

1st FutureMed Workshop & Training School
29th September to 3rd October – Chania, Crete

Lecture 6

New Approaches to Food Production and Rural Development under Climate Change

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Q: Which of the following statements do you find frightening?



a) "Around 3 billion people are unable to afford a healthy diet."



b) "One in 11 people in the world and one in five people in Africa suffers from hunger."



c) "World population is expected to reach around 10 billion in 2050 and more than 11 billion in 2100."



d) "Food production needs to be increased by at least 60% to feed the growing population."



e) All of the above.

Even more?

SDG, the goal of completely eradicating hunger by 2030...

- But?

One in nine people are undernourished
(2018)

- Can the world handle this much production?

- Resources were always limited, but today there are even more constraints.

- The environmental cost of increasing food production far exceeds the economic cost.

- Global pandemic(s)

- The problematic situation created by limited resources requires responsible production. Is it limited liability or joint and several liability?

Even more...

- The world population has exceeded 8 billion.
- More than 350 million people are suffering from hunger (2022).

- One in ten people cannot consume enough food to provide the energy levels needed to lead a normal, active and healthy life.

2C+ 1C=3C ... +1C ...PERMACRISIS

New words... jargons...old challenges

“We are facing an unprecedented global food crises and all signs suggest we have not yet seen the worst. For the last three years hunger numbers have repeatedly hit new peaks. Let me be clear: things can and will get worse unless there is a large scale and coordinated effort to address the root causes of this crisis. We cannot have another year of record hunger,” said WFP Executive Director David Beasley in 2022.

Changing is challenging but a must because..



Integrated Environmental Assessment and Management, 2025, 1-2
<https://doi.org/10.1093/intteam/vjaf022>
Editorial

The challenge of change: navigating new approaches for agro-food systems for a sustainable and resilient future

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- d) "Food production needs to be increased by at least 60% to feed the growing population."
- e) All of the above.

This author's and, most likely yours, is "all of the above," especially given the latest reports which warn about growing food insecurity and malnutrition. The State of Food Security and Nutrition in the World 2024 Report states that the world has regressed 15 years in terms of malnutrition levels (FAO, IFAD, UNICEF, WFP & WHO, 2024). This, and the UN Water report attribute this alarming trend to factors such as climate change, conflicts, and economic crises that have exacerbated food insecurity (UN, 2024). Moreover, these have happened despite global efforts since 2015 to achieve Sustainable Development Goals (SDGs) and although food production has increased by more than 100% in the last 30 years (UN, 2024). As noted in the *Toll (2024)* editorial in this journal, even if the 2030 Agenda moves its goalposts to 2050, we are halfway to that date. There are, however, still many opportunities for us to contribute to the UN SDGs through our own professions and, beyond, through multidisciplinary work.

challenges and constraints, which continue to cause new crises. Referring to the global or globally impacting catastrophes we have been experiencing in recent years, the Collins Dictionary has chosen "Fermacrisis," a word describing the feeling of living through a continuous period of war, inflation, and political instability, as the 2022 word of the year (Bushby, 2022).

"Development" in all areas has affected agriculture and food systems both positively and negatively, as it has other sectors. However, change and transformation in agriculture and food systems can be both more difficult and may involve more fundamental and structural changes than for other sectors. The intensity of human labor in agriculture and its dependence functioning ecosystems bring many constraints and obstacles.

A broad recognition that only collective economic adjustment on a global scale can help to prevent the negative consequences of environmental degradation and climate change (reported by Georges et al., 2017 from Stern 2006) demonstrates the importance of joint actions and urges the international community to develop global goals and approaches. Initiatives to address these challenges embracing the concepts of sustainable development, resilience, green growth, green economy, circular economy, bio-economy, circular bioeconomy, sustainable circular bioeconomy, and green deals have been in the agenda at the national, regional, international, and global scale for some time. More recently, sustainable food systems (which covers agricultural and food products) have been added into the agenda, too. Agro-food

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Moreover, these have happened despite global efforts since 2015 to achieve Sustainable Development Goals (SDGs) and although food production has increased by more than 100% in the last 30 years (UN, 2024).

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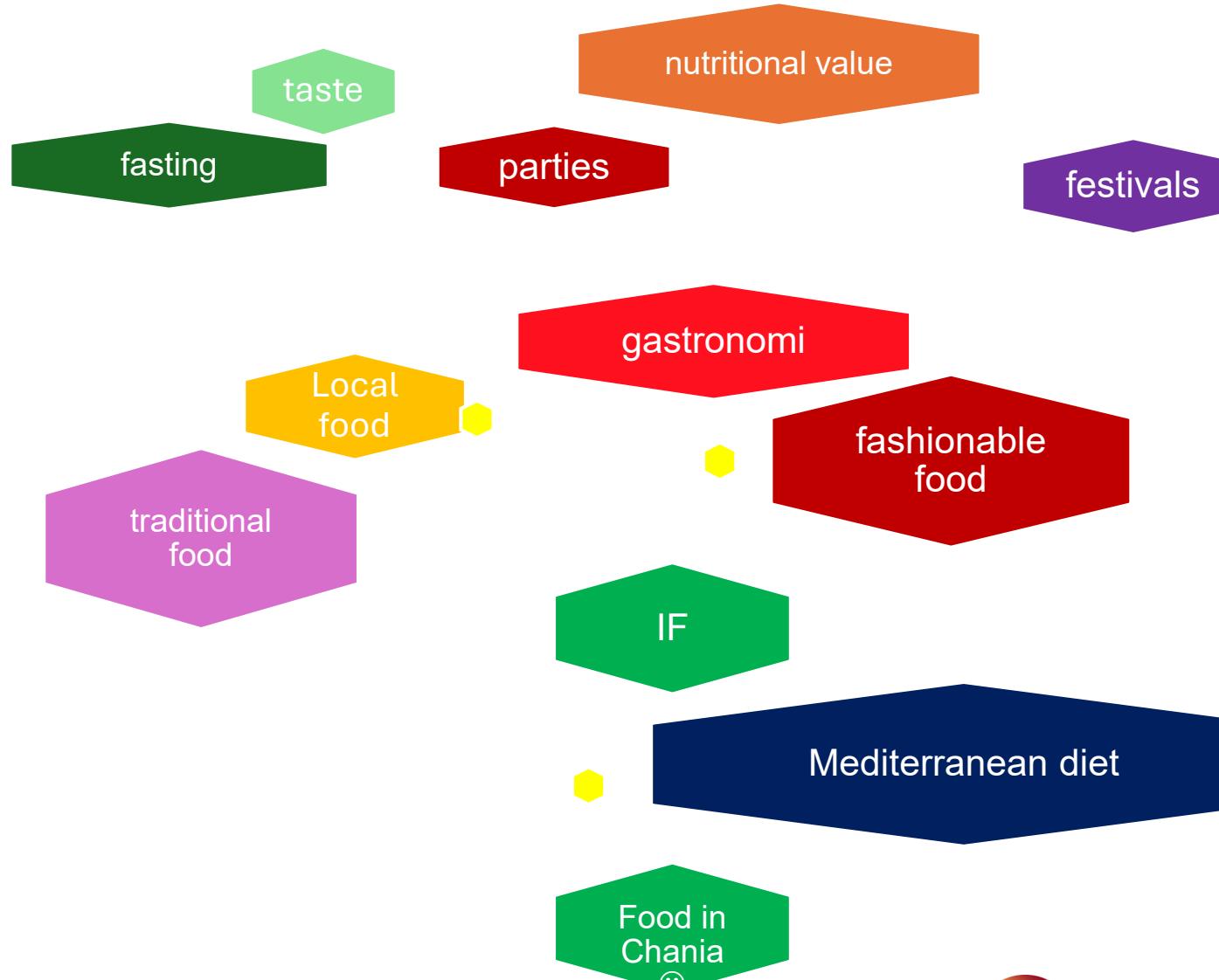
There are, however, still many opportunities for us to contribute to the UN SDGs through our own professions and, beyond, through multidisciplinary work.



