



# Climate Change and the NENA Region



Food and Agriculture Organization of the United Nations

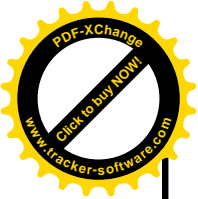
[www.fao.org/climatechange](http://www.fao.org/climatechange)



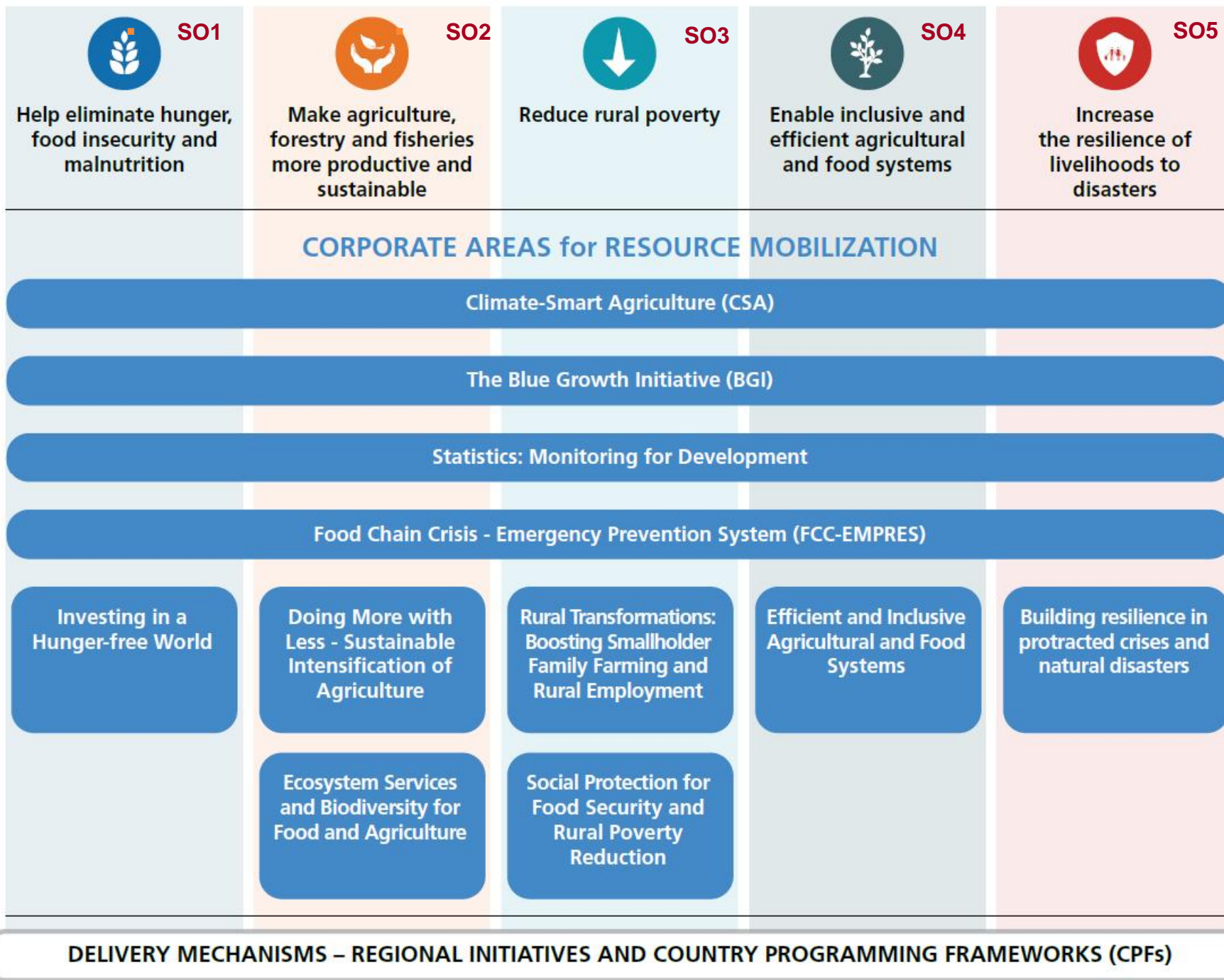
## *FAO's Goals*

- *Eradication of hunger, food insecurity and malnutrition*
- *Elimination of poverty- sustainable livelihoods; and*
- *Sustainable management and utilization of natural resources (Land, water, air, climate and genetic resources)*





## FAO's STRATEGIC FRAMEWORK



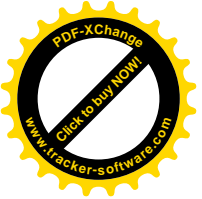


## Delivery Mechanisms- Regional Initiatives and **Country Programming Frameworks** (CPF):

15 initiatives in the 5 FAO regions, 3 are in NENA region, the FAO RNE Initiatives are:

