

11-12 FEBRUARY 2025

RABAT, MOROCCO

Institut Agronomique et Vétérinaire Hassan II



WEFE NEXUS INTERNATIONAL CONFERENCE

**EXPLORING AND BRIDGING NEXUS FOR
A SUSTAINABLE FUTURE**



These projects are part of the
PRIMA programme supported
by the European Union.

WEFE NEXUS INTERNATIONAL CONFERENCE

Day 1 – 11th February 2025

PILLAR 1: WEFE NEXUS IN GOVERNANCE



Chair: Dr Rachid Mrabet,
National SureNexus Coordinator - Morocco
INRA

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WEFE Nexus Governance: Insuring global inclusivity

Rachid Mrabet
Research Director
INRA Rabat Morocco



المعهد الوطني للبحث الزراعي
المعهد الوطني للبحث الزراعي
Institut National de la Recherche Agronomique

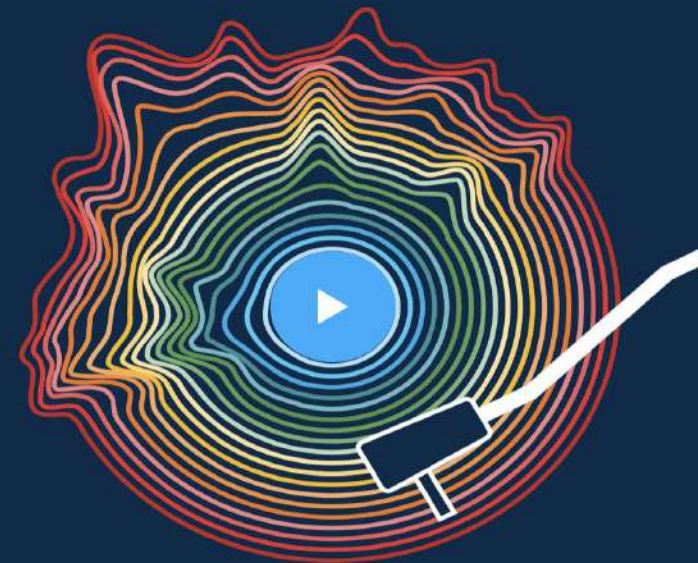


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Emissions Gap Report 2023

Broken Record

Temperatures hit new highs, yet world fails to cut emissions (again)



UN
environment
programme

Emissions Gap Report 2024

No more hot air ... please!

With a massive gap between rhetoric and reality,
countries draft new climate commitments



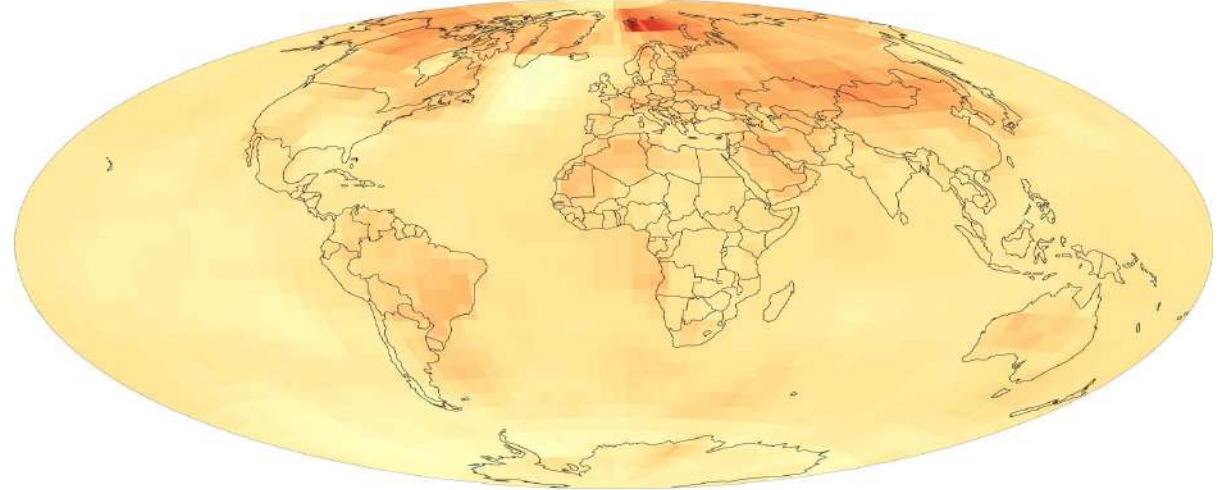
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Recent vs long-term trends

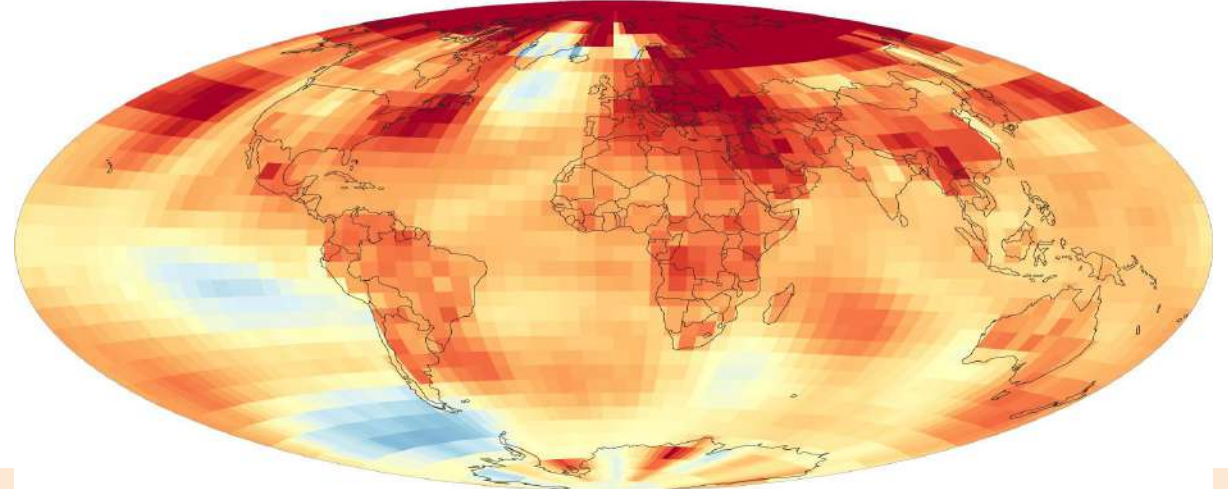
Recent warming is much faster than the longer-term average.

