

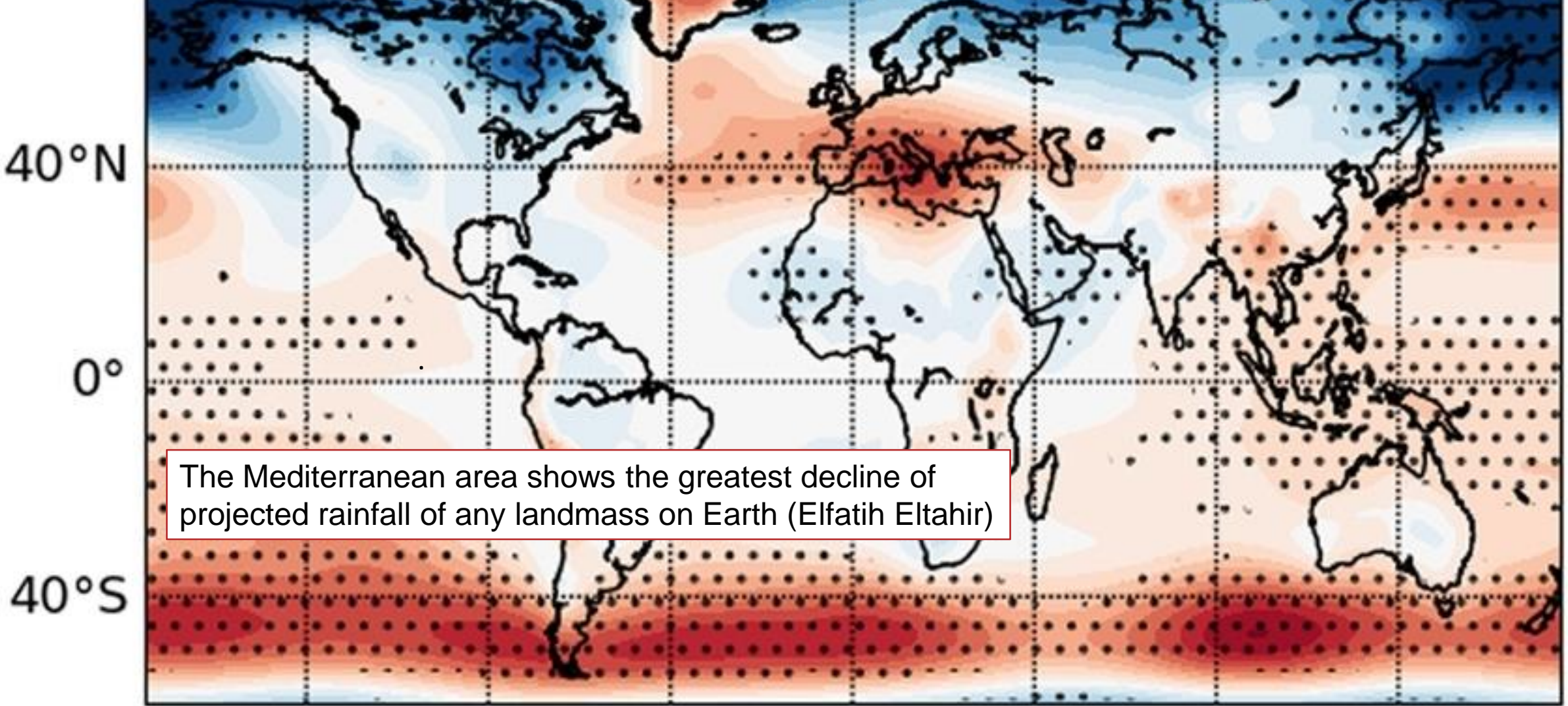
CLIMATE ADAPTATION DECISION AND SUPPORT TOOLS

FutureMed

A transdisciplinary network to bridge climate science and impacts on society

A topographic map of the Mediterranean region, showing the Mediterranean Sea, the Iberian Peninsula, the Balkans, and the Middle East. The map uses a color gradient to represent elevation, with green and blue for lower elevations and brown and tan for higher elevations. The text "THE MEDITERRANEAN, A CLIMATE CHANGE HOTSPOT" is overlaid in the center of the sea.