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When it comes to food...



But the current agenda is (still)

«crisis», «scarcity», «famine/hunger», «food security», «food safety», «fraud» «food inflation»...

SDG

2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.

2.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons.

According to the development level of the country topics regarding food is:
«food security», «food safety», «food quality»...

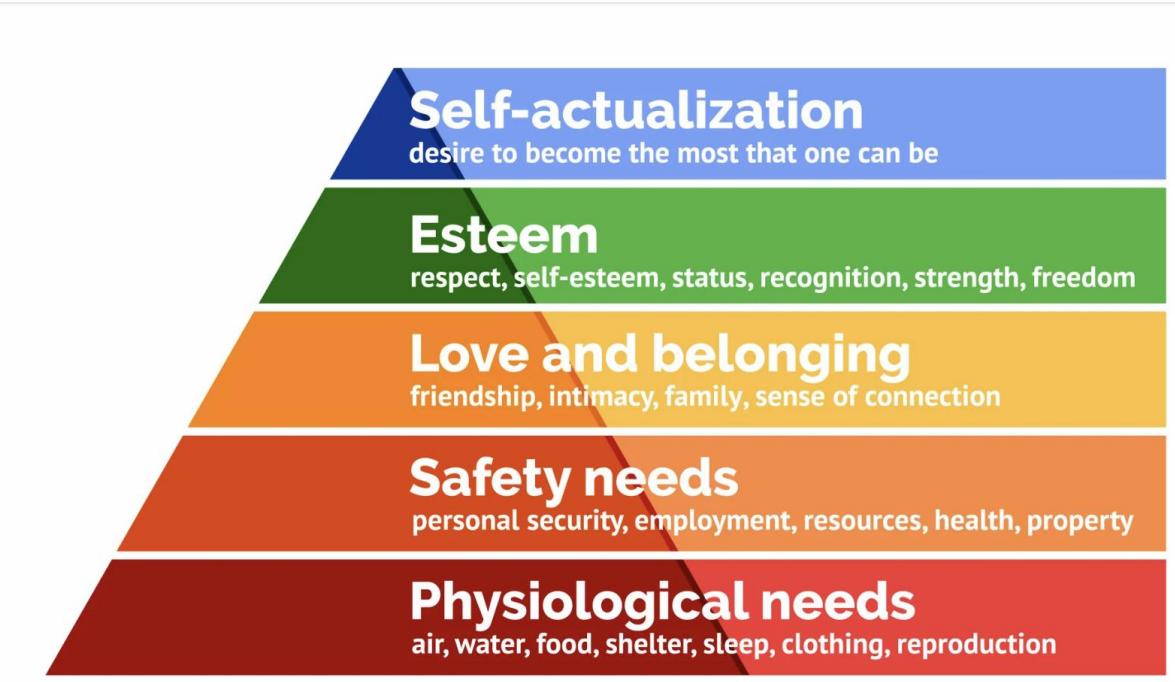
Is there really a food crisis?



What distinguishes today's crisis from others?

An update

- The SDGs have a goal of completely eradicating hunger by 2030... But?
- The number of people suffering from hunger has been rising sharply for three years in a row...
- In 2023, 1 in 11 people worldwide, and 1 in 5 people in Africa, face hunger...
- One in ten people cannot consume enough food to provide the energy levels needed to lead a normal, active and healthy life.
- Two billion people are undernourished and one in two people are malnourished (2017).
- 931 million tonnes of food are wasted annually, with 88 million tonnes in the European Union.
- It is predicted that by 2030, global food waste will reach 2.1 billion tonnes annually, with an economic cost of \$1.5 trillion.



Maslow's hierarchy of needs

Why did this happen?

From the twentieth century onwards, the world entered an 'age of extremes' (Hobsbawm, 2006). Progress in every field affected agricultural and food systems, both positively and negatively.

Change and transformation in agriculture and food systems are becoming both more difficult and involve more structural/fundamental changes. Due to the labour-intensive nature of agriculture and its dependence on nature, there are also more constraints and obstacles.

Our global state of affairs: Turns out the agri-food system isn't exactly delivering the goods...



What is this 'system'?

- Food systems, defined as a chain of environments and activities encompassing all relevant elements, processes, infrastructures, and regulatory bodies from production to consumption, including the management of losses and waste in food production (Pothukuchi and Kaufman 2000: 113), **refer to the giant network of local and international producers, processors, and distributors that feed the world's population.**
- Food and Agriculture Organisation of the United Nations (FAO) (2018): **'Food systems encompass all activities, actors and the broader economic, social and natural environment in which they operate, that generate added value through the production, harvesting, sorting, processing, distribution and consumption of food products derived from agriculture, forestry or fisheries, as well as the management of food losses and waste.'**
- According to the definition developed by Erickson (2008), **a food system is a system comprising all components and activities related to the production and marketing of food, as well as all outputs of these activities.**

The agri-food system must function perfectly...

