

Second Mediterranean Assessment Report (MAR2)

Outline and list of contributors

Date of document: 20/05/2026

Note: This document is subject to minor changes. The FOD is currently being finalised, and the list of authors is subject to change.

Chapter 1. Framing the Mediterranean climate and environmental assessment

1.1 Characterisation of the Mediterranean

- 1.1.1 Geographical scope, demographics, and asymmetrical development
- 1.1.2 Heritage and resilience: shared assets
- 1.1.3 Governance and policy landscape

1.2 The Mediterranean as a climate change hotspot - a polycrisis narrative and the systemic response to build resilience

- 1.2.1 The changing climate in the Mediterranean region
- 1.2.2 Ecosystems and biodiversity
- 1.2.3 Environmental degradation, pollution
- 1.2.4 Interconnected vulnerabilities
- 1.2.5 Cascading and systemic risks
- 1.2.6 Systemic interconnections and the need for integrated responses

1.3 Integrated narrative in a transformative agenda

1.4 Point of departure: Lessons from MAR1 and recent reports

1.5 A guide to the assessment report

- 1.5.1 Knowledge systems and data sources
- 1.5.2 The risk framing of the report
- 1.5.3 Scenarios and reference periods
- 1.5.4 Storylines, strategic foresight and transformative pathways
- 1.5.5 Communication of uncertainties and confidence of the assessment
- 1.5.6 Report structure

Cross-cutting box: Data and monitoring

Chapter 2. Drivers of change and state of the environment

2.1 Socio-economic and systemic drivers of change

- 2.1.0 Introduction: framing and rationale
- 2.1.1 Population, urbanisation, consumption patterns
- 2.1.2 Trade, globalisation, economic growth
- 2.1.3 Structure, conflicts, war
- 2.1.4 Policy, governance, culture
- 2.1.5 Marine and coastal economic systems
- 2.1.6 Poaching

2.2 Climate change

- 2.2.1 Introduction (including definition of extremes and compound events)
- 2.2.2 General circulation (including storms and cyclones)
- 2.2.3 Near surface temperature
- 2.2.4 Precipitation
- 2.2.5 Wind
- 2.2.6 Sea water temperature
- 2.2.7 Sea level rise and waves
- 2.2.8 Cryosphere
- 2.2.9 Compound extreme events

2.3 Environmental degradation

- 2.3.1 Land degradation and desertification
- 2.3.2 Marine degradation
- 2.3.3 Pollution and waste
- 2.3.4 Biological pollution (non-indigenous and invasive species)
- 2.3.5 Biodiversity loss

2.4 Interactions, feedback loops and cascades

- 2.4.1 Wild fires (land use-temperature-drought feedback)
- 2.4.2 Air pollution and climate change
- 2.4.3 Cross-system tipping points (including social tipping points)

Chapter 3. Impacts and risks: human and natural systems

3.1 Sectoral Impacts and Risks

- 3.1.1 Agriculture and forestry
- 3.1.2 Energy
- 3.1.3 Water
- 3.1.4 Ecosystems
- 3.1.5 Fisheries
- 3.1.6 Industry and tourism
- 3.1.7 Infrastructure and transportation
- 3.1.8 Health and safety

3.2 Climate, armed, and socio-environment conflicts and displacements

- 3.2.1 Socio-environmental and armed conflicts
- 3.2.2 Migration and displacement

3.3 Cultural heritage under threat

3.4 Compound hazards and cascading effects

3.5 Social inequality and vulnerability

- 3.5.1 Social inequality as a risk amplifier shaping exposure, sensitivity, and adaptive capacity
- 3.5.2 Structural drivers of unequal vulnerability and societal risk
- 3.5.3 Social differentiation of climate risks and societal impacts
- 3.5.4 Unequal societal impacts and risks across livelihoods, health, and well-being
- 3.5.5 Gaps and limits in assessing socially differentiated climate risks

3.6 Regional and sub-regional impacts

Chapter 4. Adaptation options and enablers

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- 4.0.1 Internal glossary
- 4.0.2 Methodology

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- 4.1.1 Biodiversity conservation and restoration
- 4.1.2 Spatial and landscape planning
- 4.1.3 Urban ecology

4.2 Existing technologies and technological research and innovation for adaptation

- 4.2.0 Introduction
- 4.2.1 Hardware solutions
- 4.2.2 Software solutions
- 4.2.3 Innovative data-driven and digital tools

