



CIHEAM



*Sharing Knowledge, Feeding the Future*

## **SFS MED for Climate Change Mitigation and Adaptation**

**Teodoro Miano**  
***CIHEAM, Secretary General***

**4-5 May 2023, Barcelona, 9<sup>th</sup> Meeting of the UfM Climate Change Expert Group (UfM CCEG)**  
**Adaptation and Local Level Action**

# MEDITERRANEAN AGRI-FOOD SYSTEMS: TRENDS AND THREATS

## RISING FOOD DEMAND IN A CONTEXT OF...

- **CLIMATE CHANGE**
- **WATER SCARCITY**
- **LOW PRODUCTIVITY (*variable productivity...*)**
- **HIGH DEPENDENCE ON FOOD IMPORTS: VULNERABILITY DURING CRISES**
- **LABOR SHORTAGE**
- **RESISTANCE TO CHANGE...**

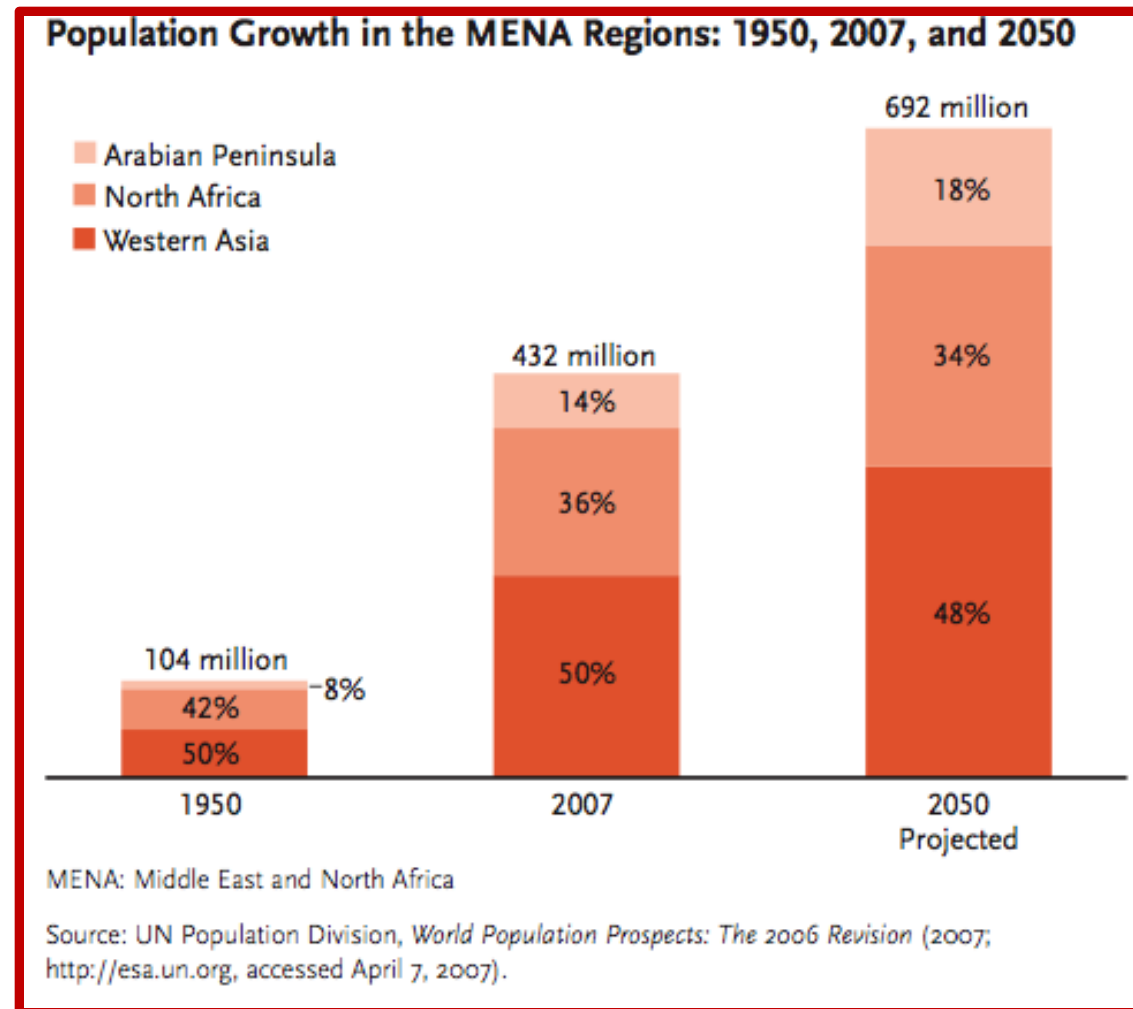
# RISING FOOD DEMAND IN A CONTEXT OF...

