City, Town
- City, Town
- Dam
- Selected Mountain Peak

#### Source

USGS EROS Archive, Digital Elevation Shuttle Radar Topography Mission (SRTM) Void Filled, 3 arc-seconds Shuttle Radar Topography Mission Void Filled - Digital Object Identifier (DOI) number: 10.5066/7727681X



# Risks and Challenges

Climate Change

Droughts

Water Scarcity

Shocks

Land and soil  
degradation

Five main areas for action are recommended that can facilitate a transition towards efficient, reliable, and sustainable water irrigation management.

Action 1 – Good Water Governance

Action 2 – Embracing Innovative Technologies

Action 3 – Implementing Integrated Solutions

Action 4 – Investing in long-term sustainability

Action 5 – Cooperation Across the region

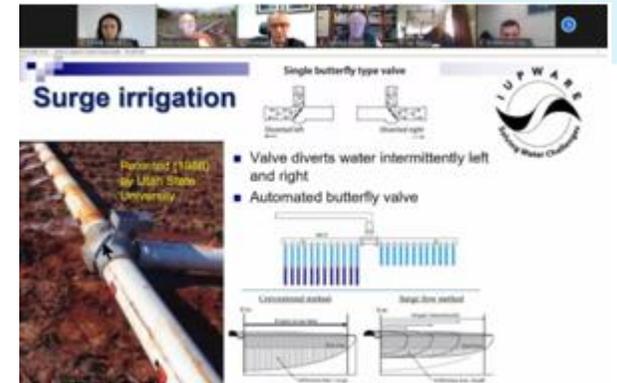
## 1<sup>st</sup> Training Program (17-19 November 2020)

-The first training program under the theme of “**Modern Approaches to Improving Irrigation Water Use Efficiency**” was held online on 17-19 November 2020 with the participation of irrigation experts from partner countries, Iraq, Jordan, Lebanon, Syria and Turkey.

-Participants were informed in detail on below topics.

- *Crop soil water interactions and scheduling*
- *Modern irrigation technologies and practices: surface, sprinkler, and drip irrigation*
- *The challenges of managing large-scale irrigation schemes*
- *Participatory irrigation*
- *Developing capacity to plan, design, and manage future irrigation systems*

-A session was also devoted where country experts made presentations on irrigation management and good practices in their countries to ensure exchange of country knowledge and experiences.



## 2nd Training Program (11-15 October 2021 )

-The second training program under the theme of “**Modern Approaches to Improving Irrigation Water Use Efficiency**” was held online on 11-15 October 2021 with the participation of irrigation experts from partner countries, Iraq, Jordan, Lebanon, Syria and Turkey.

-Participants were informed in detail on below topics.

- Future of irrigation and sustainability
- Irrigation water use efficiency, water and economic productivity
- Utilization possibilities of marginal water in agriculture
- Master planning of irrigation investments
- Governance of irrigation schemes and participatory irrigation
- Principles for irrigation fees and tariff setting and cost recovery
- Monitoring and evaluation (performance assessment) of irrigation systems
- Modern irrigation technologies and practices: drip irrigation and fertigation, sprinkler irrigation
- Deficit irrigation and adaptation of irrigation plans for drought
- Use of remote sensing and GIS in agricultural water management
- Soil salinity and sustainable salinity management
- Basin sectoral water allocation plans