- **Water Scarcity – SO2**
- **Sustainable small-scale agriculture - SO3**
- **Building Resilience to Enhance Food Security and Nutrition – SO5**





## *FAO Near East and North Africa Region*

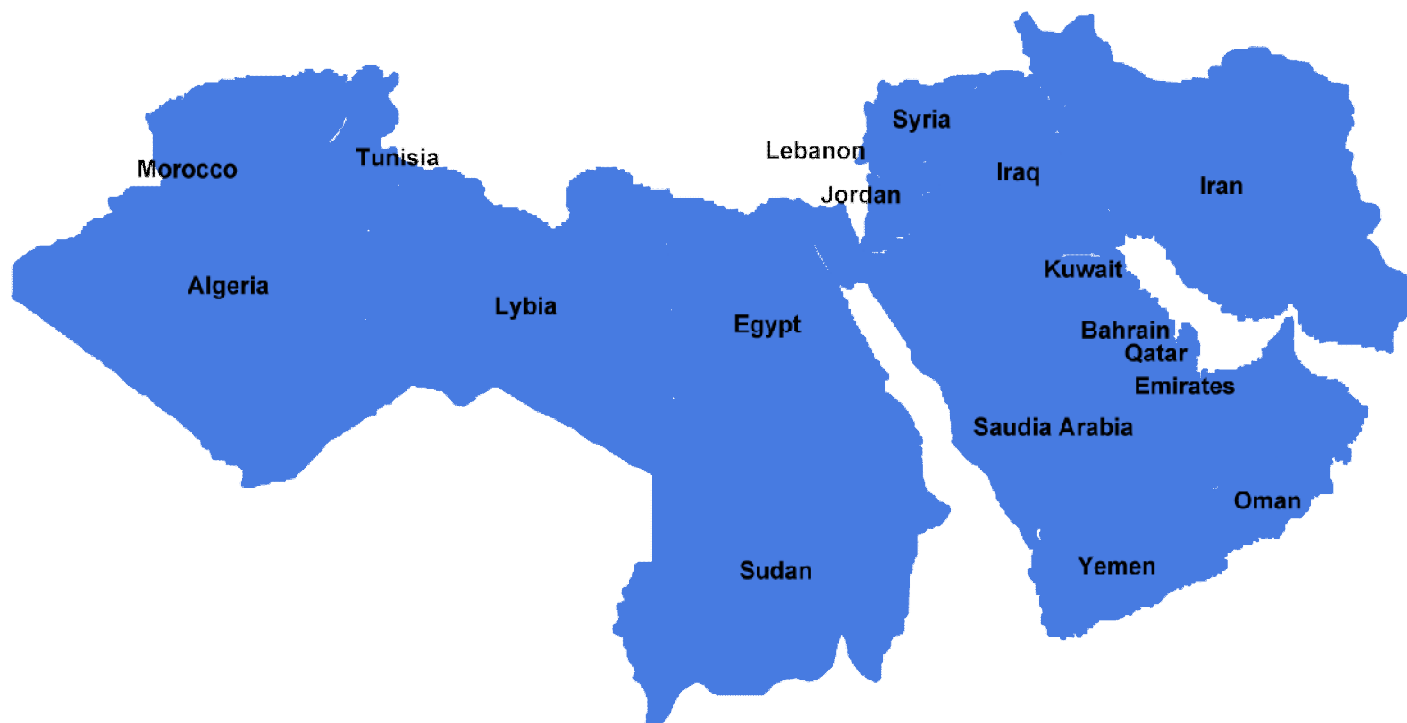


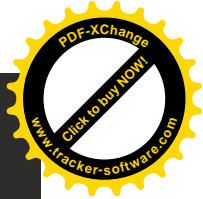
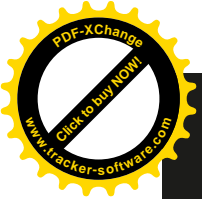
Food and Agriculture Organization of the United Nations

[www.fao.org/climatechange](http://www.fao.org/climatechange)