WARMING OVER PAST 30 YEARS IS MUCH FASTER THAN LONG-TERM TREND

1901-2023



1994-2023

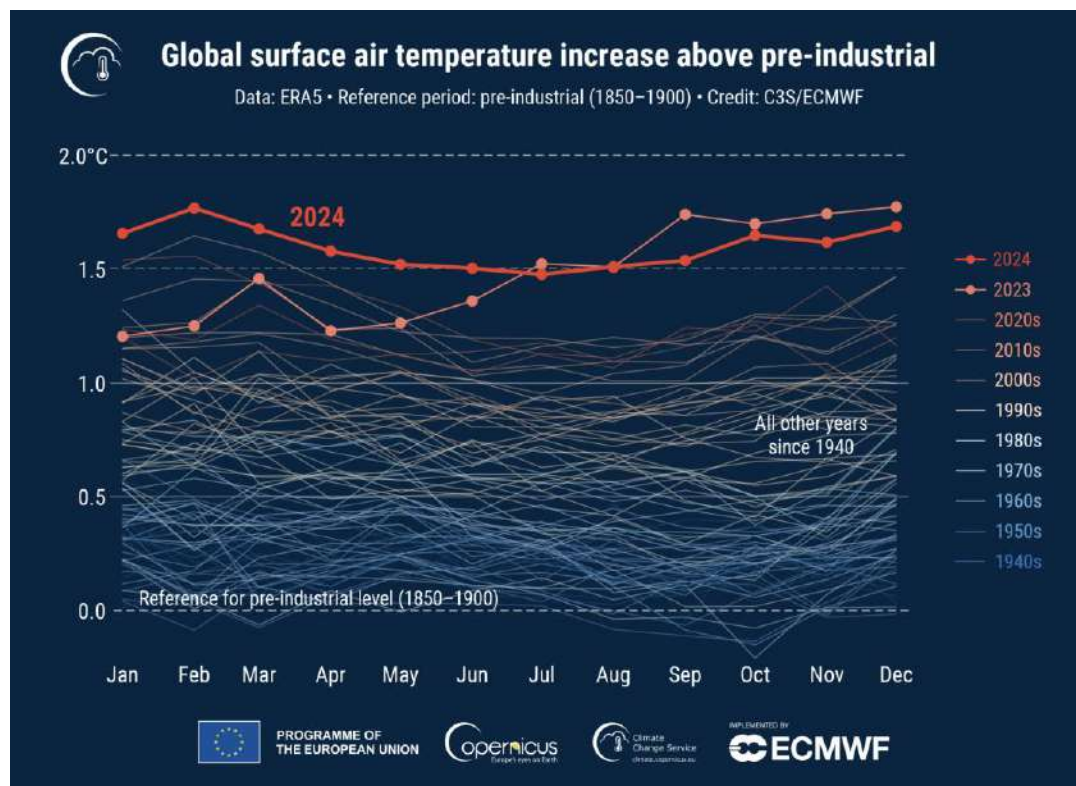


Change in temperature ($^{\circ}\text{F}/\text{decade}$)

-1 0 1

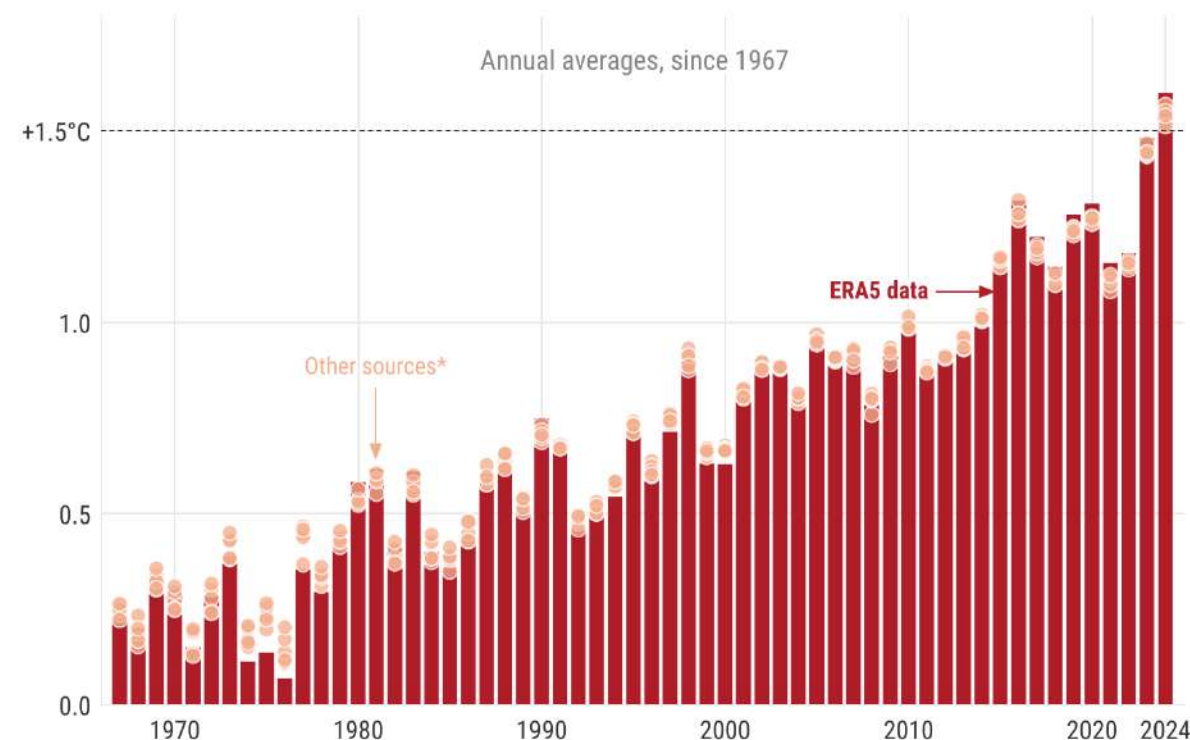
NOAA Climate.gov
Data: NCEI

2024 - a second record-breaking year, following the exceptional 2023



Global surface temperature: increase above pre-industrial

Reference period: pre-industrial (1850–1900) • Credit: C3S/ECMWF



*Other sources comprise JRA-3Q, GISTEMPv4, NOAA GlobalTempv6, Berkeley Earth, HadCRUT5.



PROGRAMME OF
THE EUROPEAN UNION



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“Are we reaching the end of what we thought was a safe zone for humanity?.”

NEWS | 10 January 2025

Earth breaches 1.5 °C climate limit for the first time: what does it mean?

The threshold has been exceeded for only one year so far, but humanity is nearing the end of what many thought was a ‘safe zone’ as climate change worsens.

By [Jeff Tollefson](#)

NEWS EXPLAINER | 06 January 2025

Earth shattered heat records in 2023 and 2024: is global warming speeding up?

Nature examines whether the temperature spike is a blip or an enduring – and concerning – trend.