THE MEDITERRANEAN, A CLIMATE CHANGE HOTSPOT



The Mediterranean area shows the greatest decline of projected rainfall of any landmass on Earth (Elfatih Eltahir)

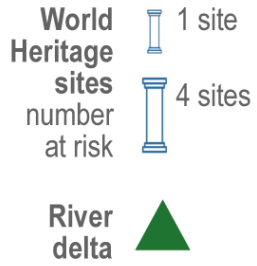
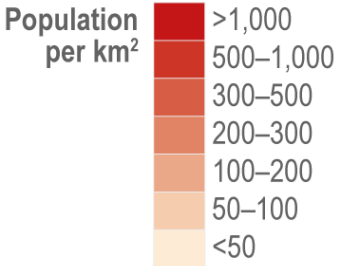
135°W 90°W 45°W 0° 45°E 90°E 135°E



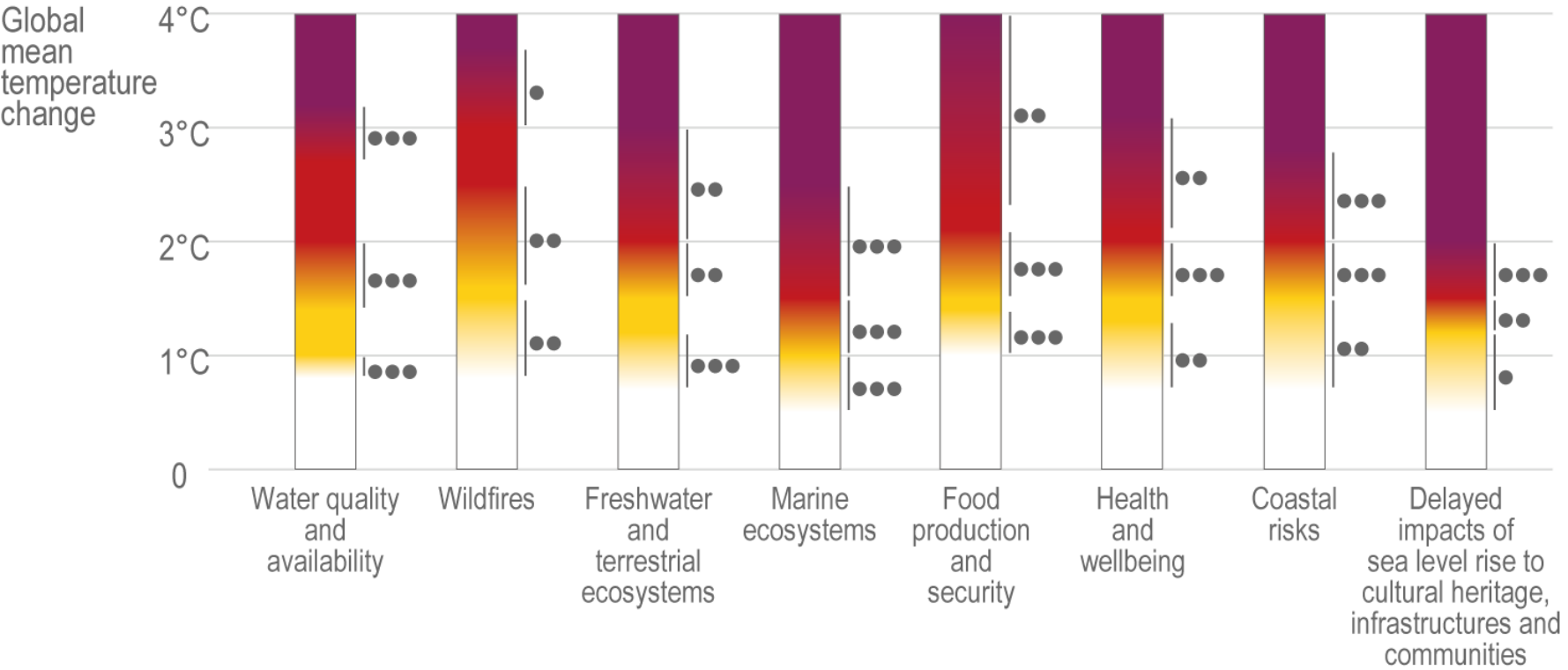
CLIMATE RISKS IN THE MEDITERRANEAN AND THEIR LOCATION



0 125 250 500 750 km



CLIMATE RISKS IN THE MEDITERRANEAN REGION



Level of additional impact/risk due to climate change without transformative adaptation

- Very high
- High
- Moderate
- Undetectable

Confidence level for transition

- High ●●
- Medium ●●
- Low ●

Transition range

ADAPTATION CAN REDUCE THESE RISKS

Efficient Water Resources Management

Urban Planning

Coastal Zone Management

Ecosystem Based Approaches

Biodiversity Conservation

Disaster Risk Management

Conservation Tillage

Changing Cultivated Species And Varieties

Crop Rotations

Agroforestry And Agroecological Practices

Climate-smart Agriculture



CLIMATE ADAPTATION

Adaptation is the process of adjusting socio-ecological systems in anticipation of, or in response to, climatic changes and their resultant effects. This process aims to minimize potential damage and leverage any beneficial opportunities that may arise from climate change impacts (Parry et al., 2007) .