# Near East and North Africa



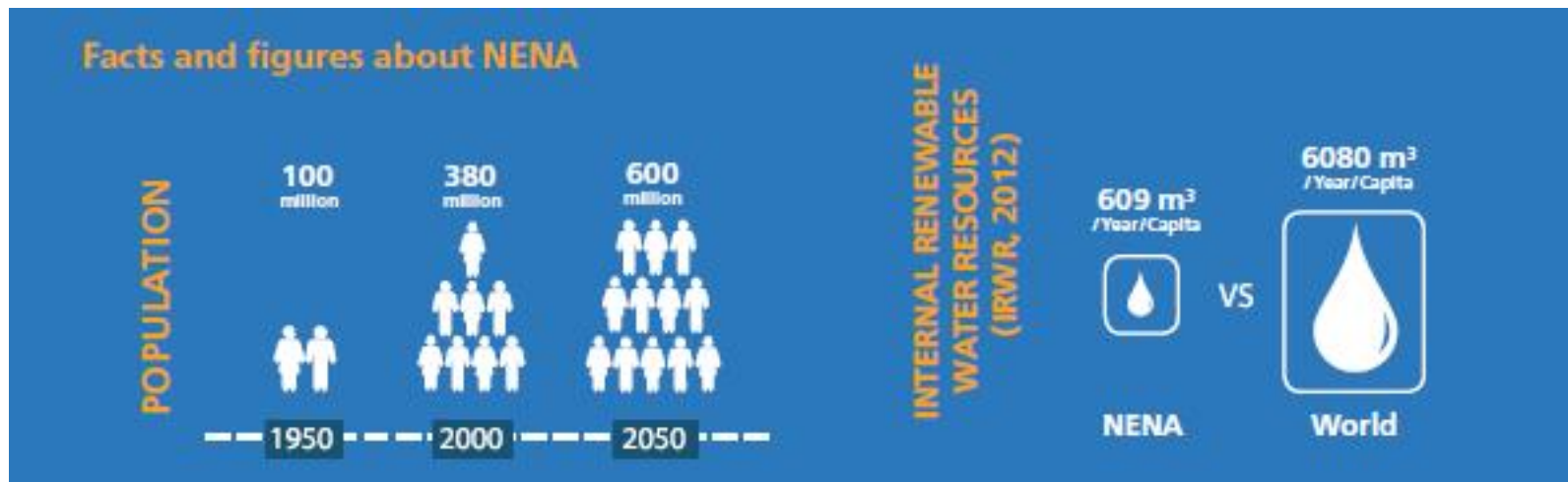


# POPULATION



Food and Agriculture  
Organization of the  
United Nations

# NATURAL RESOURCES

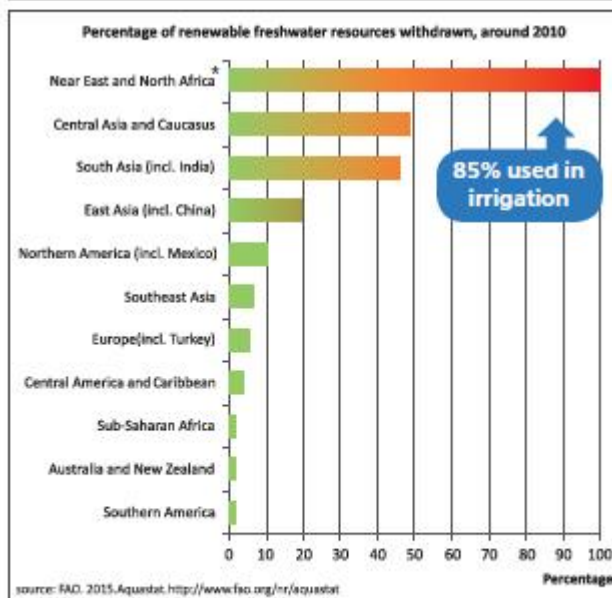
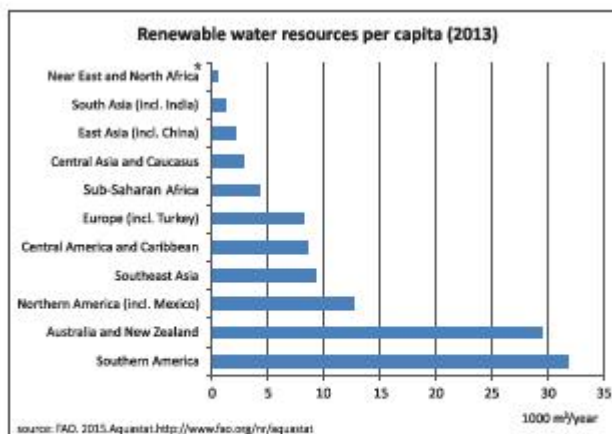


*The available conventional water resources remain the same and over 60% of the surface water comes from outside the region*

Food demand is expected to increase 3X the current level.

NENA Region





\* Near East and North Africa's Countries - Algeria, Bahrain, Egypt, Iran (Islamic Republic of), Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, West Bank and Gaza, Oman, Qatar, Saudi Arabia, Sudan, Syrian Arab Republic, Tunisia, United Arab Emirates, Yemen.