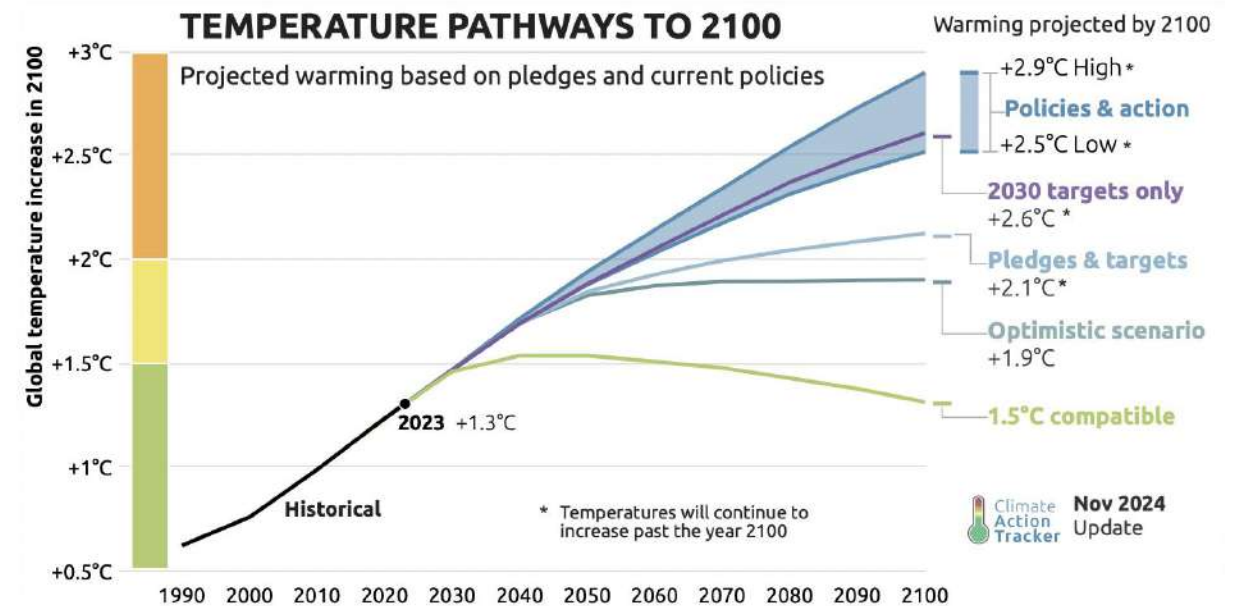
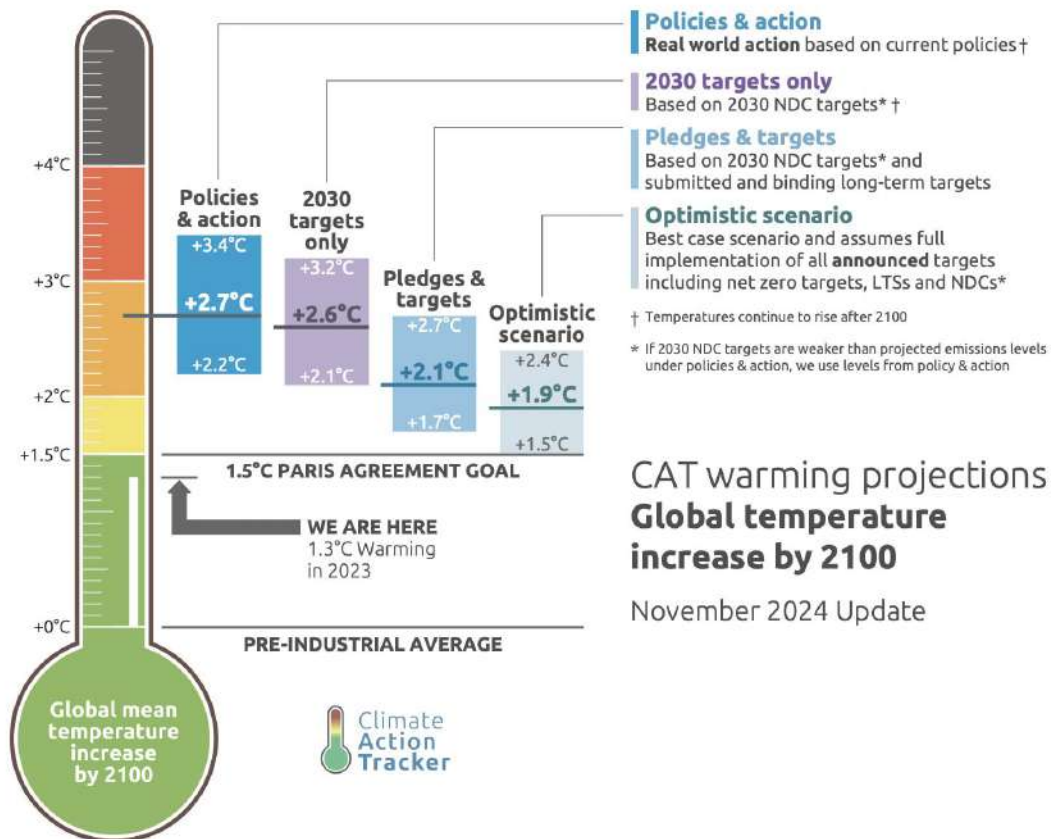
By [Jeff Tollefson](#)

Long-term temperature goal of the Paris Agreement not yet dead but in grave danger!

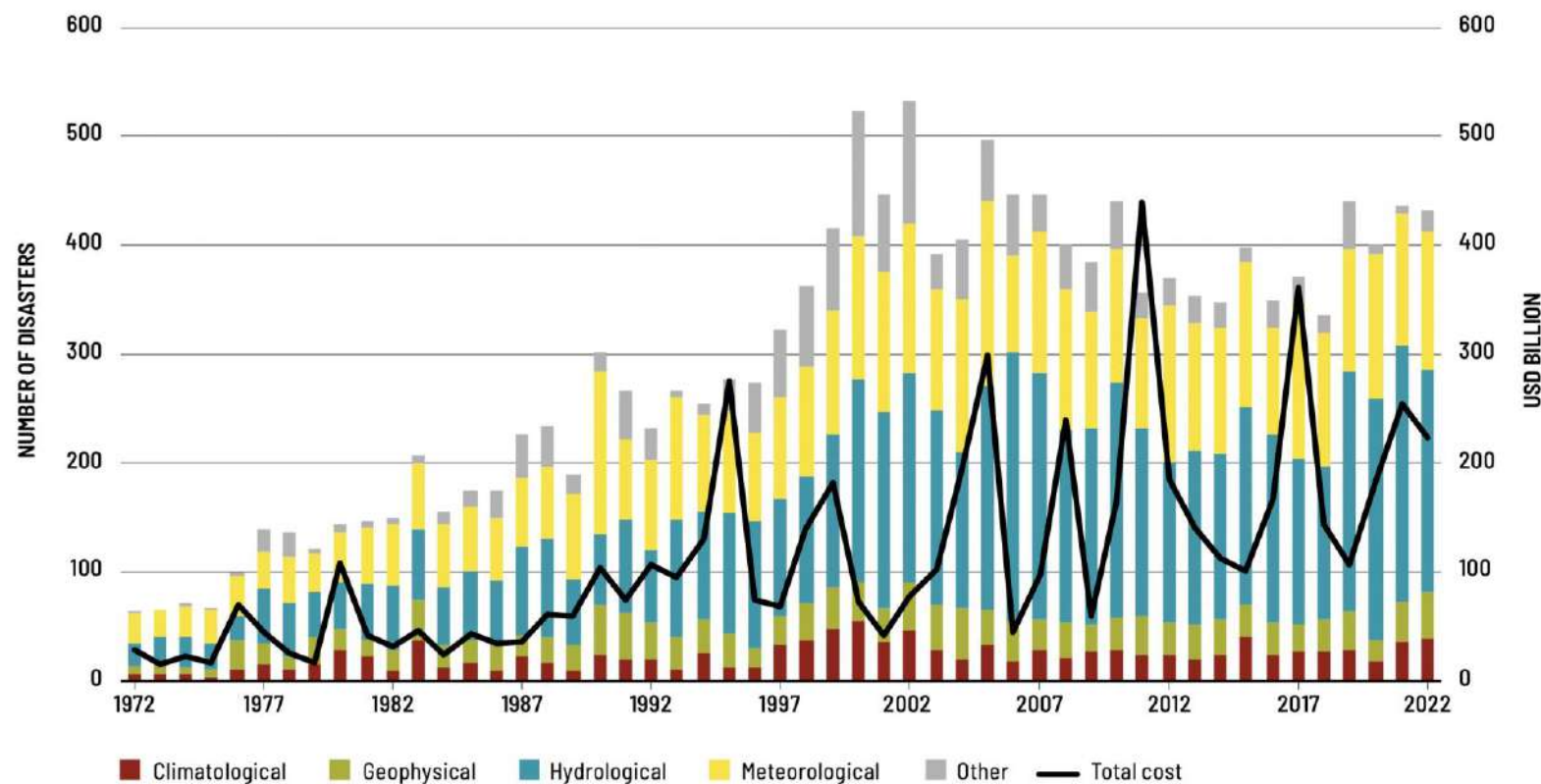
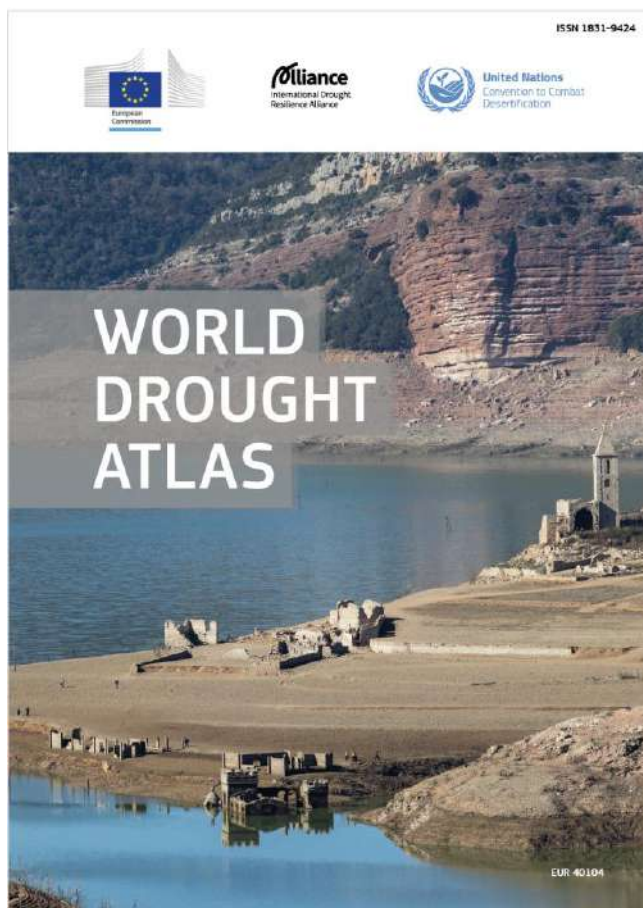


