

# Mediterranean and Middle East in a changing climate



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**Nicosia (16-17 May 2018)**

# 21st Century: The context (1)

## 1. Socio-economic context

- Most human activities are weather or climate sensitive.
- Vulnerability to extreme events and economic impact growing
- Demographic evolution and urbanisation



After Hayan (2013)

## 2. Multiple crises (interdependent):

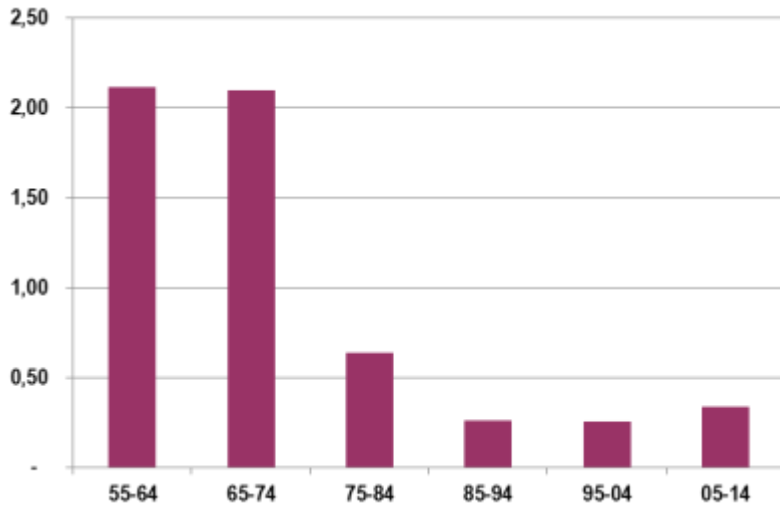
- Economic – financial
- Food
- Health
- Refugees
- ...



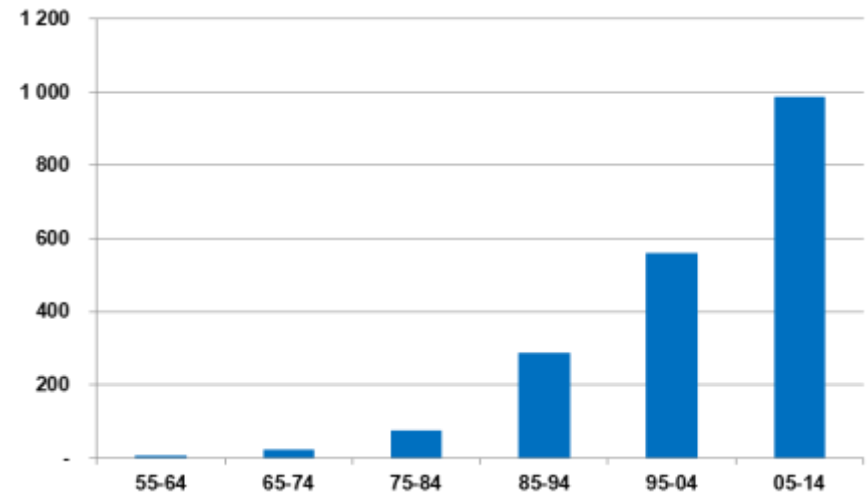
Somalia (2015)

# 21st Century: The context (2)

## 3. Weather and climate disasters



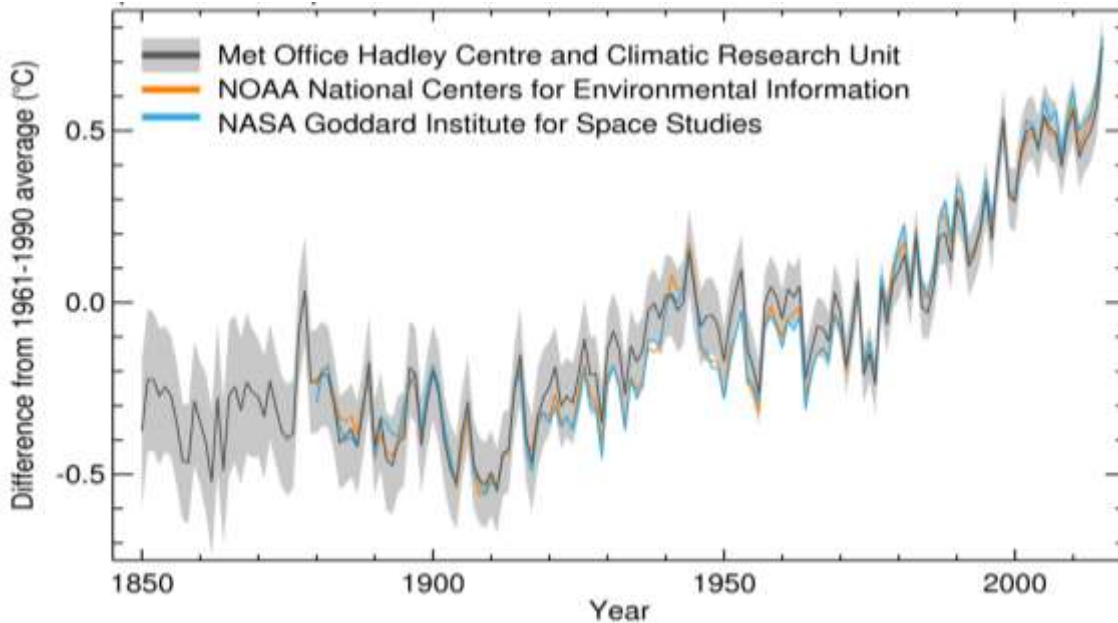
Deaths per decade (millions)