- The total population of Mediterranean countries increased from 281 million in 1970 to 472 million in 2010
- The population is expected to reach **572 million by 2030**

⇒ **RISING FOOD DEMAND**

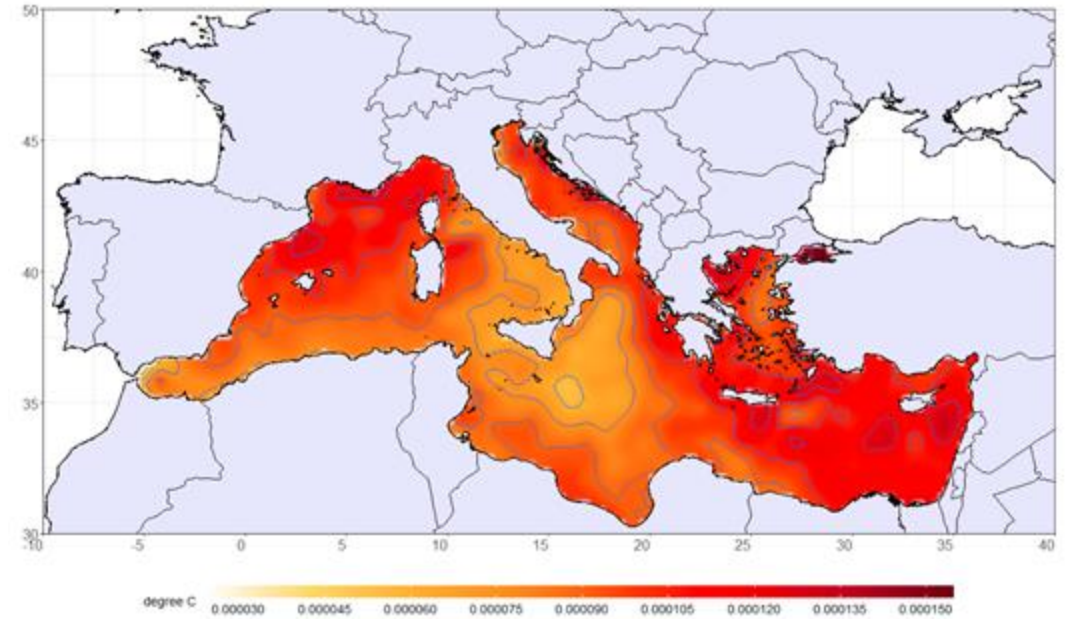
⇒ **FOOD TRANSITION (Globalization)**

⇒ **STRONG NEED OF FOOD IMPORTS**



# CLIMATE CHANGE

- Temperatures in the Mediterranean region are **increasing 20% faster** than the global average
- Agriculture is responsible **of ¼ of greenhouse gas emission**
- **Deforestation:** conversion of forest zones in agricultural lands
- Agriculture is the most **climate-dependent sector** and the first impacted



Natural resources (soil, water, plants, animals) are becoming **increasingly less available** and the overall quality is reduced

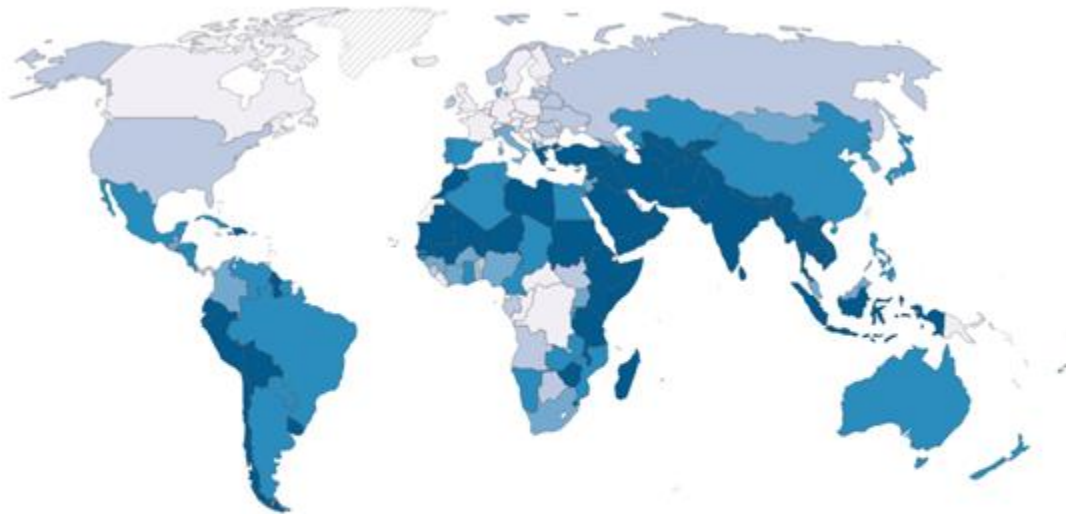
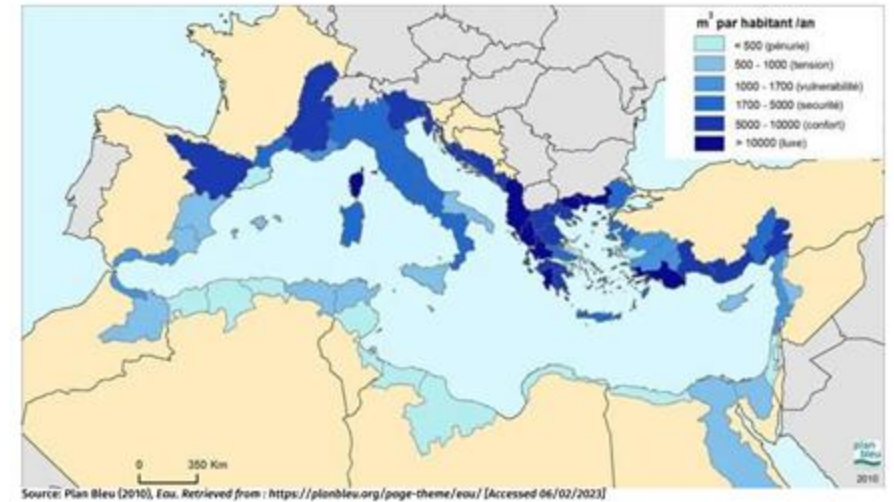