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Locked in: Temperature projections stagnate despite rising climate disasters



Number of extreme events and total economic losses

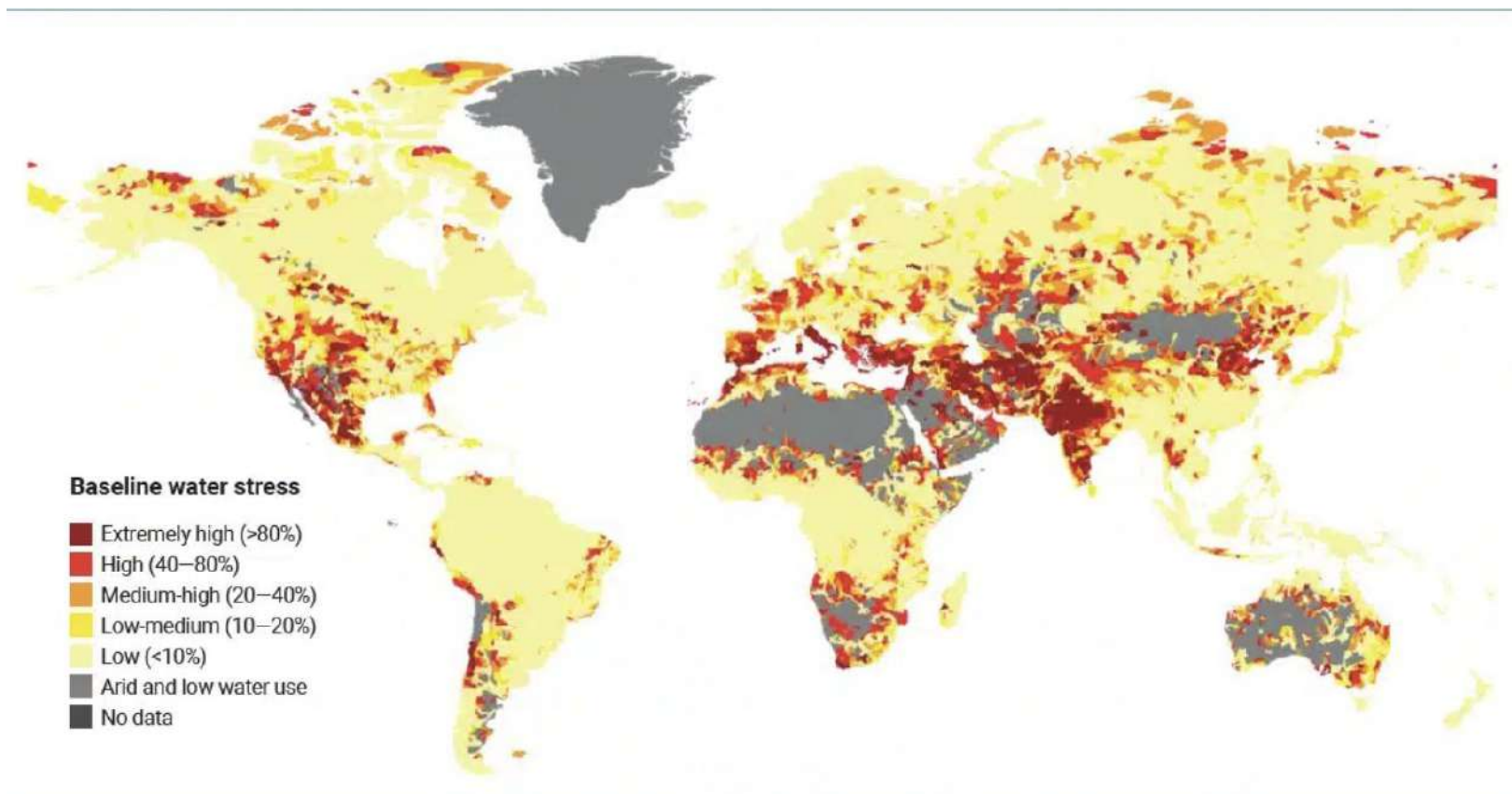


The frequency of extreme events has increased from 100 per year in the 1970s to around 400 events per year worldwide in the past 20 years.

Water scarcity: Global Water Security Is at Risk

As many as 3.5 billion live in water-scarce regions or experience water scarcity and 2.2 billion people lacking clean drinking water.

At least 50 per cent of the planet's population – 4 billion people – deal with water shortfalls at least one month of the year.