CLIMATE ADAPTATION INITIATIVES IN THE MEDITERRANEAN REGION

ABOUT ▾

EU POLICY ▾

TRANSNATIONAL, NATIONAL, LOCAL ▾

KNOWLEDGE ▾

NETWORKS

Home ▸ Database ▸ Research and knowledge projects ▸ **Guiding Mediterranean MPAs through the climate change era: building resilience and adaptation**

Project

Guiding Mediterranean MPAs through the climate change era: building resilience and adaptation (MPA-ADAPT)

Funding Programme:

INTERREG

Keywords:

Alien species, action plan, awareness raising, capacity building, decision making, marine protected areas, resilience

CLIMATE ADAPTATION INITIATIVES IN THE MEDITERRANEAN REGION



A partnership to support mitigation and adaptation efforts
in the Mediterranean

CLIMATE ADAPTATION INITIATIVES IN THE MEDITERRANEAN REGION



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Climate Adaptation and Resilience Demonstrated In the MEDiterranean region

Fact Sheet

Objective

CARDIMED will introduce a framework to build Climate Resilience in the Mediterranean biogeographical region, efficiently unifying individual efforts of regions and communities across different countries and continents. This will be achieved by deploying the digital infrastructure to harmonise the data collection and evaluation processes, providing open data to all the actors involved in the Nature-based Solutions (NBS) value chain and integrating crucial functions for Climate Resilience. Among these functions, smart digital tools for citizen participation and capacity building will supplement an ambitious multi-stakeholder engagement strategy, focused on knowledge translation and impact pathways. Furthermore, holistic modelling tools introducing the Water-Energy-Food-Ecosystems (WEFE) Nexus approach will provide comprehensive knowledge on the complex NBS interfaces, that will decisively contribute to addressing socio-ecological challenges, along with issues of valuation and low-investment rate in NBS. These actions will be implemented across 9 demonstration sites, composed of 10 regions, 20 locations and 28 communities and comprising 47 NBS that directly relate to 83 interventions and supporting units that tackle climate change and circularity challenges. The consolidation of the demonstrating regions and communities will establish the CARDIMED Resilience Alliance, that will function as the vehicle for expanding the network via upscaling the existing sites and adding new ones. The project includes 5 transferability cases, as well as an additional 10 that will be defined during the implementation. Through these actions, the CARDIMED Resilience Alliance will achieve at least 28 regions and 70 communities by 2030, will create 8000 jobs especially in the NBS sector, and will leverage over 450 M€ in climate investment.

Project Information

CARDIMED

Grant agreement ID: 101112731

DOI

[10.3030/101112731](https://doi.org/10.3030/101112731)

EC signature date

23 May 2023

Start date

1 September 2023

End date

29 February 2028

Funded under

Climate, Energy and Mobility

Total cost

€ 20 806 271,44

EU contribution

€ 19 307 911,25



Coordinated by

ETHNICON METSOVION POLYTECHNION

CLIMATE ADAPTATION INITIATIVES IN THE MEDITERRANEAN REGION



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SEARCH Q MENU

Provides innovative solutions to adapt our agroforestry and urban systems to climate change in the Mediterranean

Meet our actions

Discover the project

173

GENERAL
ACTIONS

86

MUGA
ACTIONS

67

TER
ACTIONS

64

SEGRE
ACTIONS



CLIMATE ADAPTATION INITIATIVES IN THE MEDITERRANEAN REGION



CLIMATE ADAPTATION INITIATIVES IN THE MEDITERRANEAN REGION

UNEP | UNEP/MAP

English | Français | العربية



Mediterranean
Action Plan
Barcelona
Convention

Who we are

What we do

Meetings

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The Mediterranean Sea Programme: Enhancing Environmental Security (MedProgramme)
2020-2024

Mediterranean Strategy for
Sustainable Development

CLIMATE ADAPTATION INITIATIVES IN THE MEDITERRANEAN REGION



MEDITERRANEAN REGION

Ecosystem-based Adaptation 2019-2023

SUSTAINABLE DEVELOPMENT GOALS

-  Promoting gender equality by ensuring a balanced participation among men and women in the consultation workshops and training programmes
-  Developing climate adaptation plans for 2 priority coastal areas, while training 50+ technical experts from 6 countries on 'ecosystem-based adaptation' solutions
-  Convening 200+ key stakeholders in 2 priority coastal areas to identify solutions for coastal resilience, while promoting knowledge exchange on adaptation planning

Supported by the
Special Climate Change Fund

PROJECT TITLE:

ENHANCING REGIONAL CLIMATE CHANGE ADAPTATION IN THE MEDITERRANEAN MARINE AND COASTAL AREAS

EXECUTING ENTITY:



Mediterranean Action Plan of the UN Environment Programme (UNEP/MAP)

KEY TARGETS:

200

Key stakeholders convened to identify solutions for coastal resilience to climate change