# WATER SCARCITY



The Mediterranean region represents 60% of the world's so-called "water poor" population

**Chronic overexploitation** of water resources. By 2025, 80 M people will suffer from water shortage in the region



Agriculture water as a share of total water withdrawals, 2017



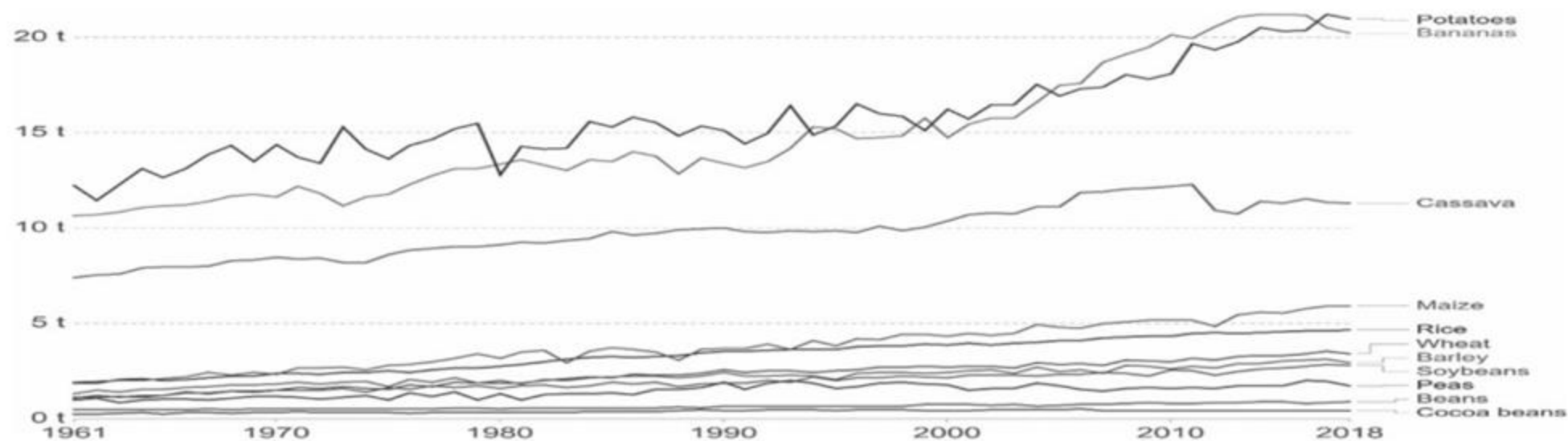
By 2050, **Water Demand will double**

⇒ Increased competition between sector demands (manufacturing, electricity, domestic, etc.)

**AGRICULTURE WATER = UNDER PRESSION**

# LOW PRODUCTION LEVEL

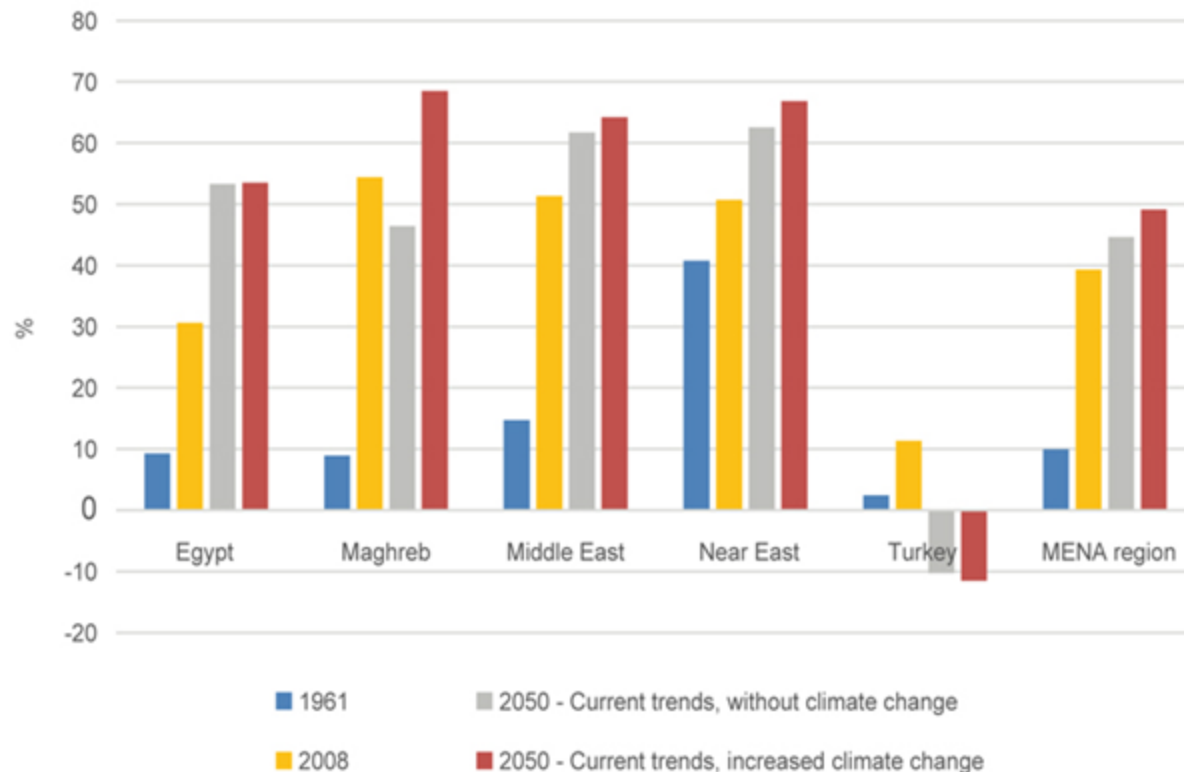
Changes in the average yield of major crop production since 1961 (t/ha), FAO 2030