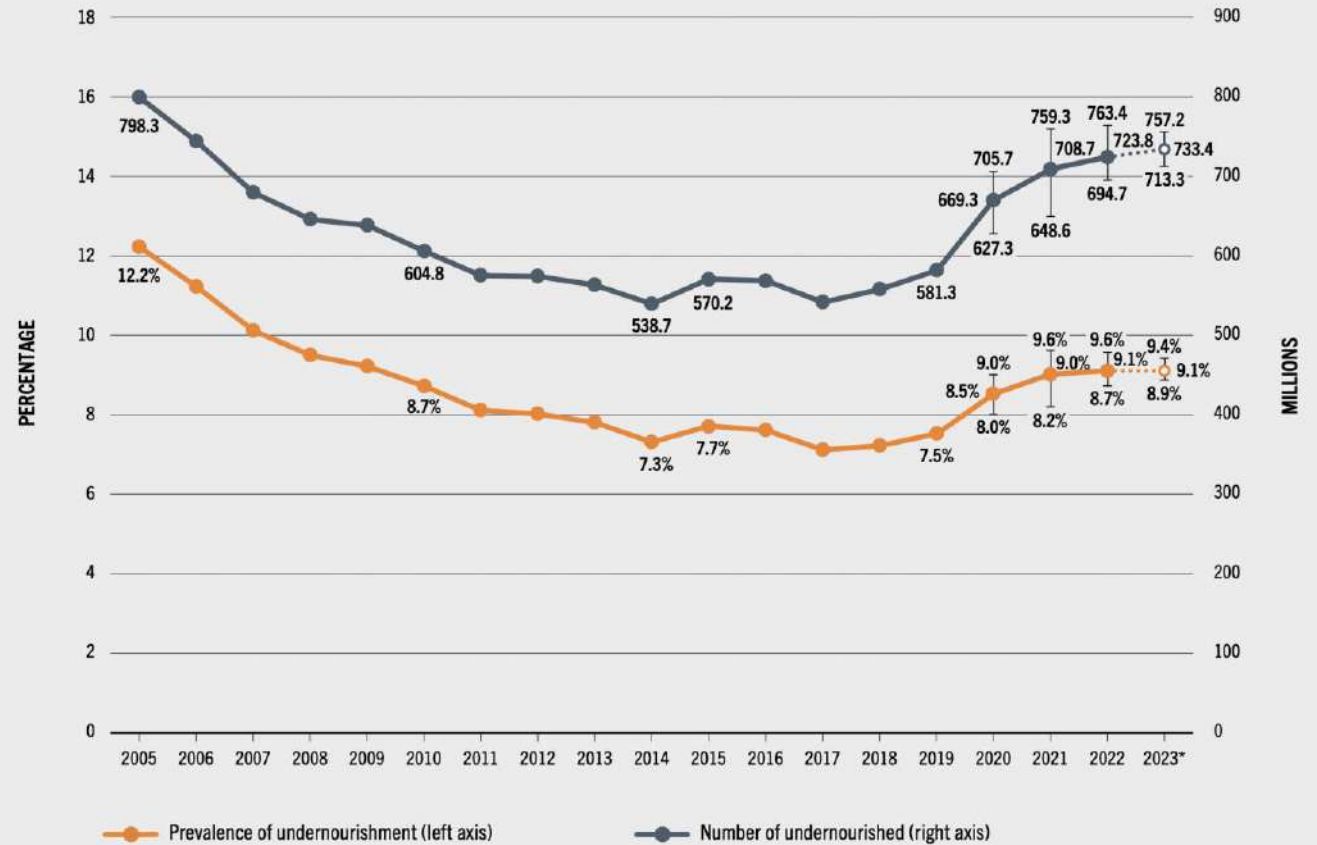


Growing Hunger

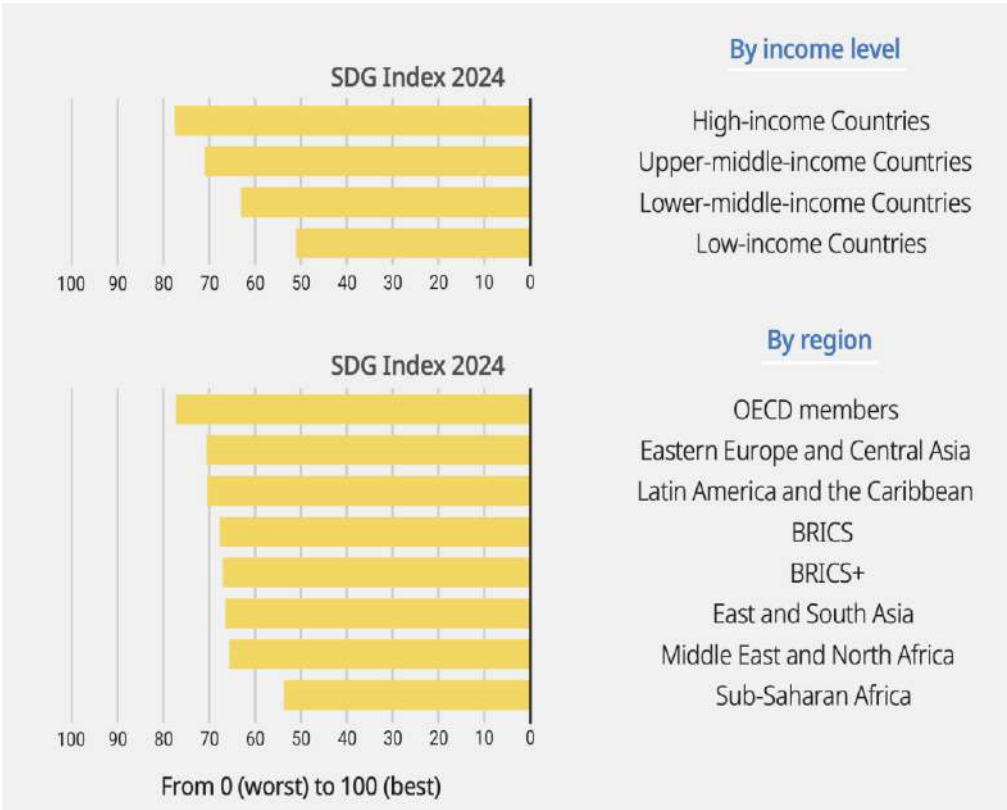
733 Million

Hunger numbers stubbornly high for three consecutive years as global crises deepen. 1 in 11 people worldwide faced hunger in 2023, 1 in 5 in Africa about 582 million people will be chronically undernourished in 2030