An agro-food system and its components



Inputs

Biophysical and environmental factors

- Political and economic factors
 - Socio-cultural factors
 - Demographic factors
- Innovation, technology and infrastructure



Activities

Food production, processing, packaging, distribution, retail sale, consumption, and the recycling of losses and waste



Outputs

Food security
Social welfare

Environmental welfare



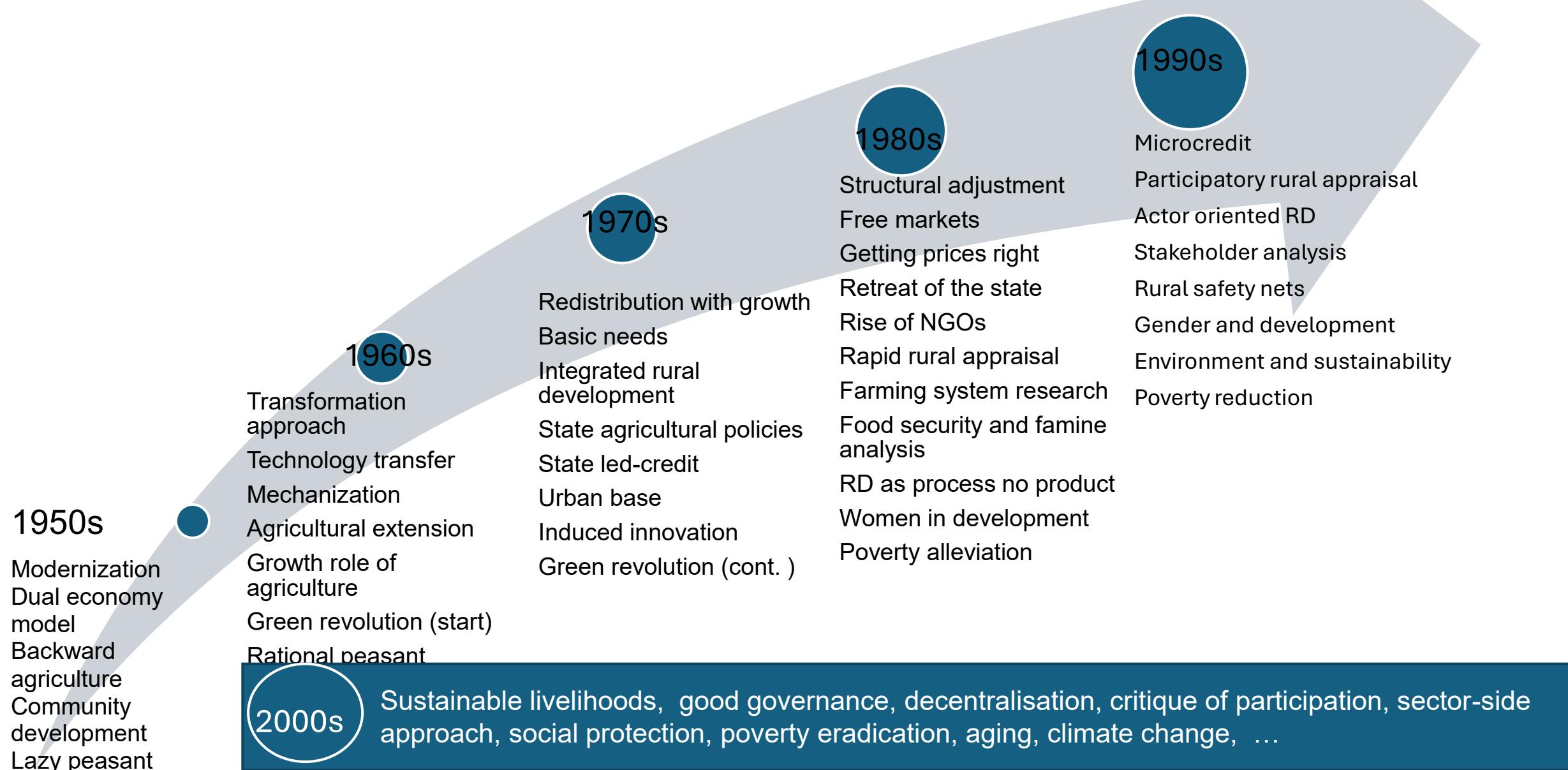
Agro-Food Supply Chain

- The food system is a comprehensive term that encompasses supply chains; however, the use of the concept and analysis of the food supply chain predates the term 'food system' in terms of both concept and approach.
- The structure and characteristics of a food system also determine the nature of food supply chains.
- In other words, food supply chains are formed and developed based on the structure and characteristics of the food system.
- In practice, although the terms 'food system' and 'food chain' or 'food supply chain' are sometimes used interchangeably, they are distinct concepts.
- Of these two different concepts with the same processes, the food system encompasses holistic and simultaneously interacting processes;
- the food supply chain, on the other hand, encompasses sequential activities that arise from the need to access food (FAO, 2008).
- A food system encompasses food supply chains because it consists of numerous food supply chains operating at different geographical levels.

Why the search for alternatives?

- From the second half of the 1950s onwards, the industrialisation and globalisation of agriculture, increased production due to higher yields, and the development of wholesale distribution models led to the globalisation of the food system and, consequently, the globalisation of food supply chains (Chiffolleau, 2008: 21).
- Global food supply chains, sometimes referred to as long food supply chains, which emerged as a result of the global food system, attracted intense interest until the 1990s.
- The food-borne epidemics that emerged in the 1990s led to the questioning not only of food products but also of the food system and supply chains; it needed new food policy measures and increased awareness of food safety and quality (ADMM, 2012: 1; Henson and Reardon, 2005: 241-242; Giray and Gay, 2011: 250).
- Changes in consumption habits, **climate change** and the negative developments caused by the excessive use of natural resources also necessitate the prioritisation of the sustainability of food systems.

RURAL DEVELOPMENT TIMELINE IDEAS (Ellis&Stephan, 2001)



CHANGE IN APPROACH: RURAL DEVELOPMENT POLICIES

PAST

- In the past, rural development was defined in terms of modernising agriculture and rural services to meet the standards of urban areas...

CURRENT

- There is a consensus on the development of rural areas based on and preserving their inherent characteristics and values.
- The requirements of a rural area may be completely different from the needs and opportunities that apply elsewhere.
- LOCALITY
- INTEGRATED/HOLISTIC RURAL DEVELOPMENT

FROM EXTERNAL POLICIES...