Except potatoes and bananas, the production of major crops is under 5 t

**=> The production level has increased very slowly since 1960, correlating with the level of global warming**

# FOOD IMPORT DEPENDENCE

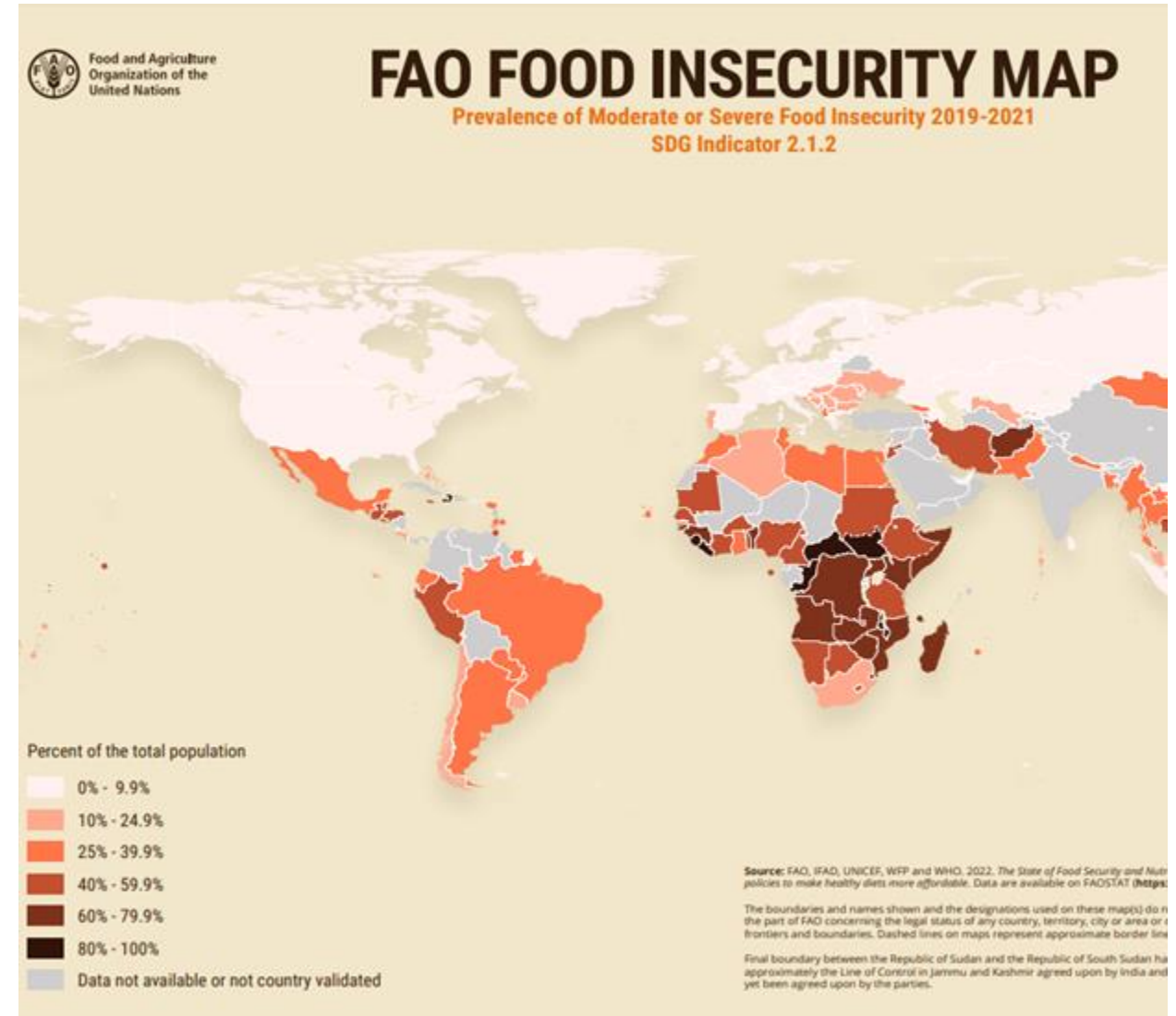
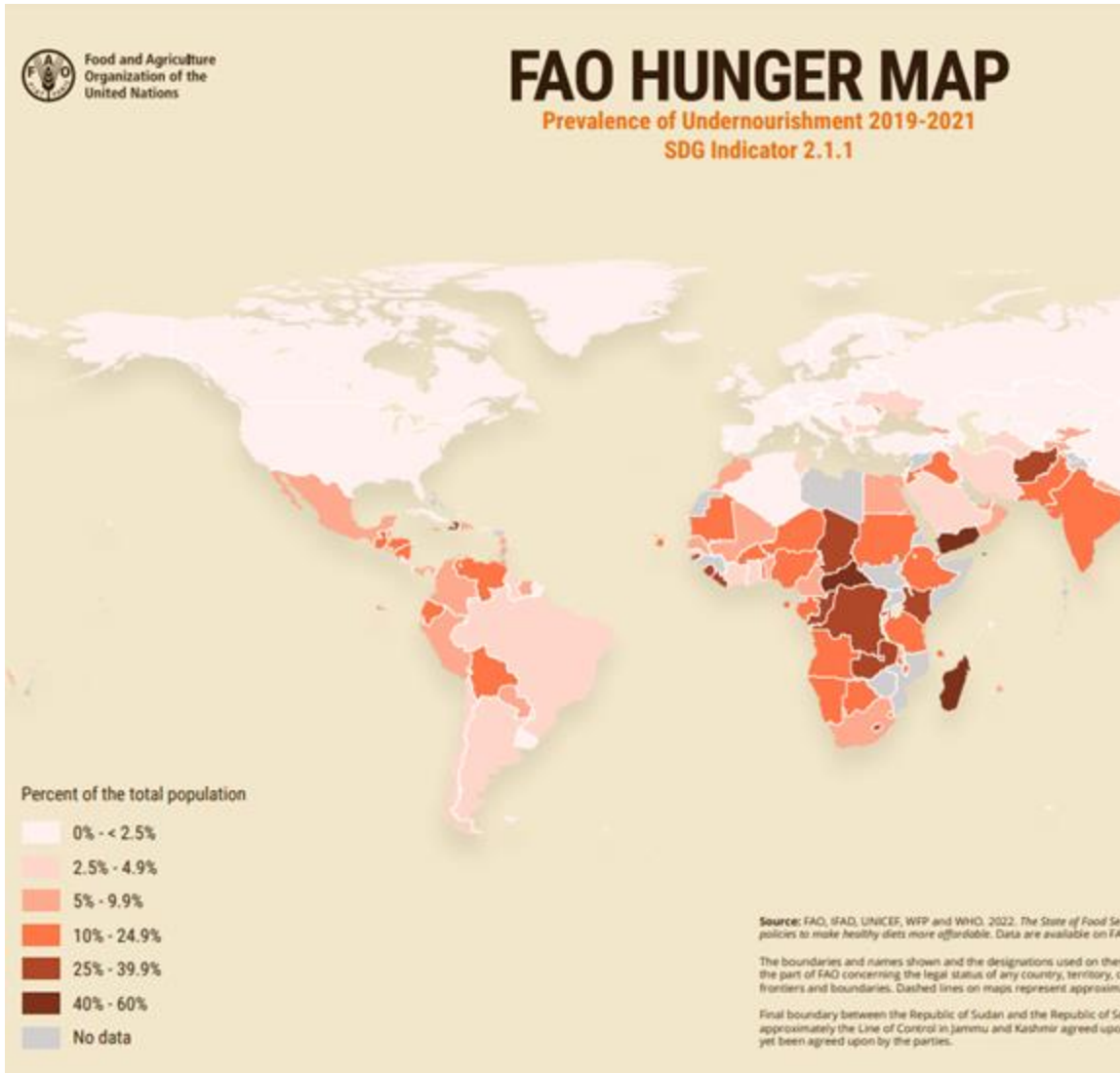


% of net imports in total domestic consumption, expressed in kilocalories (INRA, 2015)

**Agri-food net import dependence of the MENA region in 1961, 2008 and in 2050 for the scenarios:**

- **Current trends** (in population growth, dietary habits and agricultural production), *without* climate change
- **Current trends *with*** increased climate change

# FOOD INSECURITY AND HUNGER RESURFACES



FAO Hunger and Food Insecurity Maps 2021



# INELASTIC RESPONSE, RESISTANCE TO CHANGE

**Inelastic relationship** between agricultural models and climate changes

**Inelastic response** of the agricultural sector to phenomena driven by climate changes

On one side, the typical time scale of agricultural planning and investments

On the other side, the **cultural and psychological resistance to change** agricultural practices, approaches and cultivation



# MEDITERRANEAN AGRI-FOOD SYSTEMS: SOME PARADOXES

While these challenges threatens the (food) security of individuals and countries, at the same time:

Hunger  
cohabits  
with **Food  
Waste**



**Overweight rates** are  
among the highest in  
countries of the  
**Mediterranean diet**



➡ affects younger people and women

**Poverty** is disproportionately concentrated in rural areas and food insecurity affects food producers

The average age of farmers is around **50 years old** with **insufficient generational renewal** (rural migration, abandonment of land, etc.)