Economic losses per decade (Billion US\$)

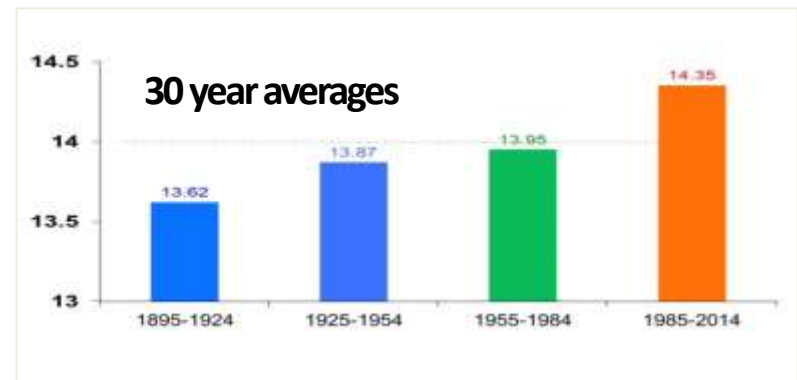
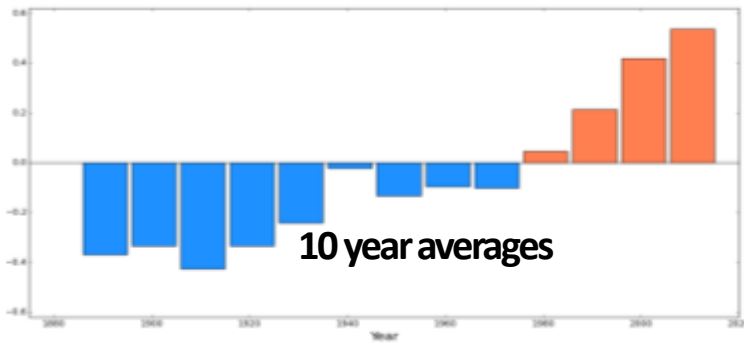
Developing countries affected much more, relative to their economic size

# 21st Century: The context (3)



- 2016: warmest year since instrumental records are available
- 2017: 2<sup>nd</sup> warmest
- IPCC: “warming of climate system is unequivocal”. “Human influence on the climate system is clear”