- **Defining the rural area through the city:**

i) The primary function of rural areas was to meet the food needs of cities;

ii) rural development problems, rural marginalisation (activities being technically, economically and culturally distant from the main centre, the city)

Diagnosis: 'underdeveloped rural areas'

Measure: A combination of developing agricultural production and encouraging the mobility of labour and capital.

gave rise to new social and economic problems.

In the second phase of external policies, a solution to the problem was sought by focusing on the peripheral areas surrounding the countryside and making new employment opportunities in rural areas attractive.

... INTERNAL POLICIES

- The assumption of the internal approach: 'Natural, human and cultural resources specific to the area hold the key to sustainable development.'
- Significant local development success experiences in certain rural areas in the 1970s and 1980s;
- Rural diversification to overcome past policy failures of regional movements and agencies;
- Incentive schemes promoting local development tools that require minimal external capital, such as supporting local industries, local initiatives and businesses;
- Discussions on rural sustainability and the notion that development should be based on its own resources.

Bottom-up, holistic and innovative approaches to rural development at the community level...

Local development methods designed to implement rural development through local rural communities and to mobilise these communities...

What is the address for alternatives?

- This requirement has highlighted the need for new initiatives in the search for Alternative Food Systems that will produce solutions to the increasing shortcomings of industrialised and global food systems, with the adoption of the concept of sustainability in the food system.
- Alternative food systems are generally food systems that fall outside the scope of conventional food systems and are intended to create sustainable food systems. According to this definition, food systems such as local food systems, organic food systems, cooperative food systems, resource-smart food systems, and community-supported food systems are considered alternative food systems.
- While there are hundreds of food systems distinguished by their different characteristics within this broad scope, there is a common underlying philosophy among these alternative approaches, and this common philosophy is to adopt sustainability and localisation as fundamental principles in order to reduce the problems of the industrialised and globalised food system.
- Therefore, when defining an alternative for food systems, emphasis is placed on **sustainability and localisation practices** (Abdoulaye Bamoi, 2020).

A fair, healthy and environmentally friendly agro-food system?

To a fair, healthy and environmentally friendly agro-food system...

- Policy agenda: EU Green Deal, Organic Agriculture...
- Implementation: Nature-based solutions, organic agriculture...
- Research: EU, Regional, National...
- Mediterranean Networks: PRIMA, CHIEAM FutureMed...

EUROPEAN GREEN DEAL

*The main objective of the European Green Deal, announced by the European Commission in 2019 and now in force, is to reduce the carbon footprint throughout all processes, from production to consumption, and to seek ways to reduce it to zero. The most important feature that distinguishes the Green Deal from other environmental agreements **is its emphasis on economic growth.***

Key topics:

- Clean energy, sustainable industry, construction and renovation, clean food from farm to fork, eliminating pollution, sustainable mobility and biodiversity
- A new environment-focused economy and development model
- Preventing pollution caused by agriculture and food systems
- Careful use of natural resources!
- The relationship between food waste and obesity, increasing cancer cases...

The availability, sourcing and supply of food are (were) not a major issue for the EU...

But the provision of sustainable, reliable, reasonably priced and nutritious food is a challenging issue...

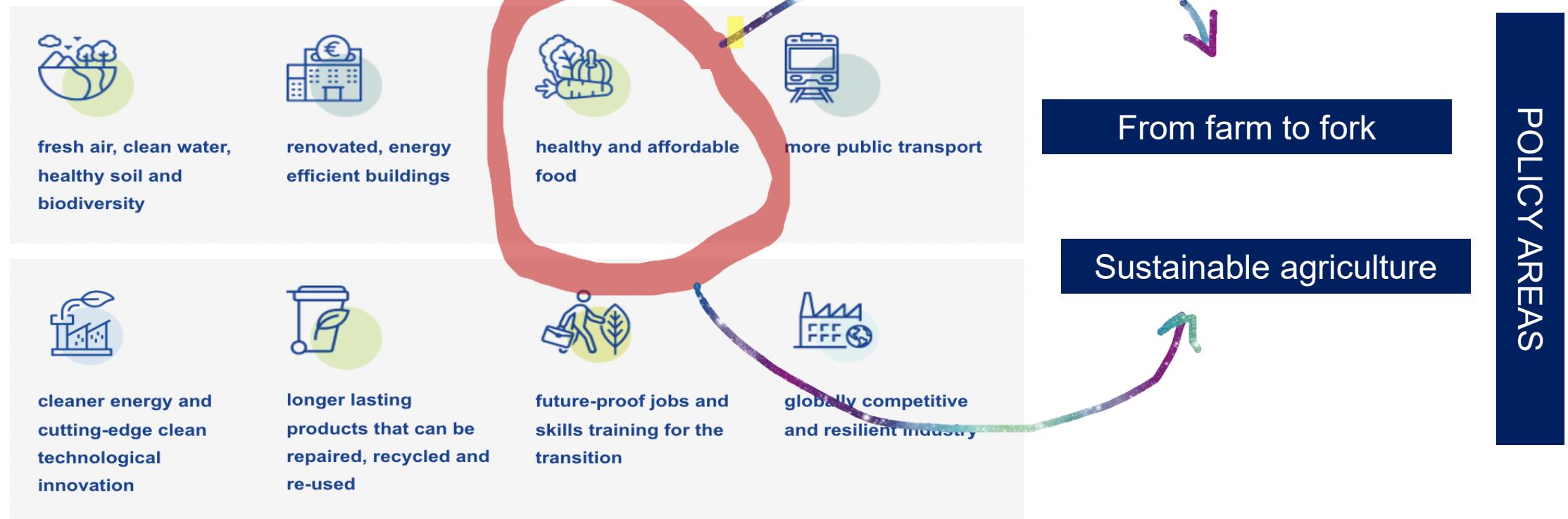


EUROPEAN GREEN DEAL AND SUSTAINABLE FOOD PRODUCTION



The benefits of the European Green Deal

The European Green Deal will improve the well-being and health of citizens and future generations by providing:



AGRICULTURE AND EGD



Sustainable agriculture in the EU



Welfare of farmed animals



Ensuring global food supply and food security



Nutrition labelling



Common Agricultural Policy reform and the European Green Deal



Common Agricultural Policy Strategic Plans



Farm to Fork strategy



EU agri-food promotion policy



Organic Farming Action Plan



Sustainable use of pesticides

Organic Agriculture?