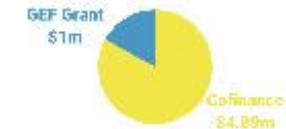
50+

Experts and decision makers across 6 countries trained in climate adaptation approaches

2

Priority coastal areas for which Integrated Coastal Zone Management plans are developed

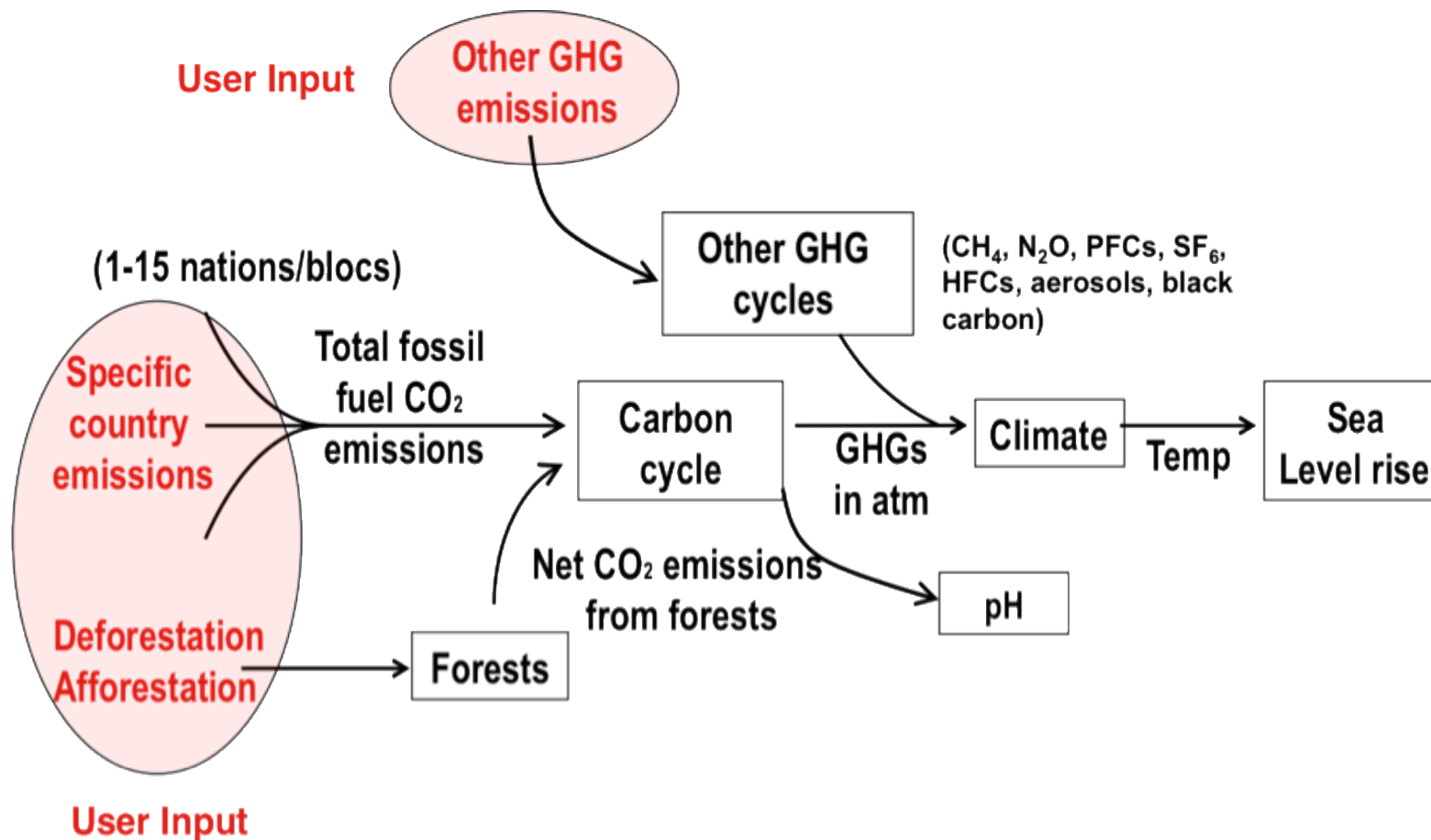
FUNDING:



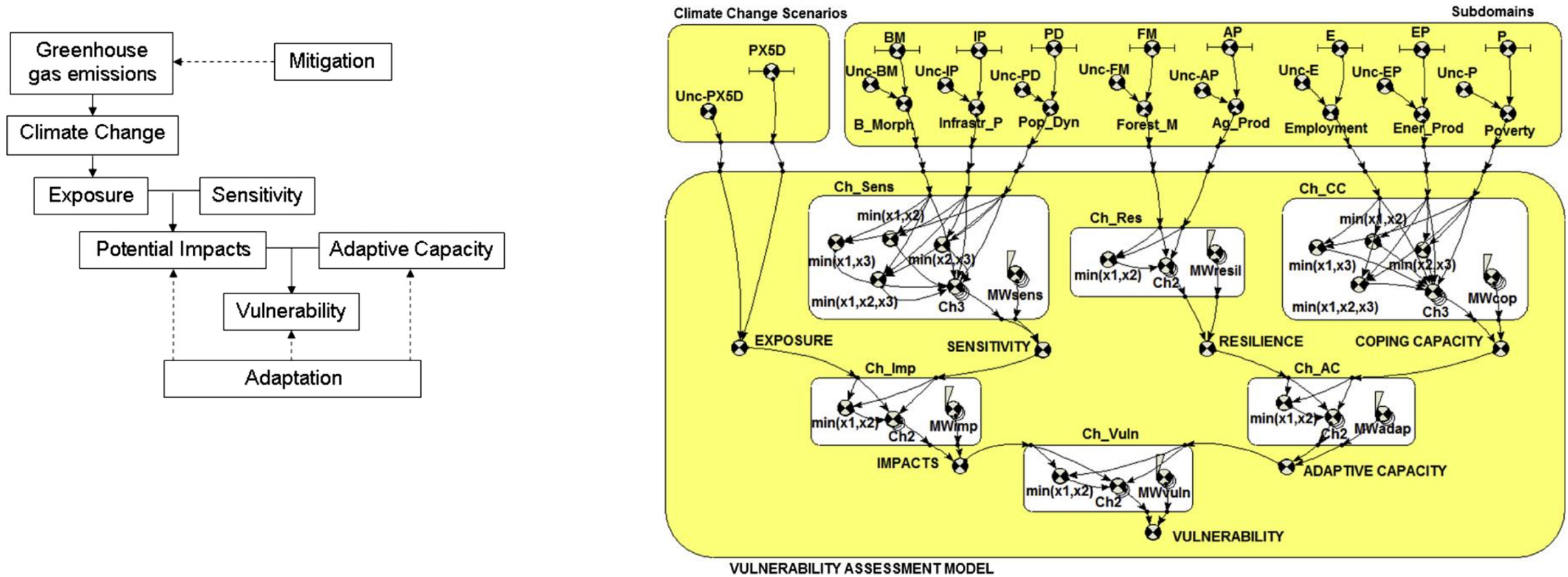
PROJECT PARTNERS:

Priority Actions Programme/Regional Activity Centre (PAP/RAC); Plan Bleu, Global Water Partnership Mediterranean (GWP-MED); Secretariat of State to the Minister for Energy, Mines and Sustainable Development (Morocco); Ministry of Sustainable Development and Tourism (Montenegro)