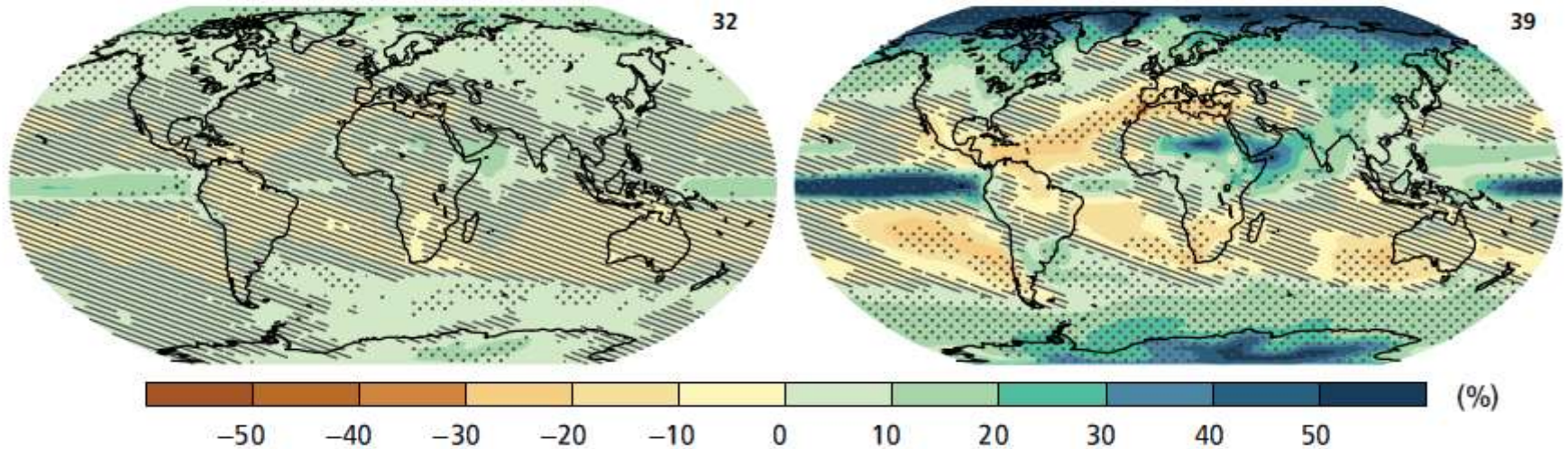
## Global surface temperature anomalies 1880-2015



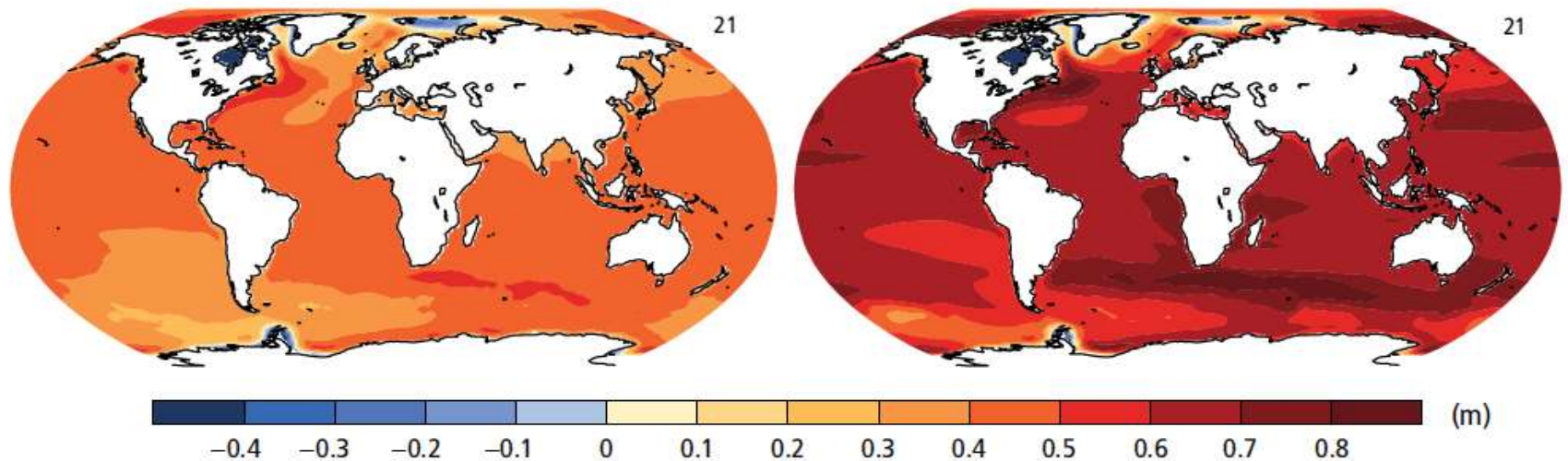


# 21st Century: The context (4)

(b) Change in average precipitation (1986–2005 to 2081–2100)



(c) Change in average sea level (1986–2005 to 2081–2100)



# 2015: An exceptional conjunction

1. Sendai framework for disaster reduction (March)
2. Adoption of Agenda 2030 for sustainable development (New York-September)
3. COP 21 and Paris agreement (December)