- Organic farming is expected to play an important role in developing a sustainable food system for the EU by producing high-quality food with low environmental impact.
- Within the framework of the “Farm to Fork” strategy, the European Commission set the target of **bringing at least 25% of agricultural land in the EU under organic farming and significantly increasing organic aquaculture by 2030**.
- To achieve this goal and help the organic sector reach its full potential, the Commission has prepared an **action plan for organic production in the EU**.
- Updated Low (2022)

Organic Production Action Plan:

Axis 1. Organic products for everyone: Stimulating demand and ensuring consumer trust

Axis 2. On the road to 2030: Promoting the transition and strengthening the entire value chain

Axis 3. Organic farming as an example: Enhancing the contribution of organic farming to sustainability

Nature-based Solutions

- an umbrella concept to cover a range of ecosystem related approaches including ecosystem-based adaptation, natural climate solutions, and green infrastructure.
- The term itself has received increased attention, with multiple entities working to consolidate definitions, provide principles, educate partners and advance solutions.
- One of the most common and widely used definitions of NbS comes from the International Union for Conservation of Nature (IUCN): «Actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits» (IUCN, 2016).
- Nature-based Solutions seek to maximize nature's ability to provide ecosystem services that help humans address issues such as climate change adaptation, disaster risk reduction, and food security.

Why Nature-Based Solutions?

Greatest risks to the global economy and human wellbeing (The WEF Global Risks Report)

- weather events and natural disasters
- the failure to mitigate and adapt to climate change

Dominant approach: Engineered interventions such as seawalls, levees, or irrigation systems

Dimensions of vulnerability to Climate Change

exposure

sensitivity

Adaptive capacity

Nature-based solutions

1. Exposure: the extent to which a region, ecosystem, resource or community is impacted by climate change
2. Sensitivity: the degree to which a system is affected by, or responsive to, those effects
3. Adaptive capacity of the system: the ability to adjust or innovate in response to changing conditions

NbS act at the interface of the socioeconomic system and the ecosystem to reduce the vulnerability of the social-ecological system as a whole. In other words, through the protection, restoration and careful management of ecosystems NbS can positively influence all three dimensions of socioeconomic vulnerability (Seddon N, et al., 2020)

Moving beyond pitching green solutions against grey



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RESILIENT FOOD PRODUCTION:

Nature-based Solutions can help farmers adapt and ensure food production is more resilient to future weather extremes like droughts, heavy storms, or coastal flooding by enhancing soil health and water retention, reducing soil erosion and buffering shorelines, as well as enhancing food and nutrition security through diversified production systems and sources of income. They can reduce use of chemical additives, which reduces production costs and creates safer foods (GCA, 2019).



MITIGATING CLIMATE CHANGE

Nature-based Solutions can reduce carbon emissions from the food sector and store carbon, most significantly by avoiding deforestation and conversion of natural habitat, by conserving, restoring and sustainably managing aquatic ecosystems (e.g. watersheds, wetlands, coastal mangroves, seagrass meadows and coral reefs) to enhance their role in carbon sequestration, and also by changing crop residue, cover crop and tilling practices in ways that enhance the carbon retained in plants and soils (Griscom *et al.*, 2017).



ENHANCING NATURE AND BIODIVERSITY

Nature-based Solutions can enhance ecosystems and species by increasing habitat diversity, restoring aquatic ecosystems and wetlands and improving the quality and reliability of water (Abell *et al.*, 2017).

KEY MESSAGES

(<https://openknowledge.fao.org/server/api/core/bitstreams/9c6d587e-1532-4252-852f-d2657634a66a/content>)

- Nature-based Solutions (NbS) are cost-effective interventions that can enhance resilience in agriculture and food production, while mitigating climate change and enhancing the environment.
- Agricultural producers have a critical role in implementing NbS in their operations and can help to shape wider landscape scale approaches to Nature-based Solutions.
- Policy makers can enable the implementation of nature-based approaches through a variety of means including by law and regulation, economic incentives, capacity building, and communications.

NBS IN AGRICULTURAL PRODUCTION

NbS Activity	01 GRAZING OPTIMIZATION	02 IMPROVED RICE CULTIVATION	03 BIOCHAR	04 CROPLAND NUTRIENT MANAGEMENT	05 CONSERVATION AGRICULTURE	06 TREES IN CROPLANDS	07 IMPROVED PLANTATIONS
Benefits							
Functions	Improve animal grazing intensity, pasture management and feed practices to reduce GHGs.	Adopt water management techniques, improve drainage, practice residue incorporation.	Increase use of biochar to increase carbon storage	Reduce excessive fertilizer and other additives and remove perverse incentives to increase fertilizer use.	Cultivate additional cover crops in fallow period; shift to reduced or zero tillage.	Promote integration of trees into agriculture lands to increase habitat value.	Extend harvest rotation lengths on intensively managed production forests.
Quantitative example of NbS benefits	1.4B head of cattle of potential; over 90% of cattle on earth	2.9:1 benefit-cost ratio water quality improved	1,102M tons CO ₂ /yr	44M tons of nitrogen per year reduction	4.8B hectares of conservation land	1,040M tons CO ₂ /yr	257M hectares potential

<https://openknowledge.fao.org/server/api/core/bitstreams/9c6d587e-1532-4252-852f-d2657634a66a/content>

NBS IN AGRICULTURAL LANDSCAPES

NbS Activity	01 AVOIDED FOREST & GRASSLAND CONVERSION; Reforestation	02 AVOIDED COASTAL WETLAND IMPACTS	03 NATURAL FOREST MANAGEMENT	04 WETLAND, PELTAND RESTORATION	05 FIRE RISK MANAGEMENT
Benefits					
Functions	Improved forest management practices for carbon storage and biodiversity/land/water conservation	Coastal wetland conservation causes loss of organic carbon and water quality in mangroves, saltmarshes and seagrass ecosystems	Extended logging rotations, voluntary certification, improved tenure or cease logging	Re-wetting and replanting with native wetlands to address water quality and mitigate floods	Prescribed fire or controlled burns to reduce risk of catastrophic fire and erosion and water quality
Quantitative example of NbS benefits	23 Pg CO ₂ e/yr of climate mitigation	\$785- \$34,700 in water treatment value per ha; B-C ratio of 3.5:1 in damage prevention from extreme events	1,914M ha potential	1.9:1 benefit-cost ratio due to water quality improvements	1M hectares per year potential