## NENA Region





*IPCC –*

*Global average temperatures have risen by about 0.74 degrees Celsius over the past 100 years and are forecasted to further rise by at least 1.4 degrees Celsius by the end of this century (even if emissions were stopped today) due to the long lasting effect of already emitted GHGs.*





- ❑ The question is not what agriculture the region wants, but what agriculture can the region afford sustainably!
- ❑ Water scarcity coupled with climate change impact is a particular challenge of the NENA region and pose extraordinary challenges for food security and disaster risk reduction





- ❑ The current food production, generally, is below its potential; 20-30% increase is within a reach with current knowledge and technologies with CC impacts in mind; this potential increase will help reduce the food gap, but the region will continue to have food deficiency;
- ❑ Climate change- may lead to a food production shortfall; in Russia, a wheat exporter, wheat production is predicted to fall by 50% or more - Potential food supply and demand imbalance is likely;
- ✓ Food access and utilization are often not given attention-30% of harvest and post-harvest losses for some commodities.....Waste Reduction need more attention;
- ✓ Move from traditional water management to space-based management offers great opportunity; and
- ✓ National and regional collaborative strategies on sustainable agricultural water management and food security are becoming a necessity;

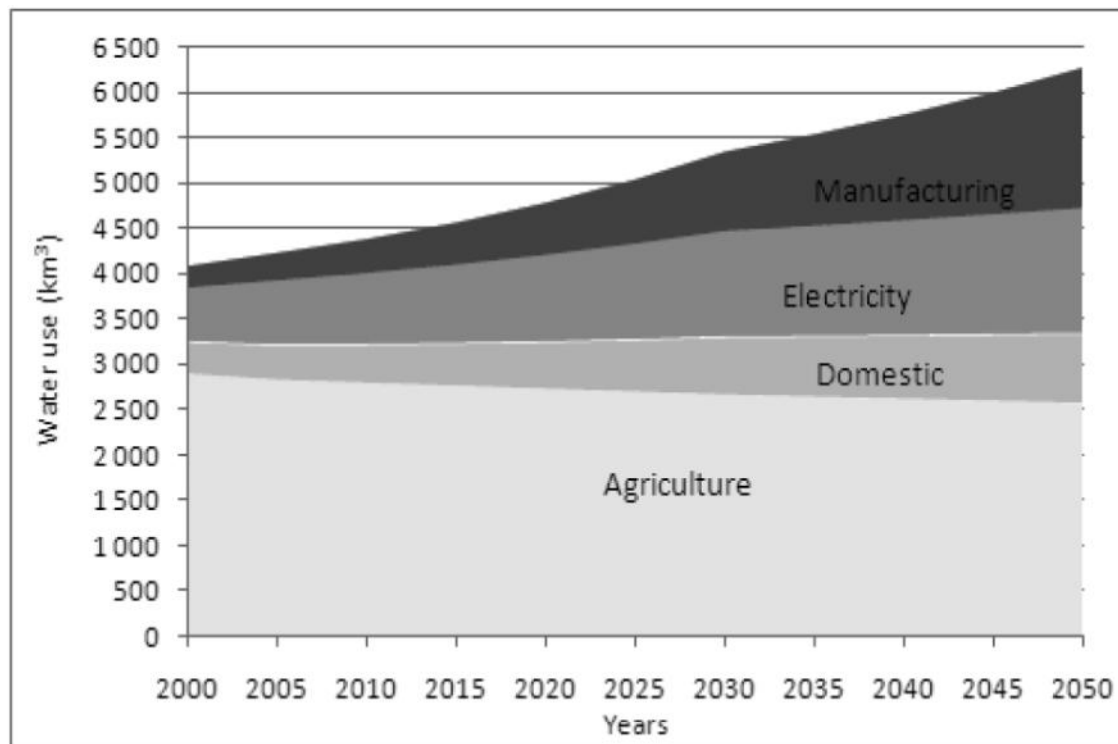
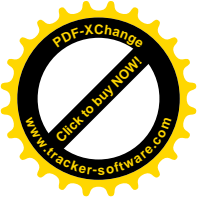




# Emerging Task to FAO

FAO will need to work to translate the commitments of COP21 into viable programmatic directions for discussion with its main partners.