UN World Conference on  
Disaster Risk Reduction  
2015 Sendai Japan



COP21 - CMP11  
**PARIS 2015**  
UN CLIMATE CHANGE CONFERENCE



# Agenda 2030-Sustainable Development (1)





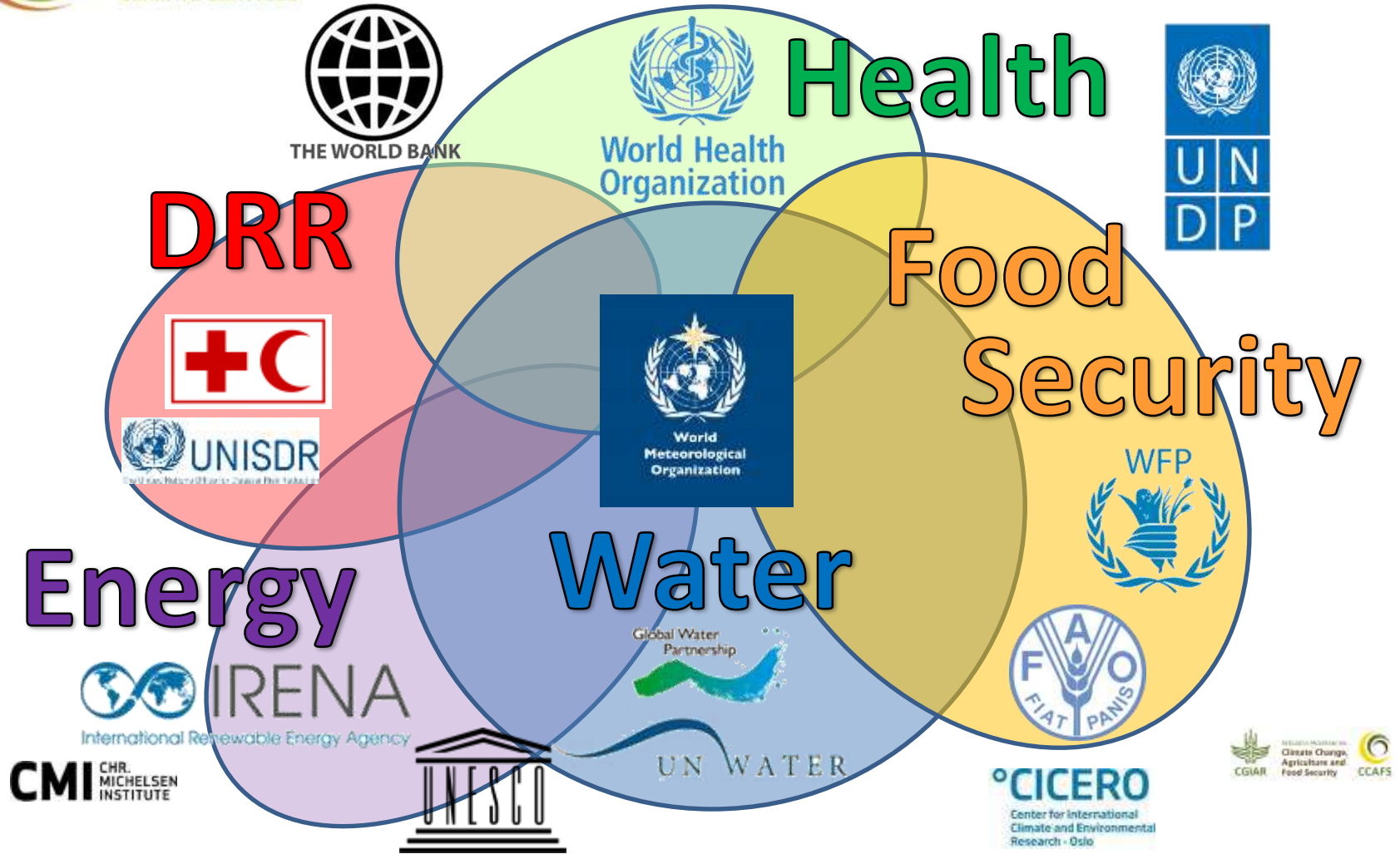
# Agenda 2030-Sustainable Development (2)

1. Unanimous agreement!
2. 3 dimensions: social, economic and environmental
3. 17 SDGs inter-connected
4. Transformative and inclusive agenda: leave no one behind
5. All countries involved
6. Engagement of non state actors (civil society, cities, regions, private sector, ...)
7. Several (most) SDGs sensitive to weather-water or climate parameters