 **CLIMATE**
  **BIODIVERSITY**
  **WATER**
  **SOIL**
  **AIR**

<https://openknowledge.fao.org/server/api/core/bitstreams/9c6d587e-1532-4252-852f-d2657634a66a/content>

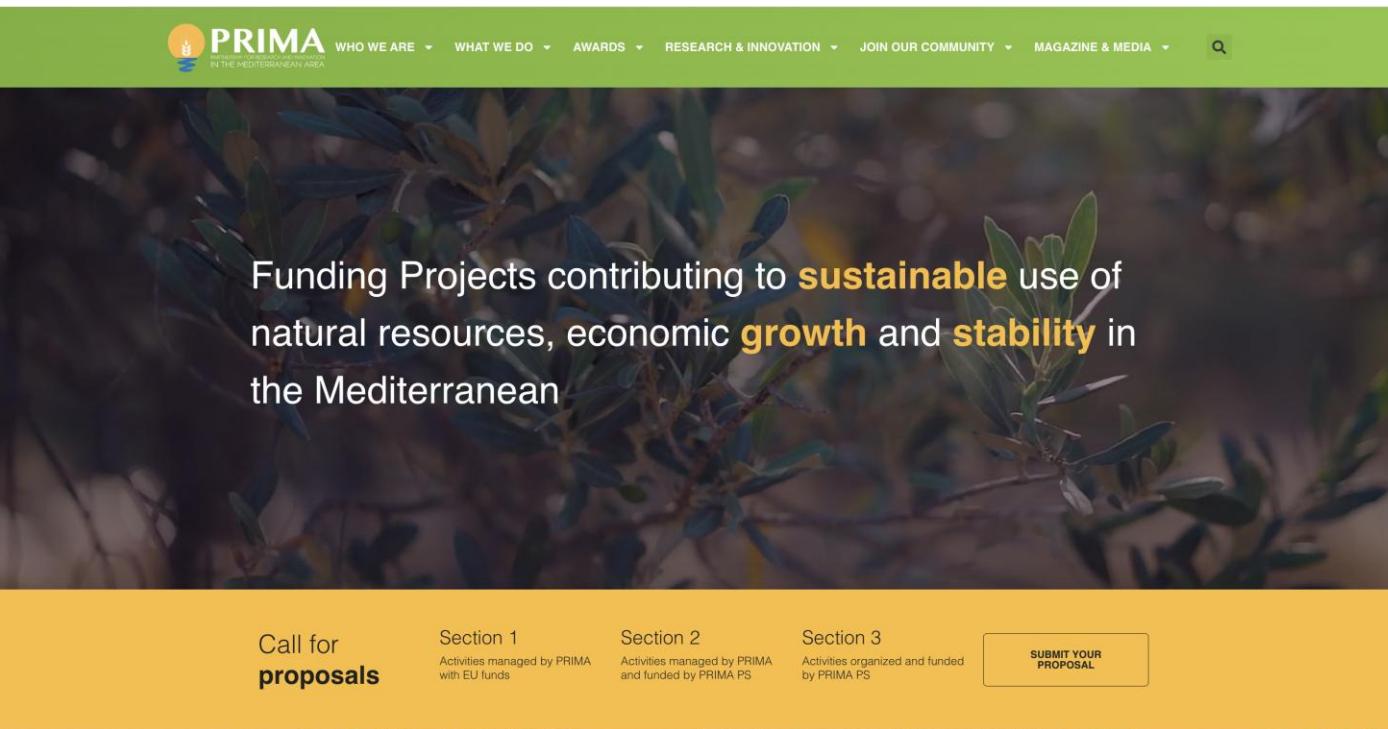


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Mediterranean Cooperation: PRIMA

(Partnership in Research and Innovation in the Mediterranean Area)

The image shows the homepage of the PRIMA website. The top navigation bar is green with the PRIMA logo and links for WHO WE ARE, WHAT WE DO, AWARDS, RESEARCH & INNOVATION, JOIN OUR COMMUNITY, MAGAZINE & MEDIA, and a search icon. Below the navigation is a large banner image of olive branches. Overlaid on the banner is text: "Funding Projects contributing to **sustainable** use of natural resources, economic **growth** and **stability** in the Mediterranean". At the bottom of the page is a yellow footer bar with sections for "Call for proposals", "Section 1: Activities managed by PRIMA with EU funds", "Section 2: Activities managed by PRIMA and funded by PRIMA PS", "Section 3: Activities organized and funded by PRIMA PS", and a "SUBMIT YOUR PROPOSAL" button.

PRIMA is a very successful instrument of international cooperation for research and innovation and a good example of science diplomacy in the Mediterranean, a region of geopolitical importance for the Union, based on mutual benefit, equal footing, co-ownership, co-decision, and co-financing.

PRIMA is a ten-year initiative (2018-2028), partly funded by EU's research and innovation programme Horizon 2020 and Horizon Europe.

THEMES

Water Management

Farming System

Agri-food Value Chain

WEFE Nexus



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Nexus theme

Topic 1.4.1-2023 (IA) : Accelerate adaptation and mitigation to climate change in the Mediterranean region by deploying WEFE nexus solutions.

Alignment SRIA priorities (SRIA: Strategic Reserach and Innovation Agenda 2018-2028)

Priority 1.2 Water sustainability in the Mediterranean region should be ensured through improved technical tools coupled with socio-economic tools and governance, organisational and/or business models to define water-use limits in certain key areas under present and future global change scenarios.

Priority 1.4 Use of alternative water resources

Priority 2.2 Developing sustainable and productive agro-ecosystems

OPERATIONAL OBJECTIVES

- 2/LAND AND WATER SUSTAINABILITY
- 4/ SMART AND SUSTAINABLE FARMING

Alignment with EU strategies

European Green Deal,
Water Framework Directive (WFD)
Circular Economy Action Plan



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Previous projects supported by the PRIMA WEFE Nexus

YEAR	PROJECT TITLE	ACRONYM
2019	mAnaging Water, Ecosystems and food across sectors and Scales in the sOuth MEditerranean	<u>AWESOME</u>
	Participatory Hub for Effective Mapping, Acceleration and Capitalization and of EU-MPC NEXUS best practices	<u>PHEMAC</u>
	Sustainable Innovation and Governance in the Mediterranean Area for the WEF Nexus	<u>SIGMA-Nexus</u>
2020	Learning and action alliances for Nexus environments in an uncertain future (LENSES)	<u>LENSES</u>
	NEXUS Nature Ecosystem Society Solution: Fair and Sustainable Resource Allocation Demonstrator of the Multiple WEFE Nexus Economic, Social and Environmental Benefits for Mediterranean Regions.	<u>NEXUS-NESS</u>
2021	EnSURE fair Nexus Transition for climate change adaptation and sustainable development	<u>SURE_NEXUS</u>
	Boosting Nexus Framework Implementation in the Mediterranean	<u>BONEX</u>
2022		

“Considering the challenges in Mediterranean countries, “cross-sectoral management of water, energy, food and ecosystem resources is pivotal to a successful transition to a green economy and sustainable development.”