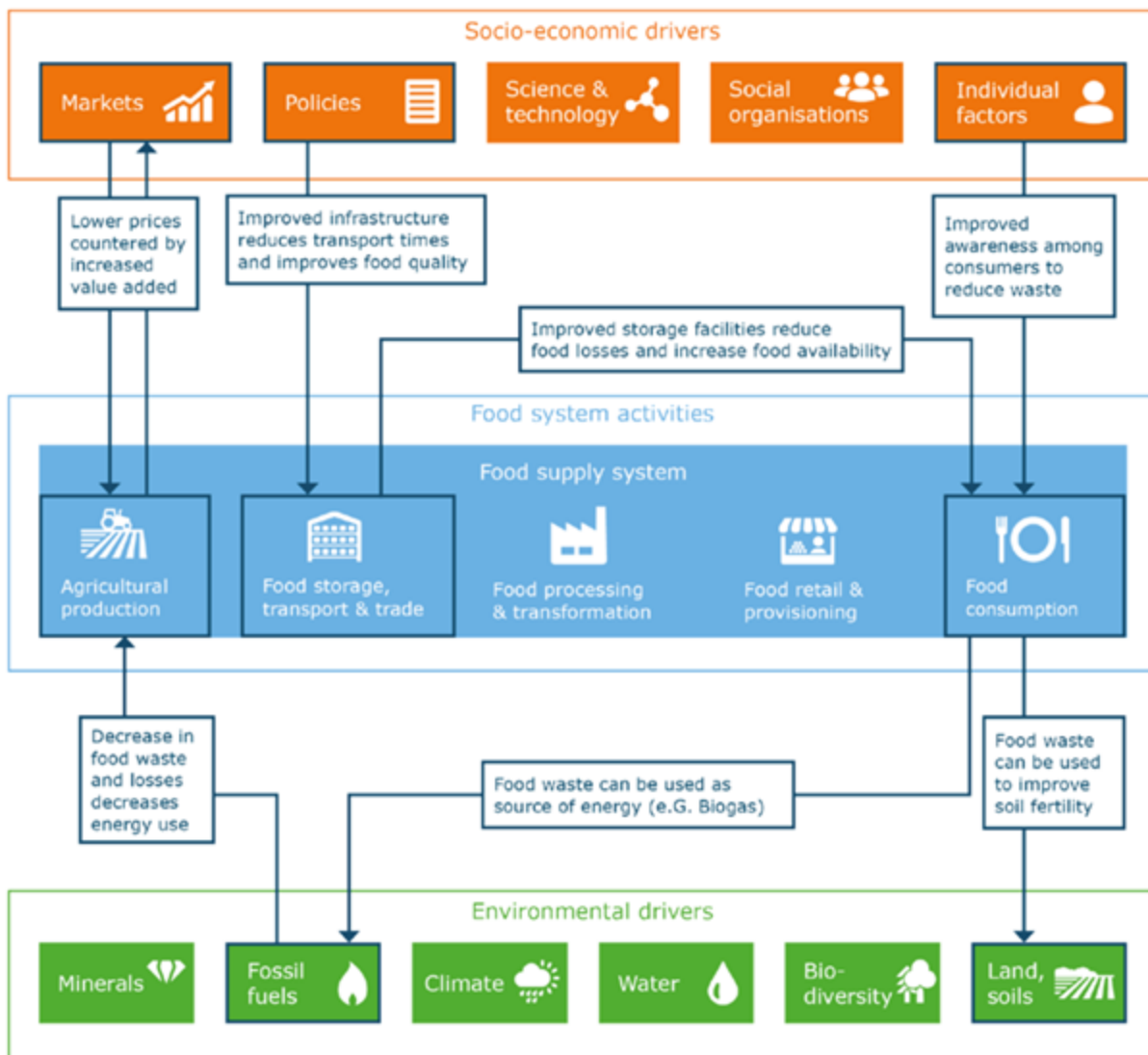
**The agri-food sector struggles to hire and attract young people** while unemployment rates are among the highest in the world