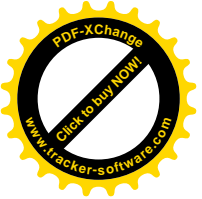


Source:  
OECD

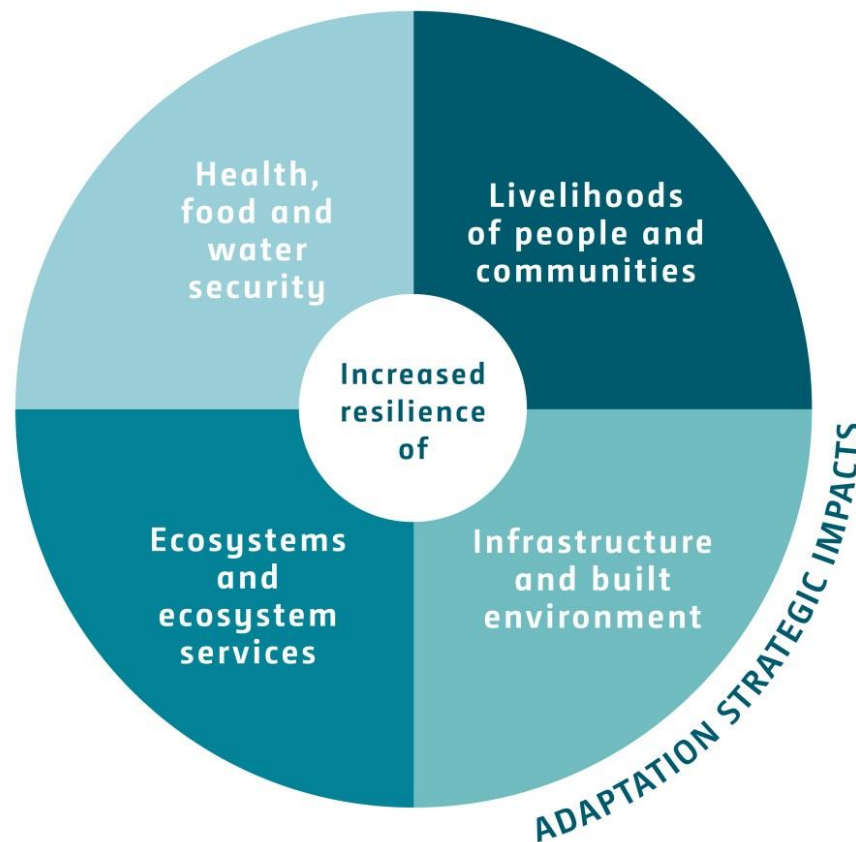
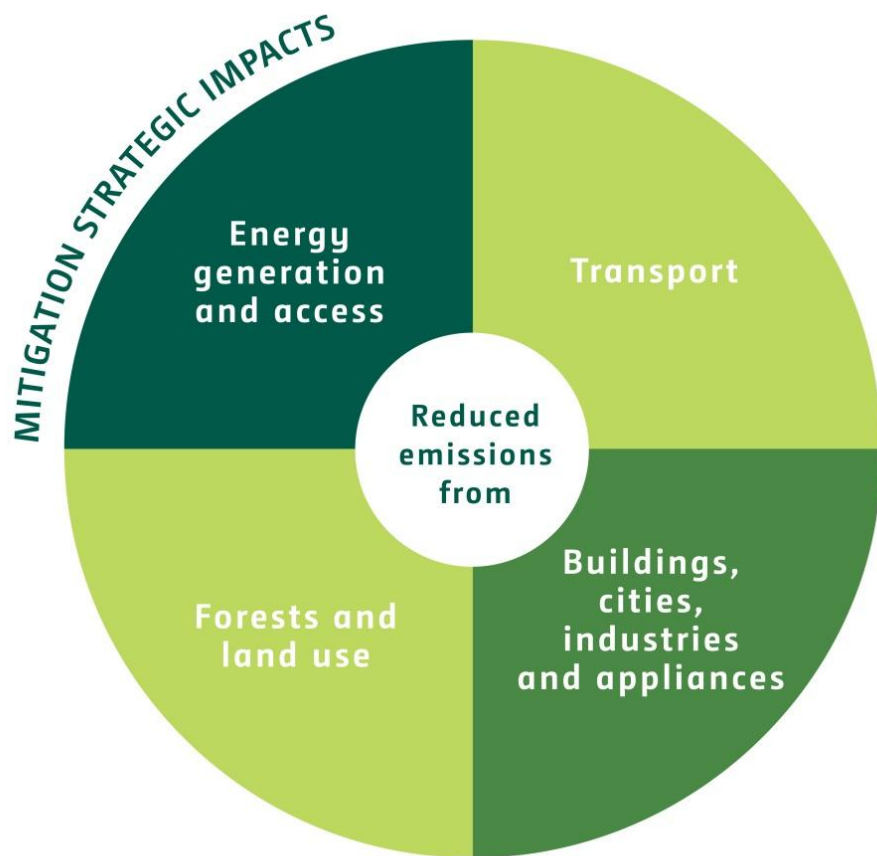
*The region must increase its green sector productivity and production in a Climate Smart Agriculture Approach*

*Climate-smart agriculture promotes production systems that sustainably increase productivity, resilience (adaptation), reduces/removes GHGs (mitigation), and enhances achievement of national and regional food security and development goals*





# The Green Climate Fund – programming Result areas



*Importance of the agricultural sectors is reflected in GCF priorities*





# Unique strengths in CC

- providing member countries with highly valued technical support, information, and tools;
  - helping government agencies and other partners to harmonize climate change and DRR policies and strategies; and
  - acting as a trusted facilitator and neutral source of technical data among global climate-related institutions and forums.
- This makes FAO a natural partner to CTCN and an active implementing agency for Climate Finance Institutions