CLIMATE ADAPTATION TOOLS: CLIMATE POLICY SIMULATION MODEL

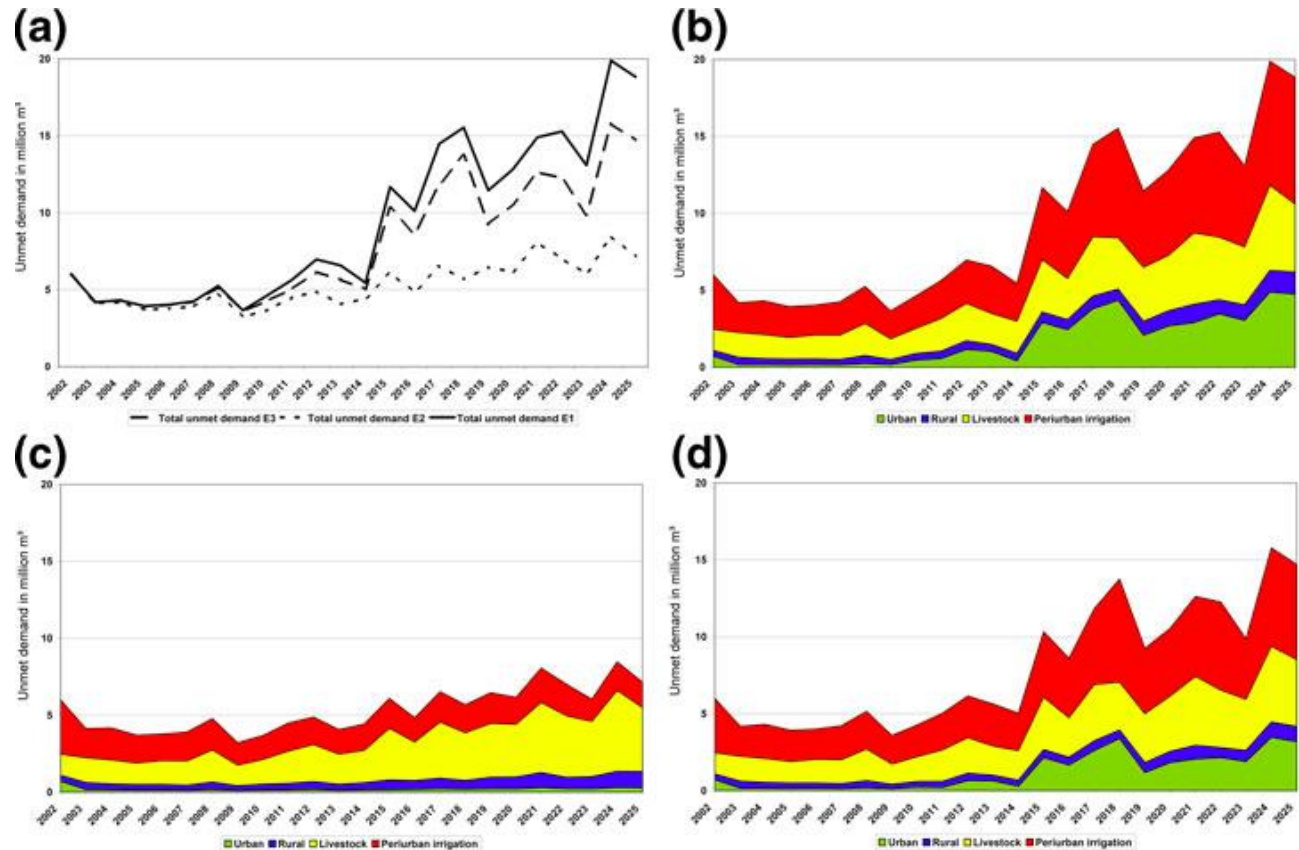
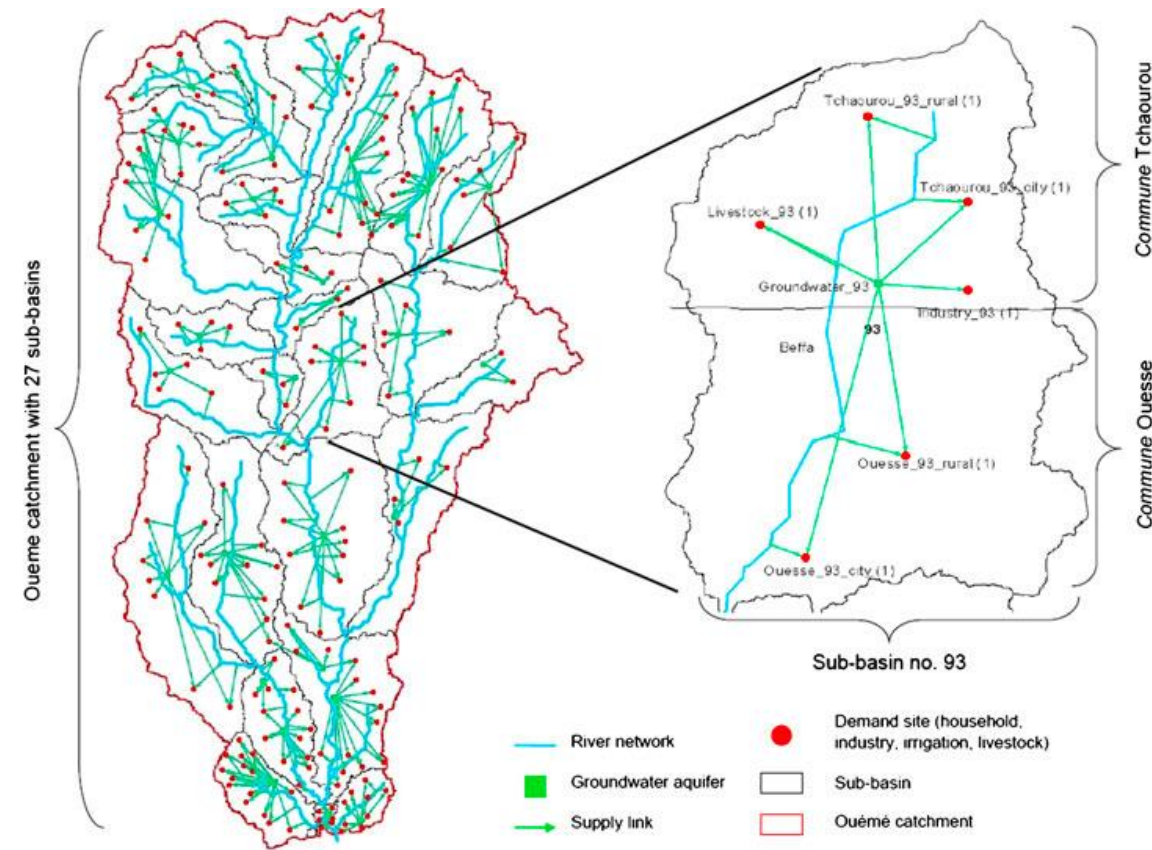