# MEDITERRANEAN AGRI-FOOD SYSTEMS: A NECESSARY REVOLUTION



# FOOD SYSTEMS: AN ESSENTIAL APPROACH

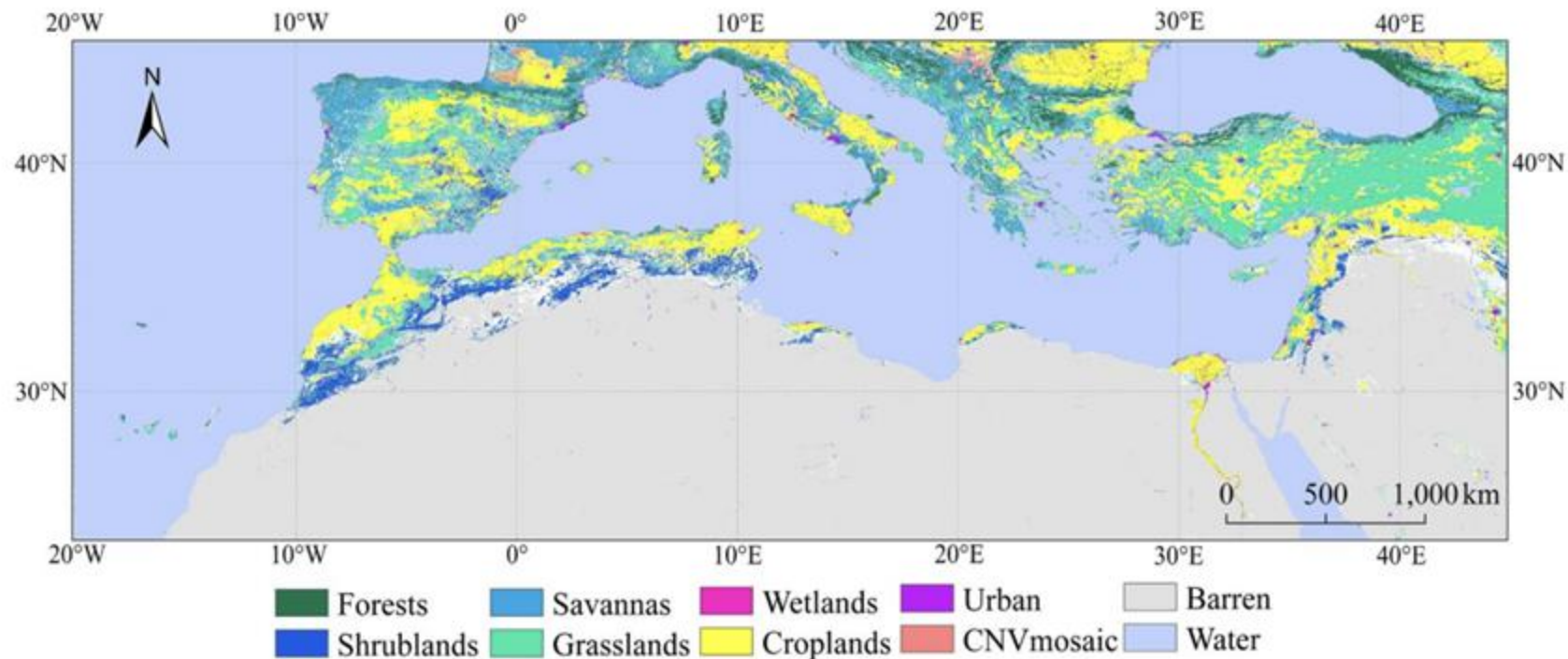


Thinking around production, post-harvest and waste

# MICRO-REGIONALIZED APPROACHES

Targeting the intervention to face CC is more efficient when **differentiated at regional level**

Effective policy designs may be built **on micro-regionalized approaches** starting from local analysis of problems and needs



# MULTI-STAKEHOLDER DIALOGUE AND COLLABORATION APPROACH

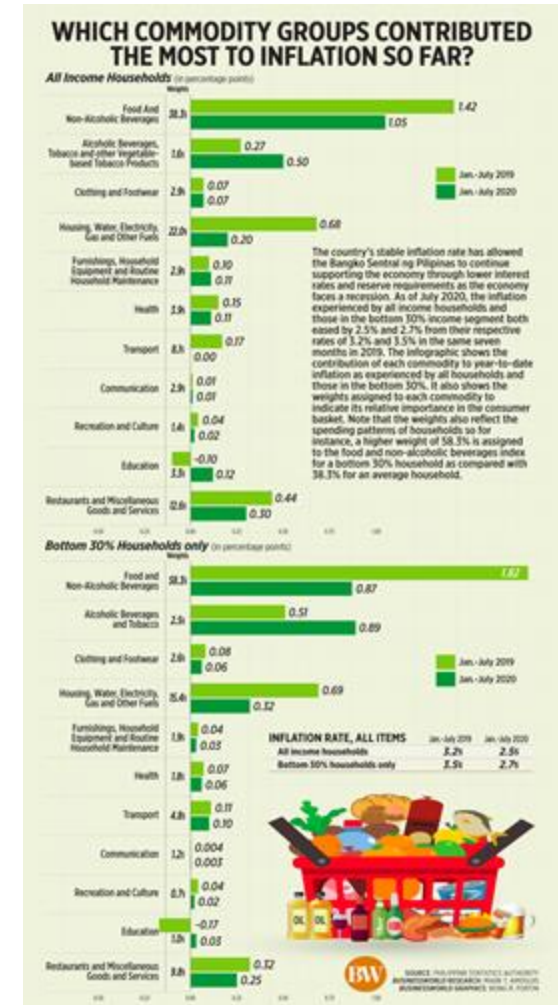


**FARMERS**



**AGRO-INDUSTRY**

## COMMODITY GROUPS



NATIONAL, STATE AND LOCAL ORGANIZATIONS



AGRICULTURE GOVERNMENT AGENCIES



CIHEAM  
International Center for Advanced  
Mediterranean Agronomic Studies



UNIVERSITY, RESEARCH CENTER...