## FAO actions on CSA

Policy

Practices

Investment

Tools



Food and Agriculture Organization of the United Nations

[www.fao.org/climatechange](http://www.fao.org/climatechange)



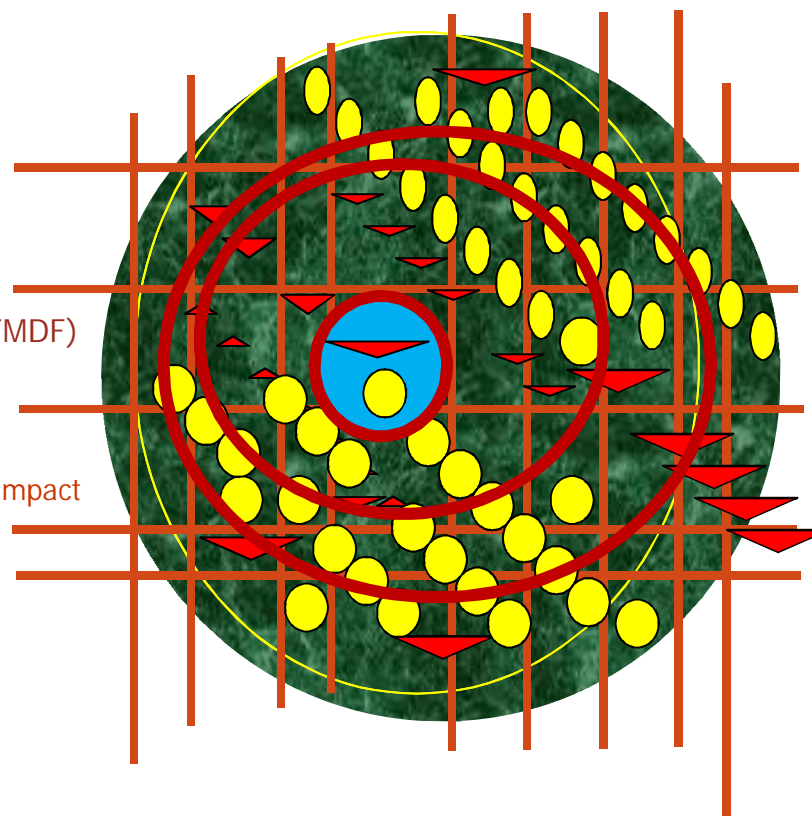
# Pathway to Impact- the Approach

FAO & other DAs

Scaling out through Community-Based Approach  
Field Demonstration Platform:

- Project Managed Demonstration Fields (PMDF)
- Extension-Farmers Managed Demonstration Fields (E-FMDF)
- Farmers Managed Demonstration Fields (FMDF)
- Neighbor-Influenced Farms (NIF)