“Addressing **interdependencies** is indeed considered essential to achieving the ambitions of the Sustainable Development Goals, the Paris Agreement and the post-2020 biodiversity framework.”

However, although interest in adaptation to climate change impacts has surged in recent years, the focus has largely remained **sectoral**, an approach that, if not correctly undertaken, can exacerbate the existing challenges.

Therefore, there is a need to **shift from vertical to cross-sectoral approaches that promote circularity in resource management, use, and development**.

Regarded as a transformative approach, the Water-Energy-Food– Ecosystems (WEFE) Nexus has the potential to address competing demands and facilitate adaptation and development in an integrated manner.

Such potential has not yet been fully recognized, as current climate adaptation strategies, including the National Adaptation Plans (NAPs), have mainly promoted sectoral goals.

They generally focus on sectoral and project-based activities without adequate consideration or coordination of cross-sectoral interactions among key climate-sensitive sectors, including water, energy, food and ecosystems.

Sectoral adaptation strategies can undermine net resilience by decreasing capacity or increasing risks in another place or sector, resulting in maladaptation.

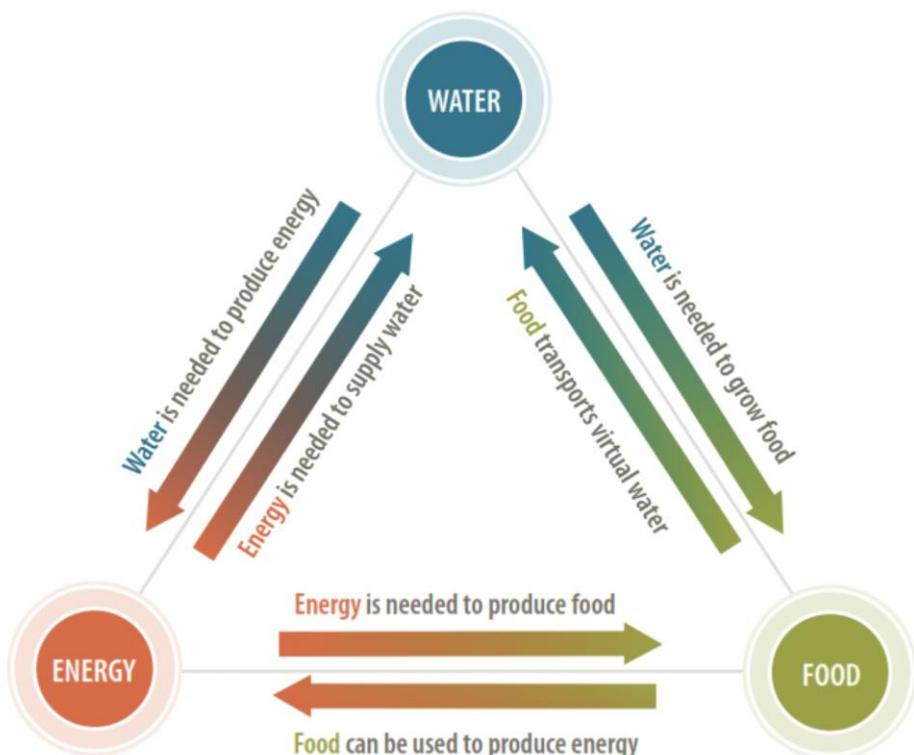
There is a risk that the benefits of cross-sectoral synergies remain unexplored, especially when seeking to speed-up climate adaptation and mitigation actions. This call aims at filling this gap in the Mediterranean region.



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WEFE Nexus



SOURCE: UNU-FLORES

UNU-FLORES. The Nexus Approach (2018). Available at: <https://flores.unu.edu/en/research/nexus>



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PRIMA WEFE Nexus Scope

It supports the nexus cross-sectoral concept as a tool in climate adaptation and mitigation strategies by designing and integrating Nexus solutions into existing climate change adaptation plans at the sectoral level and assessing their impact on the livelihoods of populations and the socio-economic performance in the Mediterranean region.

Projects should co-deploy WEFE Nexus-based adaptation solutions, including changes in production and management practices (for instance, adapted varieties, mixed cropping systems, agroecological practices, nature-based measures, and renewable energy. Technologies and processes could also be implemented and validated at the demonstration sites, including decision support systems and digital solutions.

«Maximum participation from Southern Mediterranean Countries to foster both North-South and South- South cooperation...»

Mediterranean Cooperation



CIHEAM International Center for Advanced
Mediterranean Agronomic Studies
Sharing Knowledge, Feeding the Future

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CIHEAM

Founded in 1962, the International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM) is a Mediterranean intergovernmental organization composed of 13 member states (Albania, Algeria, Egypt, Spain, France, Greece, Italy, Lebanon, Malta, Morocco, Portugal, Tunisia and Turkey).