# MITIGATION AND ADAPTATION TO CLIMATE CHANGE:

NO SINGLE ANSWER, NO OPPOSITION BETWEEN ACTORS AND SOLUTIONS



- Construction of Mediterranean **Multi-Actor Initiatives and Platforms**
- **Scientific cooperation**, Research & Sharing knowledge (IO, Academia, Research Centers, Agri-food Systems actors...)
- Major investment in **New Technologies and Social innovations**
- **Training in Mobility** in particular for the new generation
- Community **Capacity Building & Popularization**

# THE CIHEAM

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In line with the SDGs, the CIHEAM is developing a «**basket of solutions**» to contribute to prevention and adaptation to climate change.

**Partnership** synergies are fundamental

## CIHEAM ACTION PLAN FOR THE MEDITERRANEAN 2025



**Food Security and Nutrition**



**Protection the Planet**



**Inclusive Development**

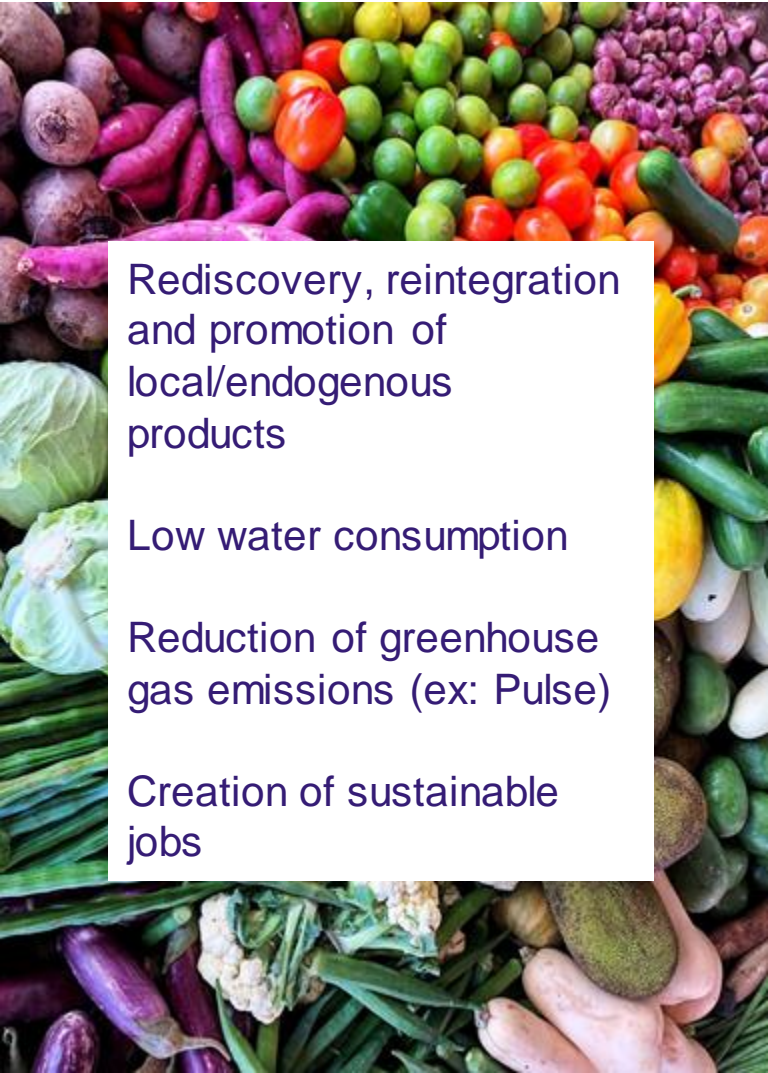


**Crises and Resilience**



# ADVOCACY FOR MEDITERRANEAN SOLUTIONS

## MEDITERRANEAN DIET/GASTRONOMY



Rediscovery, reintegration and promotion of local/endogenous products

Low water consumption

Reduction of greenhouse gas emissions (ex: Pulse)

Creation of sustainable jobs

## SUSTAINABLE MEDITERRANEAN AGRICULTURE (HIGH NATURAL VALUE)

Agroecology, silvo-pastoralism, dry farming, organic farming practices, artisanal fishing, etc.



## BACK TO LINKS AND PROXIMITY

Short circuits, Circular Economy, Green business, Agrotourism...



# CIHEAM tools to contribute to tackle climate changes



## Education & Training of Human Capital

(Master programmes: CLIMATE CHANGE, AGRICULTURAL AND TERRITORIAL MANAGEMENT)

## Research (FOSC)



## Cooperation & Technical assistance & Community building

(Supmed)



## Political Dialogue, Partnerships & Scientific Diplomacy

(COP27, SFS MED Platform, others)

## Knowledge Production & Sharing

# MEDFORUMs

Since 2016, in partnership with various actors (UfM, FAO, ICARDA, Italian Cooperation, Universities, etc.), CIHEAM has been organizing Forums to bring together **Doctoral Students and Young Mediterranean Researchers** to strengthen exchanges and co-construction of solutions for greener, inclusive and resilient agro-food systems.



# CIHEAM AT THE COP 27



12 November 2022, 3 to 4pm



## **Food and Water Security** *Challenges and Outlook for Smart and Inclusive Agriculture*



12 November 2022, 4:15 to 5:15pm



## **Stakeholders' engagement for agroecological practices** *Feedback from the SupMed initiative*



## **Mediterranean Agri-food Systems and Climate Change**

*What adaptation solutions for  
the grape and wine sector?*

14 November 2022, 5:30 to 6:30pm