4.3. Social innovation, culture and traditional knowledge

- 4.3.1 Indigenous and local knowledge for adaptation
- 4.3.2 Behavioural changes for adaptation and barriers against adaptation
- 4.3.3 Community-based adaptation and autonomous adaptation
- 4.3.4 Education and capacity building
- 4.3.5 Knowledge systems and knowledge transfer

4.4. Legal, institutional adaptation options

- 4.4.1 Adaptation policies and governance (multi-Level and multi-sector)
- 4.4.2 Adaptation services
- 4.4.3 Financial sector integration

4.5 Sectoral adaptation options

4.6 Adaptation portfolio: synergies, trade-offs limitation and maladaptation risks

Chapter 5. Mitigation and decarbonisation

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- 5.1.2 Industry
- 5.1.3 Agriculture, forestry and other land uses
- 5.1.4 Transport
- 5.1.5 Buildings
- 5.1.6 Country-wide mitigation portfolio

5.2 Carbon removal and sequestration

- 5.2.1 Carbon uptake, sink, storage and sequestration assessment in land and sea
- 5.2.2 Land-based carbon cycle monitoring
- 5.2.3 Land-based strategies for carbon sequestration
- 5.2.4 Marine-based and coastal solutions for carbon sequestration with examples from the Mediterranean Sea
- 5.2.5 Technological solutions
- 5.2.6 Community-based mitigation
- 5.2.7 Climate and anthropogenic impacts affecting and reducing carbon mitigation capacity

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- 5.3.1 Current carbon trading mechanisms in the Mediterranean
- 5.3.2 Effectiveness of carbon trading mechanisms: emissions and economic impacts
- 5.3.3 Equity implications and distributional considerations
- 5.3.4 Technical and governance features
- 5.3.5 Key challenges
- 5.3.6. Interaction with EU mechanisms: EU ETS and CBAM
- 5.3.7 Opportunities and constraints for regional integration

5.3.8 Conclusion

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5.4.1 Joint adaptation-mitigation strategies and synergies

5.4.2 Possible conflicts with food production and biodiversity

5.4.3 Comparative overview of carbon trading initiatives by country

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6.1.2 Governance design and the role of SPI; explores polycentric, multilevel governance, and participatory decision-making

6.1.3 Governance as process/operational: reviews frameworks to align sectoral and cross-border climate policies

6.1.4 Governance characteristics: embeds fairness and rights-based approaches in policy formulation

6.2 Economic valuation and risk assessment

6.2.1 Economic evaluation of Ecosystem Services (ES)

6.2.2 Assessing the economic costs of inaction

6.2.3 Risk financing and insurance instruments

6.2.4 Trade, globalisation, and environmental risk exposure

6.2.5 Degrowth and post-growth approaches in policy design

6.2.6 Synthesis: comparative insights and regional gaps

6.3 Climate finance mechanisms

6.3.1 Climate finance - key concepts and scope

6.3.2 Background considerations

6.3.3 Assessment of current financial flows in the Mediterranean

6.3.4 Pathways and approaches to accelerate alignment of financial flows with long-term global goals

6.4 Enabling factors

6.4.1 Transformative education and social learning

6.4.2 Communication

6.4.3 Behavioural change

6.4.4 Environmental diplomacy and cultural heritage linkages

6.4.5 Synthesis: building societal capacity for transformation

6.5 Monitoring, evaluation, and policy effectiveness

6.5.1 Monitoring, evaluation, learning, and policy effectiveness

6.5.2 Indicators, impact tracking, adaptive governance

6.5.3 From modest steps to larger ripples - measures implementation

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6.5.5 Innovative evaluation tools

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7.1.1 Conceptualisation of transformation for sustainable futures

7.1.2 Frameworks and methodological approaches

7.1.3 Operationalising a framework to understand/navigate transformation in the Mediterranean

7.1.4 Criteria of transformation

7.2 Unpacking transformation pathways on the ground

7.2.1 Selection and scope of the assessed evidence

7.2.2 Transformation pathways in practice across the Mediterranean

7.2.3 Common features, enabling conditions, and persistent gaps

7.3 Enabling transformative futures

7.3.1 Future scenarios for the Mediterranean

7.3.2 Levers of transformation at multiple scales

7.4 Actionable principles and systemic transformation pathways for the Mediterranean

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