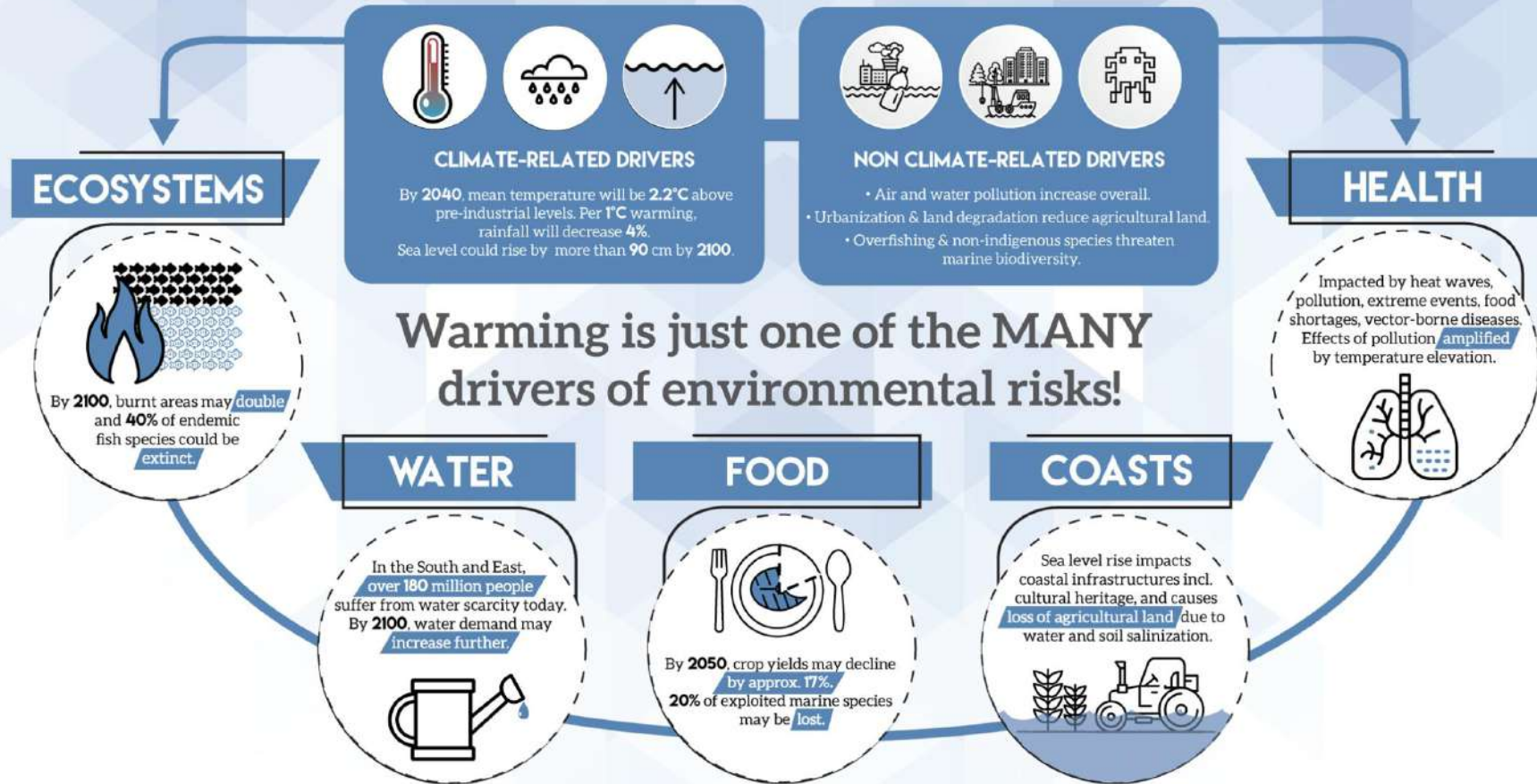
GLOBAL HUNGER ROSE SHARPLY FROM 2019 TO 2024 AND PERSISTED AT THE SAME LEVEL TO 2023



World SDG Dashboard 2024: Progress by SDG target



RISKS AND IMPACTS OF ENVIRONMENTAL CHANGE IN THE MEDITERRANEAN BASIN

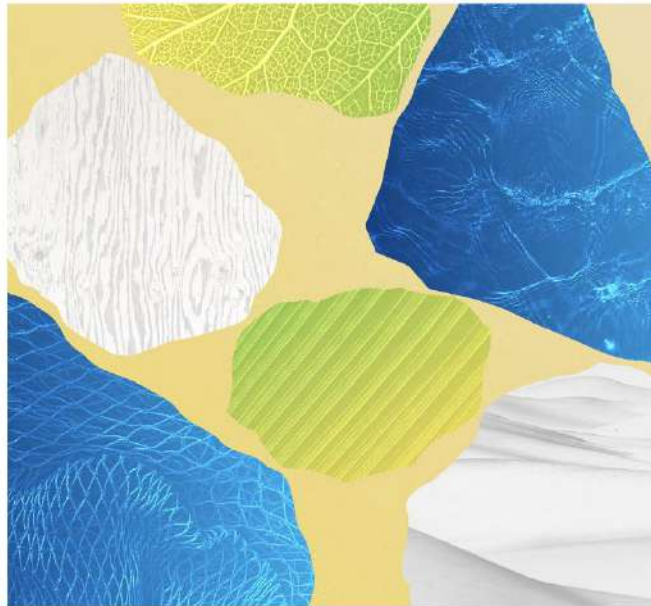


Second fastest warming region in the world after the Arctic.

In 2020, +1.5°C compared to the pre-industrial period.

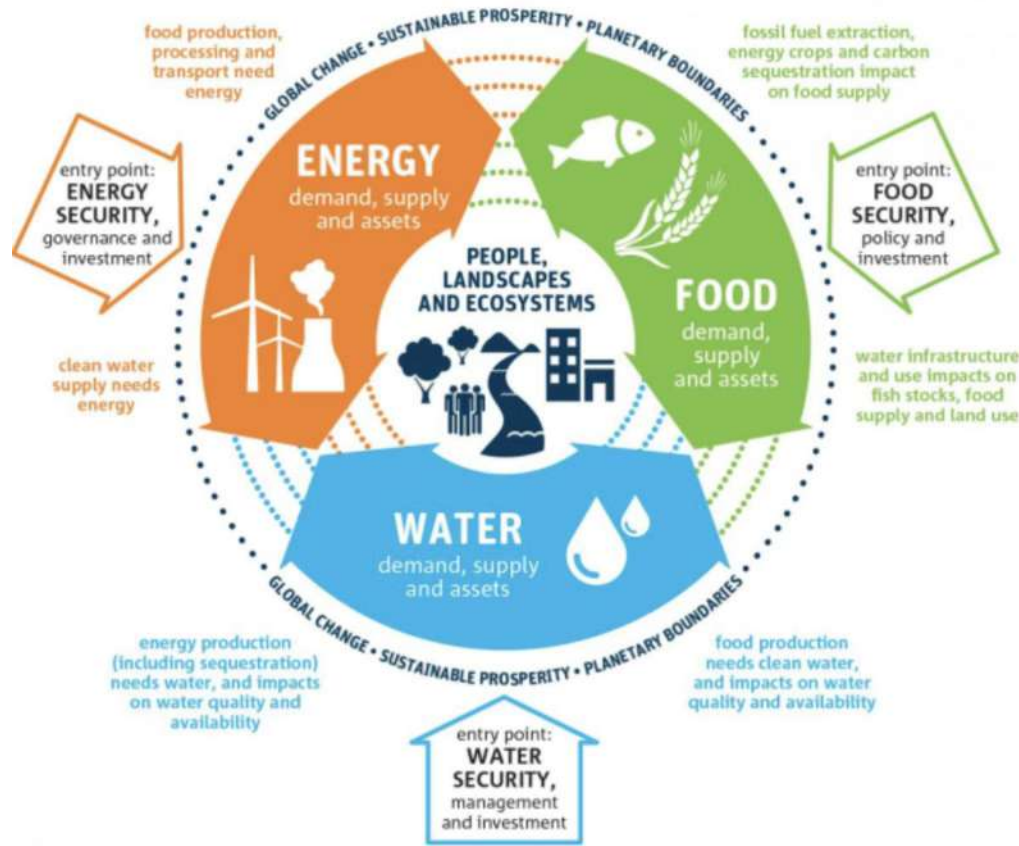
Multifaceted challenges in the Mediterranean basin with cascading and large-scale impacts

MED 2050
LA MÉDITERRANÉE
À L'HORIZON 2050
Une prospective du Plan Bleu



Multiple transition trajectories

Coherent & urgent actions should reflect the complexity of challenges.