Evidence-Based: Monitoring and documentations to show the impact



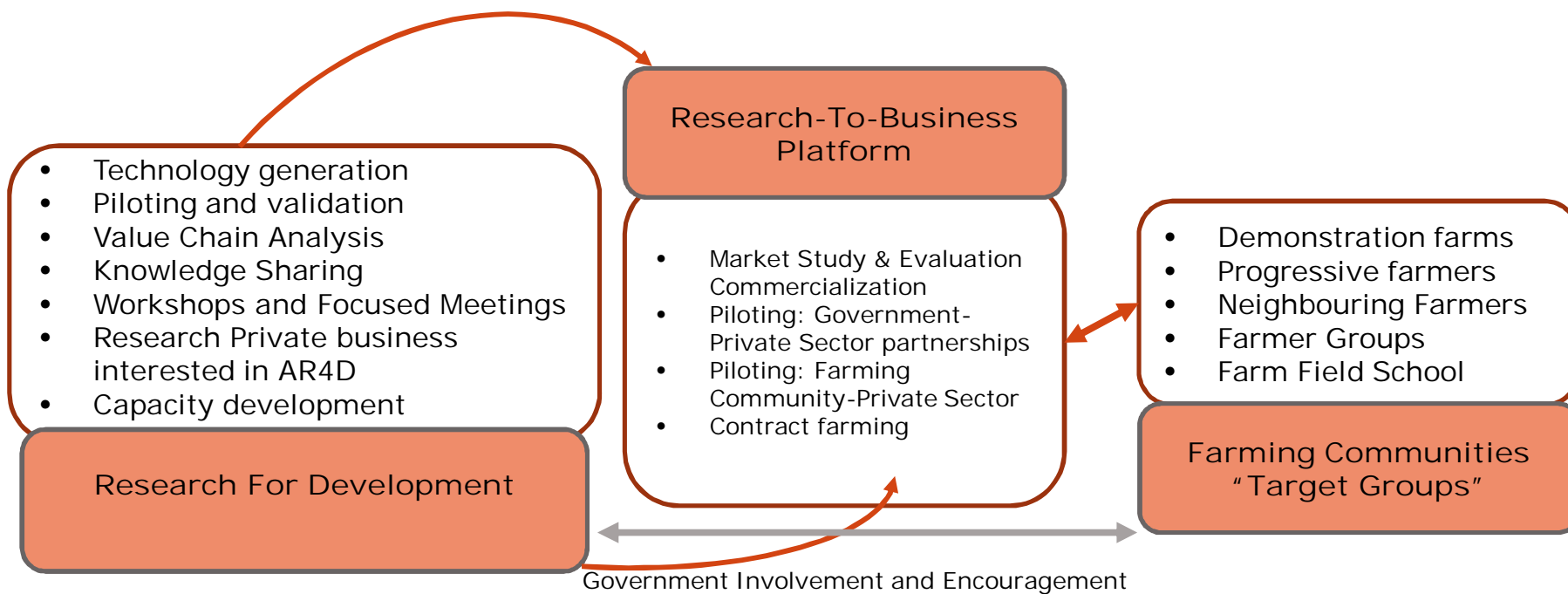


## Few Case studies



Food and Agriculture Organization of the United Nations

[www.fao.org/climatechange](http://www.fao.org/climatechange)



## FAO actions on CSA



**Opportunities to unlock the potential of Protected Agriculture for cutting water consumption in the Gulf Cooperation Council (GCC) Countries, while supporting improved nutrition and food security Objectives**

- To carry out an assessment of potential expansion of New Generation of Green Houses (NGGH) in the GCC Countries. A quantitative 'business & environmental cases' with 'trades-off', 'costs' and 'benefits' in the adoption of the (NGGH) is developed to provide public and private parties with the entire spectrum of 'gains' and associated 'costs' which would eventually lead to attract the interest of stakeholders and investors over the opportunities offered by this protected agriculture solution to cut water consumption while producing nutritious food

### Partners

ICARDA, ICBA, GCC Country specialized Institutions in protected agriculture



## Deficit supplemental irrigation

TITLE: Closing wheat yield gap and improving crop water productivity in the context of water scarcity and climate change through the out-scaling of **deficit supplemental irrigation package** in North Africa region

it was proven to increase yields by 17-20% to save 'applied' irrigation water of 1,100 m<sup>3</sup>/ha, in average.

The objective of further dissemination of improved water technologies and agronomic packages is to close the yield and water productivity gaps"

Morocco and Tunisia





Inefficient furrow irrigation

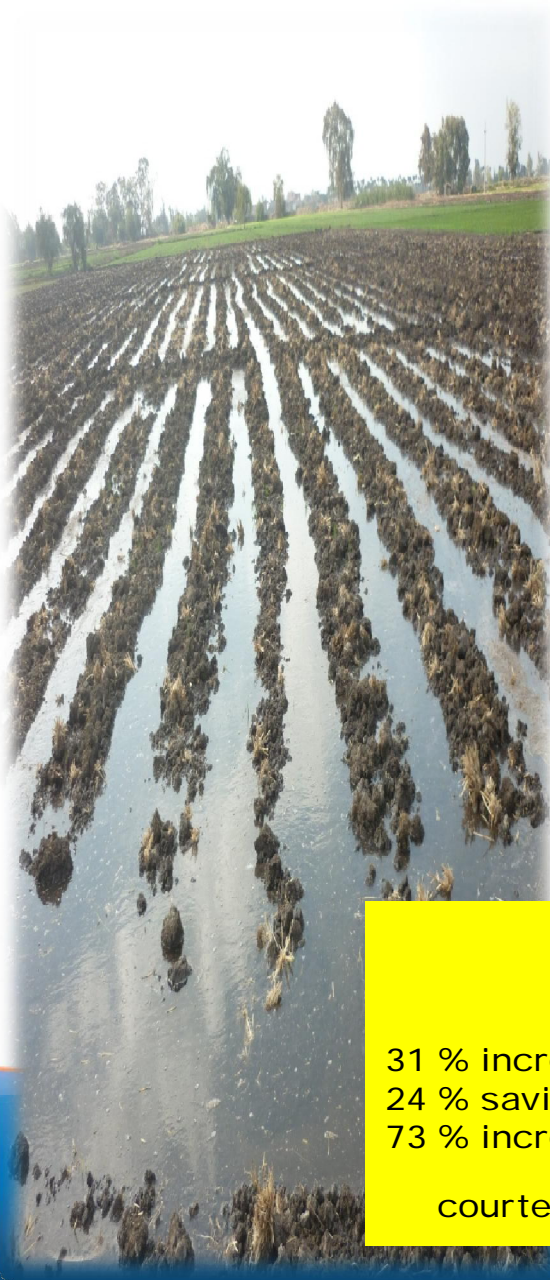
**Advantage**  
Improve seasonal irrigation efficiency from <40% to >75%