CLIMATE ADAPTATION TOOLS: SYSTEM DYNAMIC MODELLING



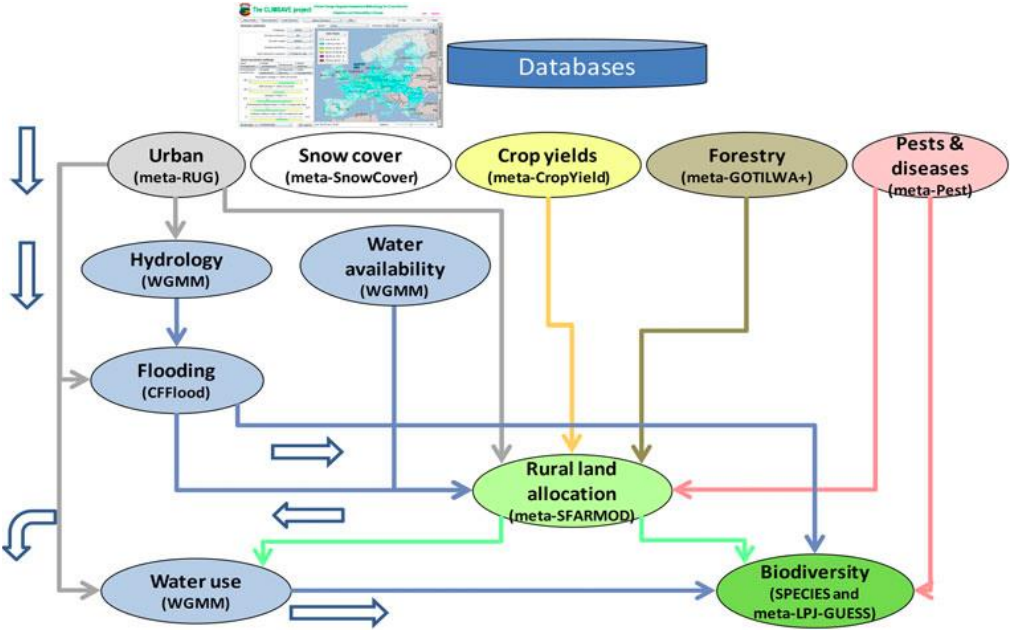
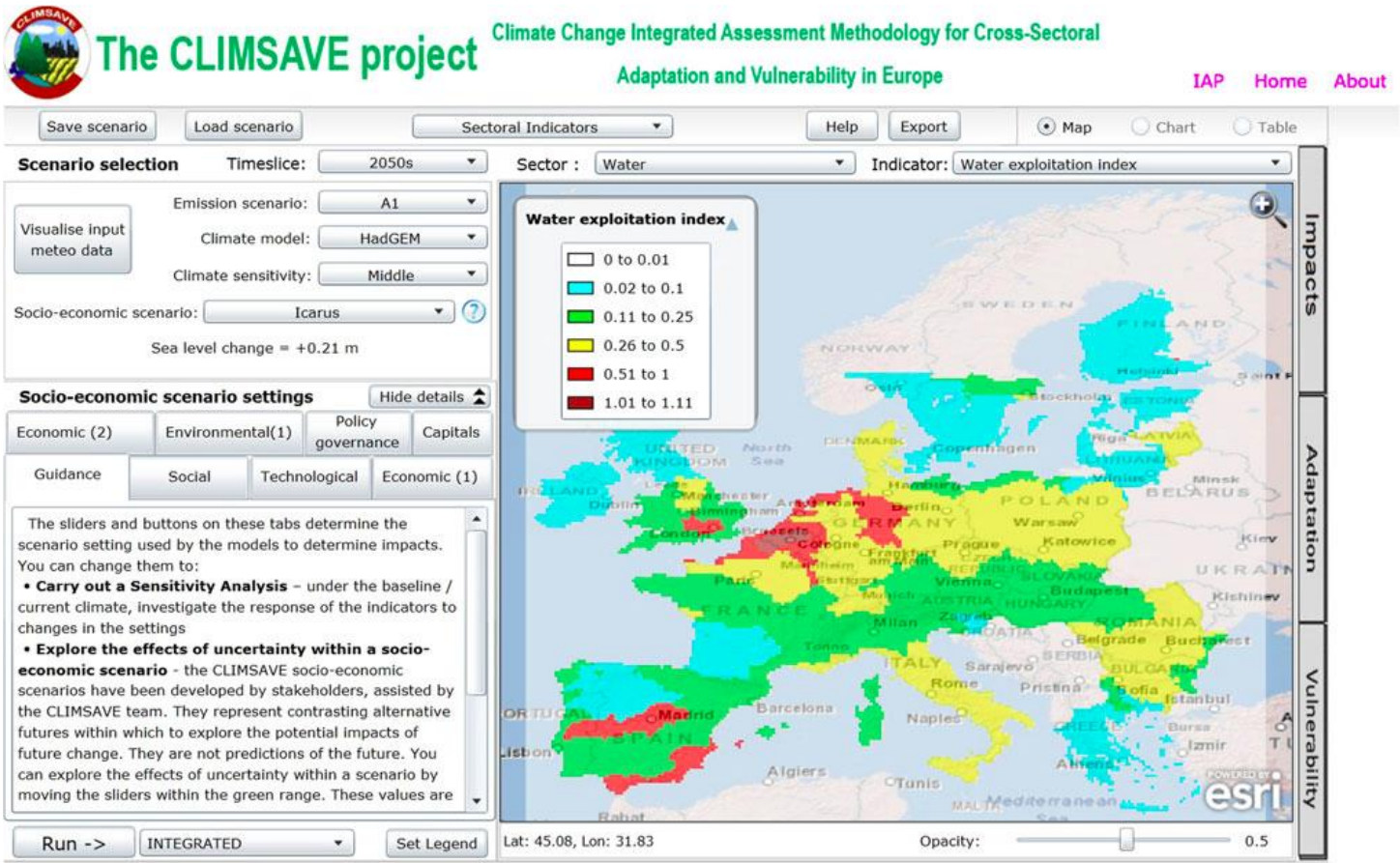
Giupponi, Giove & Giannini (2013)
 System dynamic assessment tool for exploring and communicating
 vulnerability to floods and climate change