# The Global Framework for Climate Services a partnership



**Successful adaptation will require substantially increased investment in climate services**

# Other key cross-cutting issues in the Mediterranean and the Middle East

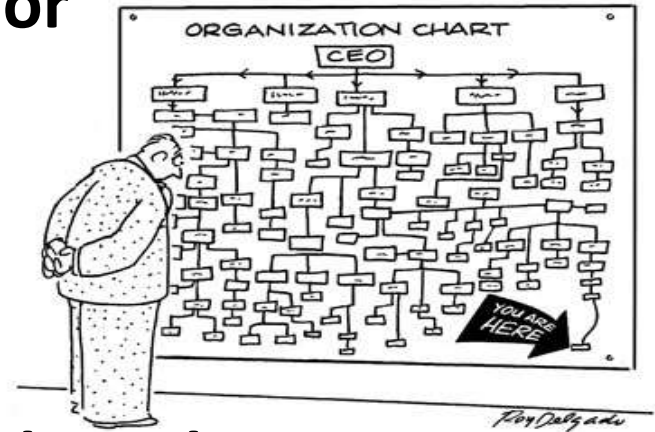
1. Migrations
2. Peace and security
3. Tourism
4. Urban issues



# The challenges (1)

## Cross-cutting issues

1. Most (all) SDGs and other major issues are cross-cutting
2. However, many organisations and structure were designed with specific thematic focus
3. Many disciplines do not have the culture to cooperate (e.g. climate and economics)
4. Very complex matrix to manage.
5. Need for more integrated management for key issues
6. Need for transboundary cooperation



# The challenges (2)

## Decision making



1. Decision making does not easily takes into account long (decades or longer) time scales
2. Past is increasingly misleading as predictor (climate change)
3. Decisions to be based on scenarios, probabilities
4. Multiplicity of decision makers and actors
5. Science plays a key role as alert launcher and also as provider of possible solutions





# A few (concluding) remarks

- **We have a huge responsibility. No other science has such an impact on so many people and so many activities on a daily basis**
- **A fundamental driving principle: global solidarity**
- **Our differences are minuscule compared to the collective interest of mankind**
- **Essential to have a long term vision**

***Crises are not only challenges. They are also opportunities***

شكرا

Merci

Ευχαριστώ

Thank you

WEATHER CLIMATE WATER  
TEMPS CLIMAT EAU



WMO OMM

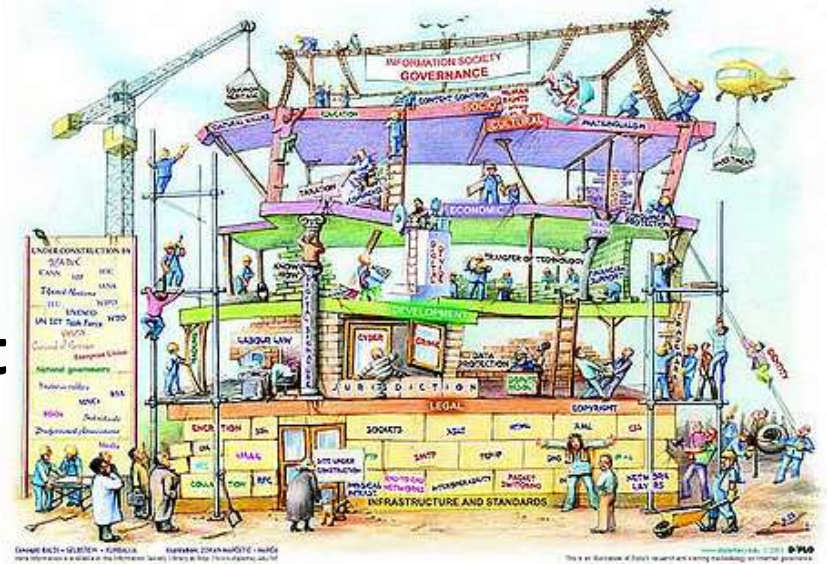
World Meteorological Organization

Organisation météorologique mondiale

# The challenges (3)

## Governance

1. Intergovernmental (e.g UN) approach still necessary but insufficient and requires major evolution
2. Need to review decision making process at international, but also at national level
3. Need to involve all stakeholders: civil society, local authorities, private sector at all levels (local, national, regional, international)
4. Need to devise new mechanisms for transboundary (even global) governance



# Climate Change scenarios and water security

- **Freshwater-related risks** of climate change increase significantly with increasing greenhouse gas concentrations. The fraction of global population experiencing water scarcity and the **fraction affected by major river floods increase** with the level of climate change in the 21st century.
- Climate change over the 21st century is projected to **reduce renewable surface water and groundwater resources** significantly in most dry subtropical regions intensifying competition for water among sectors.

Lake Chad 1972 / 2007