Efficient- Low-head sprinkler irrigation

courtesy of ICARDA (Sudan)

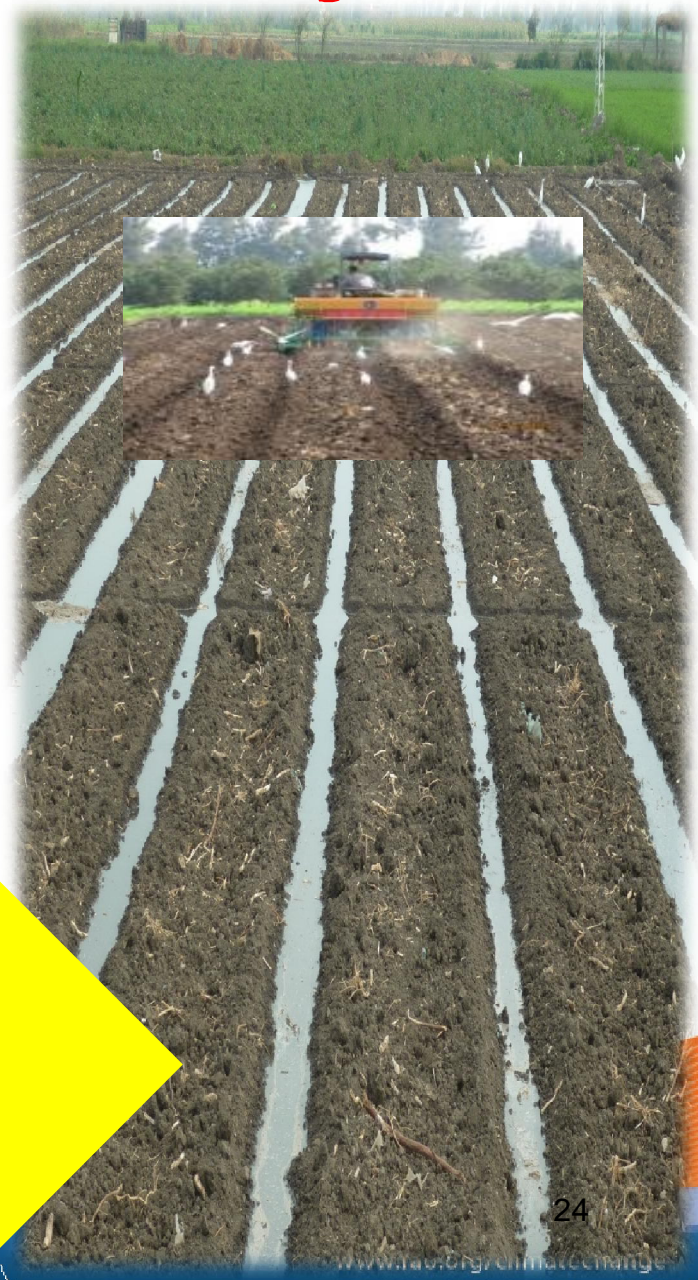
## Furrow irrigation



## Flat bed irrigation



## Raised bed irrigation



**Advantage**  
31 % increase in grain yield  
24 % saving in irrigation water  
73 % increase in WUE  
courtesy of ICARDA (Egypt)





International Workshop:  
Prospects for solar-powered irrigation  
systems (SPIS) in developing countries

## Final Report

FAO HQ | Rome, Italy | 27-29 May 2015

Jointly Organized by the Food and Agriculture Organization (FAO)  
and the German Agency for International Cooperation (GIZ)

### 3. What policies are needed to reduce the risks and enhance opportunities of SPIS

**development?** Policy briefs on the use of SPIS as well as detailed assessments of the policy environment can be useful in identifying incoherence between, and potentially distorting impacts of, different sectoral policies. Inter-sectoral collaboration of relevant Ministries is crucial when designing new policies to promote SPIS.



Food and Agriculture Organization of the United Nations

[www.fao.org/climatechange](http://www.fao.org/climatechange)

# Technology transfer and scaling out activities





Food and Agriculture  
Organization of the  
United Nations



Food and Agriculture  
Organization of the  
United Nations



# Thank you

Margarita Diubanova  
[Margarita.Diubanova@fao.org](mailto:Margarita.Diubanova@fao.org)

Fawzi Karajeh  
[Fawzi.Karajeh@fao.org](mailto:Fawzi.Karajeh@fao.org)

<http://www.fao.org/home/en/>



Food and Agriculture Organization of the United Nations

[www.fao.org/climatechange](http://www.fao.org/climatechange)