CLIMATE ADAPTATION TOOLS: WEAP - WATER EVALUATION AND PLANNING



Höllermann, Giertz & Diekrüger (2010)
 Benin 2025 - Balancing Future Water Availability
 and Demand Using the WEAP Water Evaluation and Planning System

CLIMATE ADAPTATION TOOLS : INTEGRATED CLIMATE & SOCIO-ECONOMIC SCENARIOS



Harrison et al. (2013)
Combining qualitative and quantitative understanding for exploring cross-sectoral climate change impacts, adaptation and vulnerability in Europe

CLIMATE ADAPTATION TOOLS: COST-BENEFIT ANALYSIS

3.2.1 *Fundamentals of Cost Benefit Analysis*

In evaluating policies or projects, economists will recommend the most *efficient* one: the project for which the net benefits (i.e. NB, the difference between total benefits and total costs) are maximized. Projects and policies have a stream of costs and benefits over time. When an analysis includes multiple time periods, economists will speak of *dynamic efficiency*. Assessing efficiency in a dynamic setting requires *discounting*, a mathematical operation that translates the stream of costs and benefits into a single monetary value, the present value (PV). The current value of a future cost or benefit (PV) is obtained by discounting the future sums of money to equivalent current sums, using the following formula:

$$PV = \frac{\text{Future value in } t^{\text{th}} \text{ period}}{(1 + \text{discount rate})^t}$$

where t indicates the time periods (i.e. year 0, 1, 2, 3, . . . , t etc.) and the *discount rate*, or annual rate of return on the investment. Suppose a project involves benefits and costs over a time span from the present moment (time 0) to T years from now. Let B_t and C_t be, respectively, the benefit and cost t years from now. The present value of net benefits (PVNB, sometimes also indicated as *net present value* NPV) is calculated using this formula:

CHARACTERISTICS OF CLIMATE ADAPTATION INITIATIVES AND TOOLS

Typically emphasize physical and technical aspects

Specialized Approaches

Data-Driven Solutions

Innovation

Focus on immediate impact



CRITIQUE OF CLIMATE ADAPTATION INITIATIVES AND TOOLS



The ability to adapt is closely linked to social assets, governance structures, and the distribution of resources and power within different individuals and social groups.

Power dynamics intersect with environmental changes thereby influencing vulnerability and adaptation capacity.

Local knowledge and practices are crucial for effective adaptation, and community engagement and participation can enhance resilience and adaptive capacity.

WHAT FUTURE-MED WG2 CAN DO

Adopt an interdisciplinary approach to understanding and addressing climate adaptation, integrating insights from environmental science, economics, critical social sciences.

Consider how climate change impacts are distributed, particularly among marginalized and disadvantaged groups, and how adaptation measures can address these disparities.

SCIENTIFIC PERSPECTIVES ON CLIMATE ADAPTATION

Giuliano Di Baldassarre (Uppsala University) – “Water and society: Feedbacks, legacies and inequalities in rapidly changing environments”.

Marta Terrado Casanovas (BSC) – “Co-production of knowledge and tools to mainstream climate adaptation”.

Ilias Pechlivanidis (SMHI) – “Are we done with co-creating climate services? Time to co-evolve knowledge for successful service uptake”.

Thank you

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