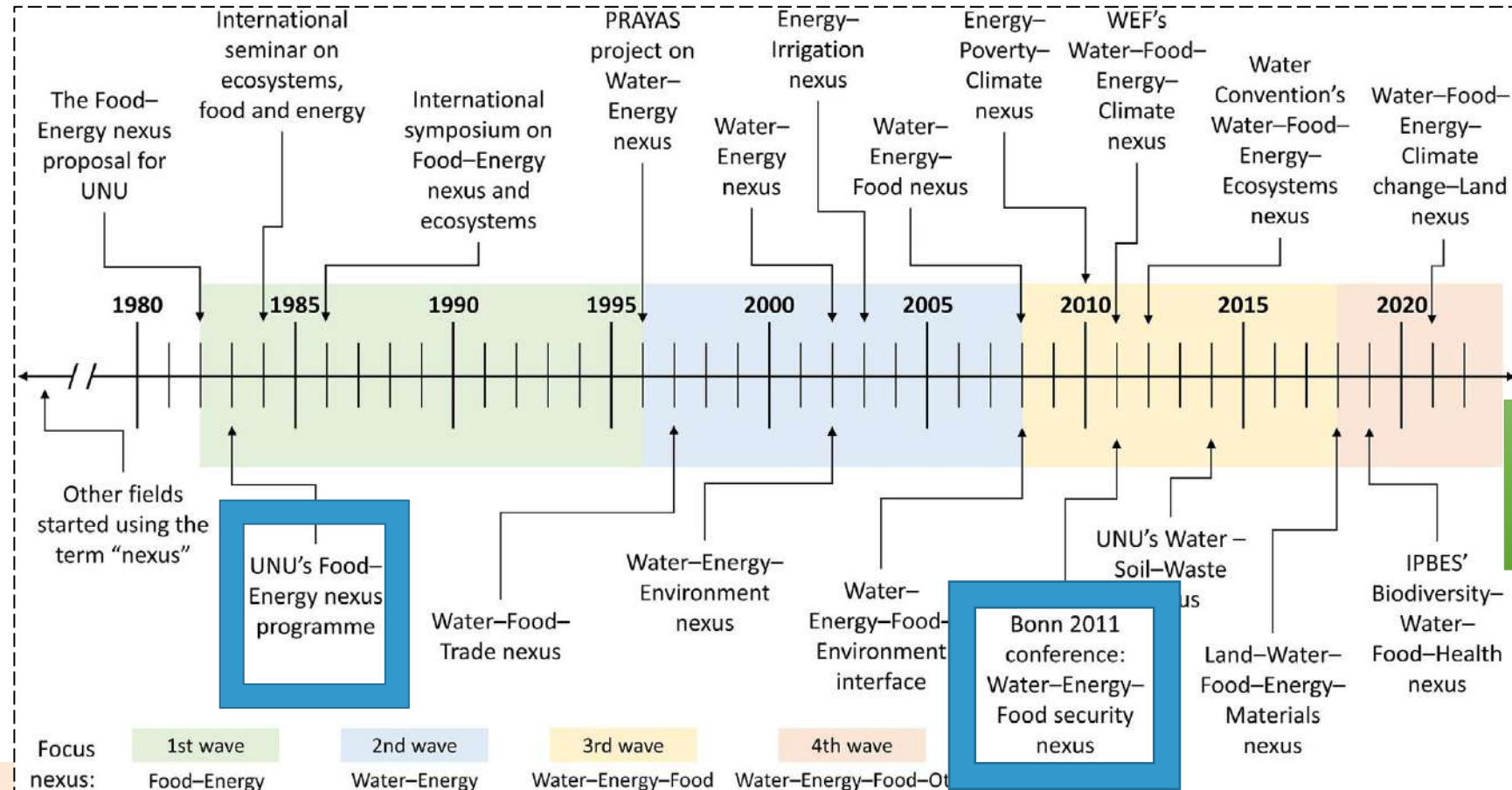


A wait-and-see approach and a policy of small steps is not a stable and tenable solution in the long term: faced with the ruptures and challenges, **disruptive solutions** are required.

Emergence of the nexus approach in the human-environment realm

The nexus concept has been formulated and has become widely used in analytical and practitioner's communities at least since the **Bonn Conference 2011** in response to the predominant single-resource "silo" thinking.

Nexus terminology was first used in the natural resource realm in 1983 under the Food-Energy Nexus Programme, which sought integrated solutions to food and energy scarcity.

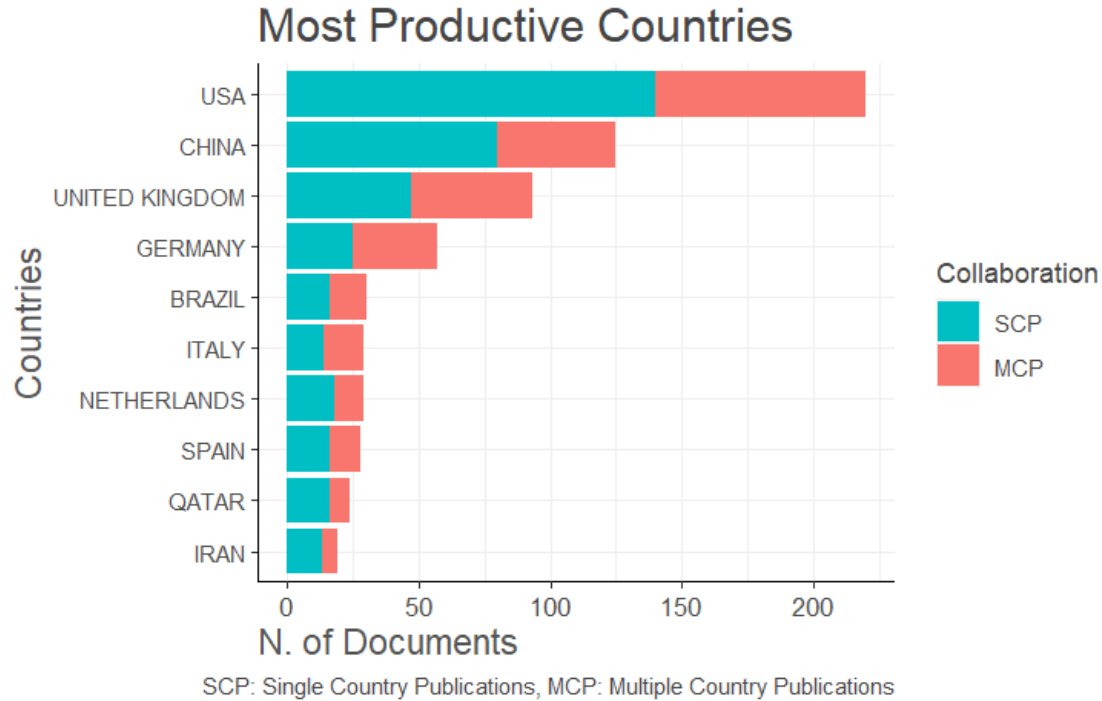


The nexus (issues) is (are) not new!