CIHEAM BARI



CIHEAM CHANIA



CIHEAM MONTPELLIER



CIHEAM ZARAGOZA



cost
EUROPEAN COOPERATION
IN SCIENCE & TECHNOLOGY



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Mediterranean Agronomic Studies
Sharing Knowledge, Feeding the Future



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FutureMed
TRANSDISCIPLINARY NETWORK

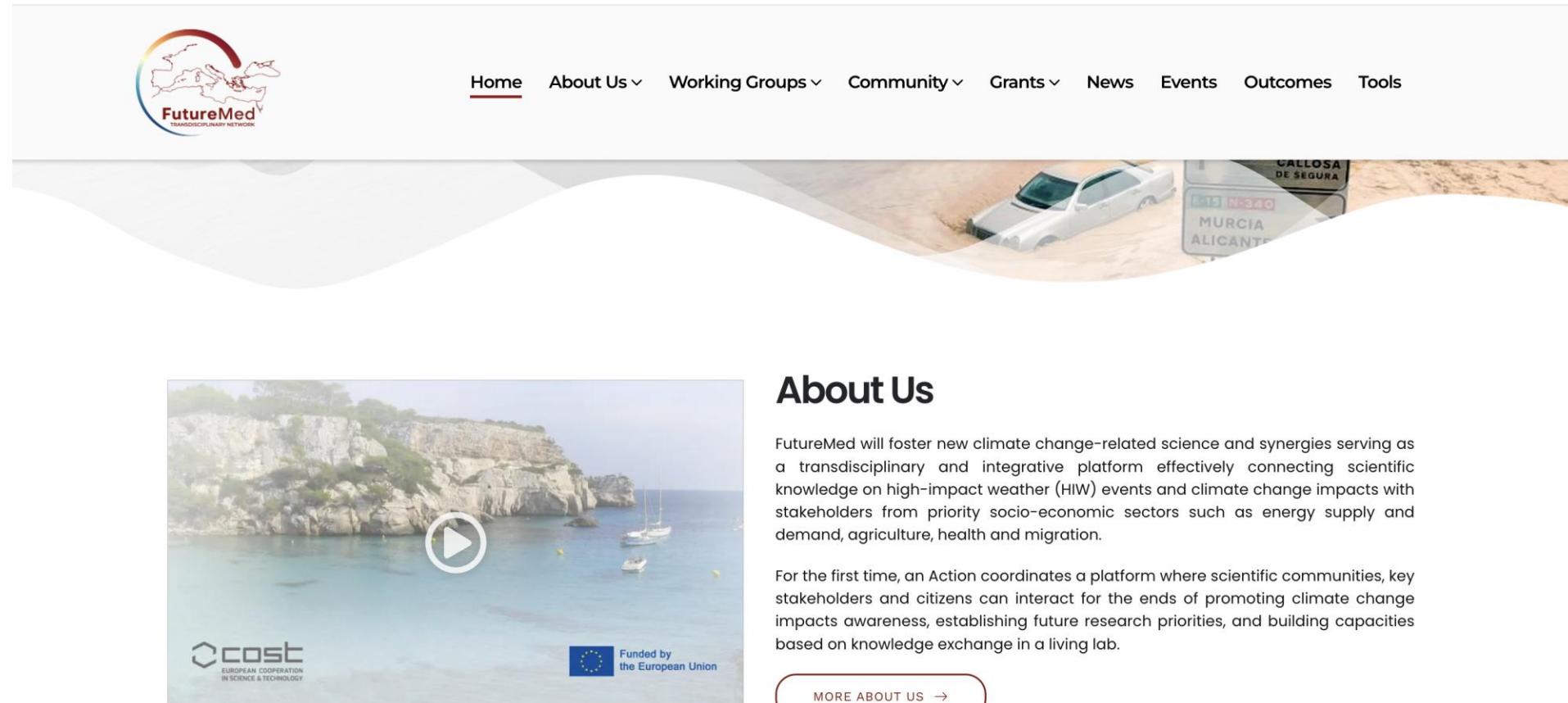


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the European Union



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Mediterranean Cooperation: FutureMed



About Us

FutureMed will foster new climate change-related science and synergies serving as a transdisciplinary and integrative platform effectively connecting scientific knowledge on high-impact weather (HIW) events and climate change impacts with stakeholders from priority socio-economic sectors such as energy supply and demand, agriculture, health and migration.

For the first time, an Action coordinates a platform where scientific communities, key stakeholders and citizens can interact for the ends of promoting climate change impacts awareness, establishing future research priorities, and building capacities based on knowledge exchange in a living lab.

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Full representation of Mediterranean region in the action

Voice of young people...

“...This vision built on barriers to staying that many rural youths currently face regardless of context, including, but not limited to, economic instability, insufficient institutional support and lack of essential services, **climate change and environmental degradation**, limited access to education and employment, and poor physical and digital infrastructure. Hence, participants described how they were often left with no realistic alternative but to leave...”

“even if I want to stay, everything pushes me out” and “I would stay if I saw that staying means building a future, not just waiting for change.”

«They envisioned a future where regular public transport, educational and employment models linked to local potential, technological advancements, **climate adaptation**, inclusive, and youth-driven initiatives make rural life not only possible but also desirable. Their vision was also one of co-creation, where they are not passive recipients of policy but active agents in shaping their futures.



The right to stay, the right to move: Young people's views on the future of im/mobility in rural areas

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September 2025



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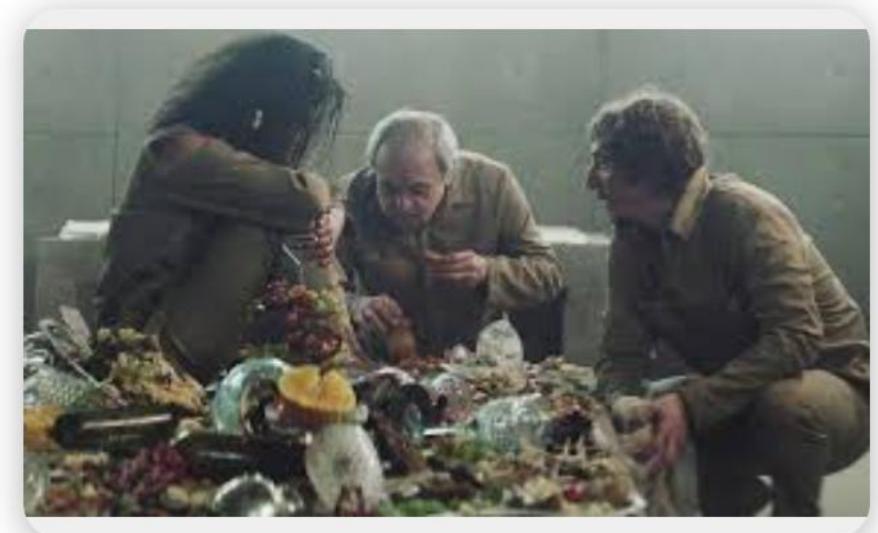


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HOMEWORK!

1. The history of potato in The Weather that Changed the World (2018)
by Marcus Rosenlund



2. Movie: El Hoyo!

UN World Food Programme Director David Beasley: 'We can end hunger, but first and foremost, we must end the conflicts that people create!' and 'we must cooperate for less war and less conflict.'

Thank you

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Btw: Please be careful with the greenwashing!



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