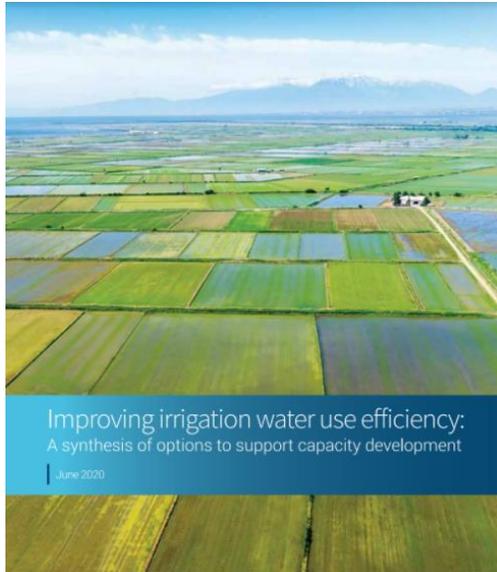


## 3rd Training Program (24-26 May 2022)

- As part of study dissemination activities, a workshop and observational study tour were held in Şanlıurfa, Türkiye on 24-26 May 2022 with the participation of irrigation experts from partner countries; Iraq, Jordan, Lebanon and Türkiye.
- The key outcomes and messages of the report titled as “Improving agricultural water use efficiency and productivity in the Middle East: Pressures, status, impacts and responses” were presented and discussed.
- Each country also made presentations on irrigation governance and good practices in their countries to exchange knowledge and experience. In addition, field visits were paid to WUA’s and irrigation facilities to observe the practices in-situ.



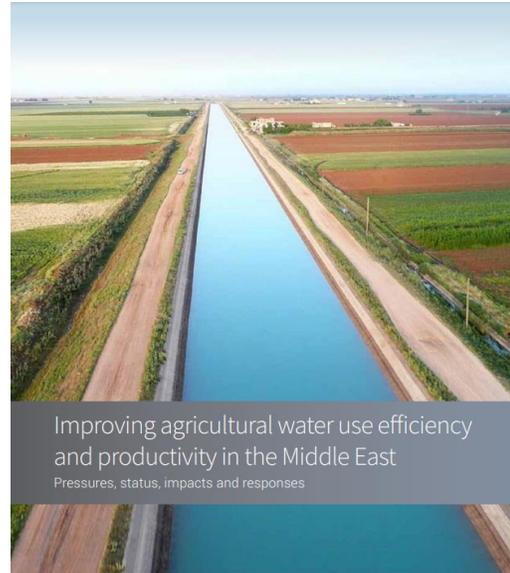
-Published under <http://www.bluepeacemiddleeast.org/Publications>



Improving irrigation water use efficiency:  
A synthesis of options to support capacity development  
June 2020

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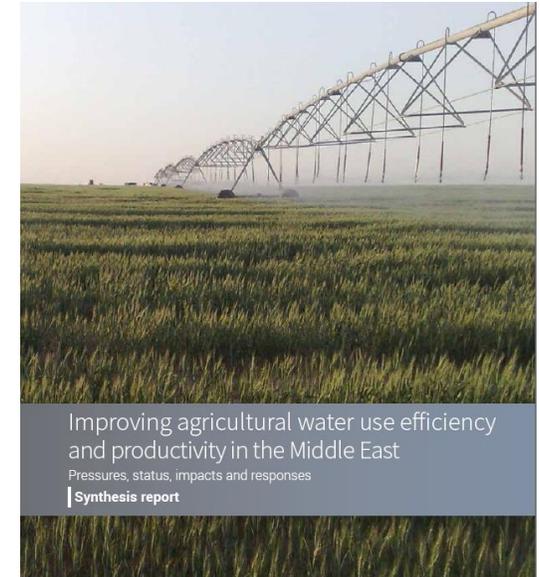
Improving irrigation water use efficiency:  
A synthesis of options to support capacity development



Improving agricultural water use efficiency  
and productivity in the Middle East  
Pressures, status, impacts and responses

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Improving agricultural water use efficiency  
and productivity in the Middle East:  
Pressures, status, impacts and responses



Improving agricultural water use efficiency  
and productivity in the Middle East  
Pressures, status, impacts and responses  
**Synthesis report**

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Improving agricultural water use efficiency  
and productivity in the Middle East:  
Pressures, status, impacts and responses -  
Synthesis report



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**THANK YOU**

**Dr. Tuğba Evrim MADEN –tugbamaden@suen.gov.tr**  
**Head of Coordination Office - Blue Peace in the Middle East**

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