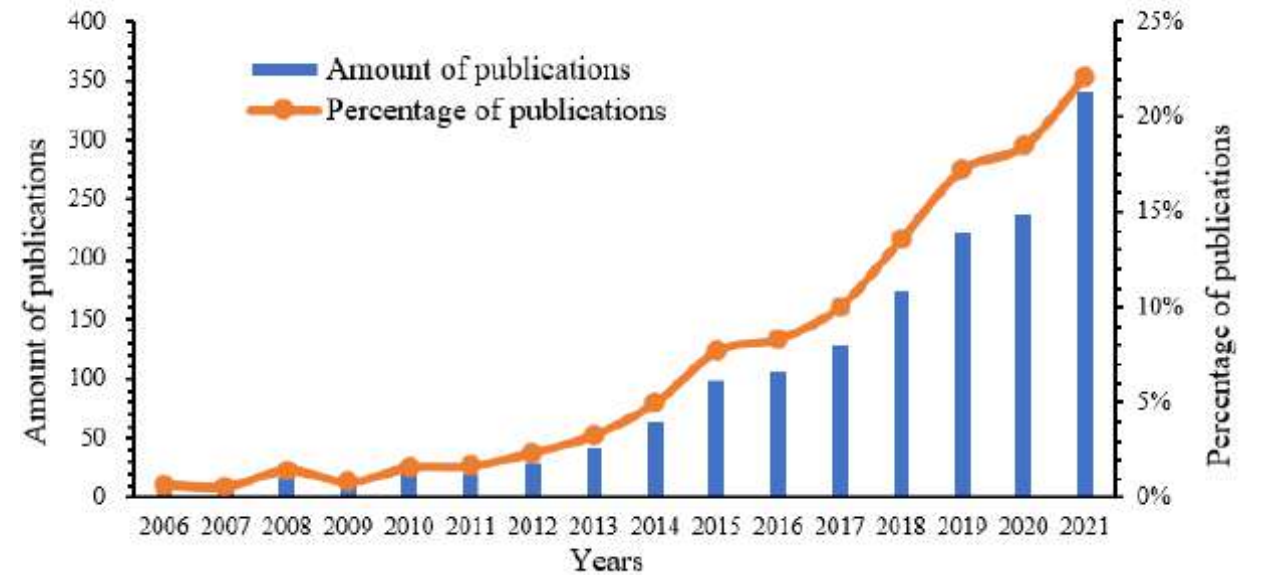


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WEFE Nexus science advance



Rhouma et al. (2024)



Wang et al (2022)

<https://www.medecc.org/medecc-reports/climate-wefe-nexus/>



**Interlinking climate change
with the Water - Energy -
Food - Ecosystems (WEFE)
nexus in the Mediterranean Basin**

by **MedEC**
Mediterranean Experts on Climate
and environmental Change



United Nations
Development
Programme



United Nations
Environment
Programme



United Nations
World Water
Programme

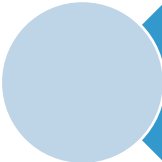


United Nations
World Food
Programme

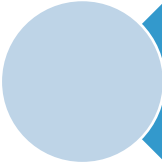


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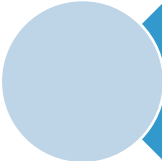
Questions for Panelists



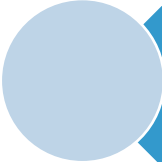
Governance and Policy Integration



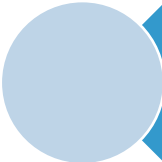
**Climate Resilience & Risk
Management**



**Stakeholder Engagement & Multi-
Level Governance**



**Financial & Institutional
Challenges**



**Digitalization, Data and Decision
Making**

Governance and Policy Integration

- Does avoiding siloed approach and planning for hybrid & holistic WEFEE governance allow **paradigm change**?
- How can WEFEE governance tackle such **interactive challenges and impacts**?
- **How to merge goals, agendas, and priorities?**
- How to develop recognition of sectoral interdependence and synergies in order to lower **barriers for integration**?
- The vast majority of the WEFEE nexus literature has its foundations in the physical and engineering sciences!
- What are major roles of **Science-Policy Interface in enhanced governance**? How can we bridge the science–policy **divide**?

Climate Resilience & Risk Management

- **Climate change is intensifying risks across the WEF E Nexus**, making governance more complex. Adaptive strategies and risk management frameworks are essential to enhance resilience against shifting rainfall patterns, rising temperatures, and extreme weather events.
- How should governance structures evolve to address the increasing complexity of climate-related risks within the WEF E Nexus?
- Adaptive governance is a way of dealing with challenges by recognizing that there is **no one-size-fits-all solution** and that we need to be prepared to change our approach as we learn more.
- What role does adaptive governance play in responding to changing rainfall patterns, temperature shifts, and extreme weather events?
- How can local and regional governance mechanisms be strengthened to enhance climate resilience?
- Centralized WEF E governance → policy solutions need to be localized appropriately to consider resource dynamics and stakeholder engagement and dialogue!

Stakeholder Engagement & Multi-Level Governance

- Stakeholder engagement and dialogues are essential in fostering WEFE Nexus. Multiple transitions are the core of the world's trajectory for sustainability.
- Has **inclusive WEFE governance** the power to reshape such shifts? **Inclusive governance is a way of making decisions and managing things that ensures everyone has a voice and that their concerns are taken into account.**
- How can inclusive WEFE Governance dissipate or reduced unintended consequences and trade-offs and hence not undermining the sustainability of the system as a whole? Participatory, representative, equal, accountable, and transparent engagement of stakeholders and parties?
- How can we ensure that governance frameworks include the voices of all stakeholders, including marginalized communities, indigenous groups, and small-scale producers?
- What are the best strategies for bridging the gap between scientific knowledge, policymaking, and community engagement? How can Research and Academia help in strengthening stakeholder engagement?
- How can **public-private partnerships** contribute to more effective WEFE Nexus governance?
- **Can you discuss any facilitating platform or initiative either at local or regional level you have experienced?**



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Financial & Institutional Challenges

- Implementing integrated WEFE governance requires overcoming financial constraints and institutional fragmentation. Innovative financing mechanisms and cross-sectoral institutional collaboration are key to scaling sustainable solutions. Capacity for WEFE governance is linked to high profiles institutions and durable financial & human resources.
- What are **the key financial barriers to implementing integrated WEFE governance, and how can they be addressed?**
- How can innovative financing mechanisms (e.g., blended finance, green bonds, payments for ecosystem services) support WEFE Nexus governance?
- What institutional changes are needed to foster better coordination and implementation of WEFE policies? What institutional transformation is needed to update governance?
- How to reduce incompatibility of current institutional structures through WEFE governance?

Digitalization, Data and Decision Making

- Understanding of the complex interactions between water, energy, food, and ecosystems, data and information are core for decision making and policy implementation.
- What is your experiences in data-driven informed decisions for resource management under scarcity? What are the main challenges in data sharing and interoperability across different sectors?
- How can digital tools, AI, and big data enhance decision-making in WEFE Nexus governance?
- How can we ensure that data-driven governance does not exacerbate existing inequalities or leave certain groups behind?
- What roles from technology transfer and knowledge brockering should be intensified in order to sustain high cross-sectoral collaboration?



**SURE
NEXUS**



PRIMA
PARTNERSHIP FOR RESEARCH AND INNOVATION
IN THE MEDITERRANEAN AREA



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