Water & Climate Change

5 October 2021

Perspectives from WMO

WMO OMM

World Meteorological Organization
Organisation météorologique mondiale

Johannes Cullmann
Deputy Secretary-General
Climate change threatens sustainable development

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“Climate Indicators and Sustainable Development: Demonstrating the Interconnections” 22.IX.2021

“The future we want” 2015 +1.2°C
80% of the world’s population already suffers from serious threats to its water security: water availability, water demand and pollution.

Additional 8% would be exposed to new or aggravated water scarcity at 2°C of global warming.

Source: UN Water, SGD 6 Progress report, March 2021
State of the Global Climate: 2020 +1.2°C

Climate change => precipitation change
=> shifts in rainfall patterns & agricultural seasons => major impact on food security, human health...

2.3 billion people live under water-stress

Water is top priority in 79% NDCs
Total water loss in last 20 years

Loss 1 cm of water equivalent/ year
State of the Global Climate: 2020 +1.2°C

Figure 1: The number of undernourished people in the world continued to rise in 2020. Between 720 and 811 million people in the world faced hunger in 2020. Considering the middle of the projected range (768 million), 118 million more people were facing hunger in 2020 than in 2019 – or as many as 161 million, considering the upper bound of the range.

NOTES: * Projected values for 2020 in the figure are illustrated by dotted lines. Shaded areas show lower and upper bounds of the estimated range.
With every additional amount of global warming changes get larger

Annual mean precipitation

Simulated change at 1.5 °C global warming
Simulated change at 2 °C global warming
Simulated change at 4 °C global warming

Relatively small absolute changes may appear as large % changes in regions with dry baseline conditions

IPCC AR6 WG-I (2021)
With every additional amount of global warming changes get larger

Annual mean total column soil moisture

Simulated change at 1.5 °C global warming
Simulated change at 2 °C global warming
Simulated change at 4 °C global warming

Relatively small absolute changes may appear large when expressed in units of standard deviation in dry regions with little interannual variability in baseline conditions.

-1.5 -1.0 -0.5 0 0.5 1.0 1.5
Drier Change (standard deviation of interannual variability) Wetter

IPCC AR6 WG-I (2021)
Global water stress hotspots

- Western North America
- Western South America
- Mediterranean
- Sahel
- Northern Horn of Africa
- Central Asia
- Eastern Asia
- South Asia
- Southern Africa
- Southeast Australia

**Legend**

- **Global Water Stress Hotspot**
- **Spatial extent of affected areas within Global Water Stress Hotspots**

World Meteorological Organization 2021
Based on data from the Food and Agriculture Organization and the World Resources Institute
Knowledge priorities that we need to address

- How to support societies to understand and adapt to changing water resources, as glaciers and snow caps melt?

Basin scale contributions from snow and glacier meltwater to major river runoff - Asia
HYDRO CAPACITY AT A GLANCE

- 60% of Members do not have a good level of service
- 43% of Members have an inadequate interaction with users
Population at risk must receive warnings

Number of Members with alert systems, by hazard type

- Riverine floods: 44% Full/Advanced, 8% Basic/Essential, 12% Less than basic, 15% Unknown, 22% No system in place
- Flash floods: 28% Full/Advanced, 10% Basic/Essential, 12% Less than basic, 43% Unknown
- Drought: 27% Full/Advanced, 6% Basic/Essential, 6% Less than basic, 14% Unknown, 48% No system in place

Population at risk that receives warnings:

- > 66%
- 33% - 66%
- 0% – 33%
- ?
- 0%

46% of Member States have inadequate drought and flood forecasting systems
Only 33% are reaching 2/3 or more of the population at risk
Water stress is a global challenge

SDG 6
Global Acceleration Framework
Data & Information

Water and Climate Coalition
Empower countries – Ensure data access – HydroSOS – Risk assessment
Water and Climate Coalition Leaders

Mr. Emomali Rahmon
President, Republic of Tajikistan

Mr. János Áder
President, Hungary

Mrs. Hilda Heine
Past President, Republic of the Marshall Islands

Mr. Komi Séllom Klassou
Past Prime Minister, Republic of Togo

Mr. Han Seung-soo
Past Prime Minister, Republic of Korea

Mr. Carl-Hermann Gustav Schlettwein
President AMCOW; Minister, Republic of Namibia

Mrs. Cora van Nieuwenhuizen
Minister of Infrastructure and Water Management, Kingdom of the Netherlands

Mr. Abdelkader Amara
Minister, Kingdom of Morocco

Mrs. Hannele Pokka
Professor, Past Minister, Republic of Finland

Mrs. Haydée Rodríguez
Vice Minister, Republic of Costa Rica

Mr. Gilbert Houngbo
Chair UN-Water; President IFAD

Mr. Petteri Taalas
Secretary General WMO

Mr. Howard Bamsey
Chair Global Water Partnership

Mrs. Lindsey Blodgett
World Youth Parliaments for Water

Mr. Matthias Berninger
SVP Public Affairs & Sustainability BAYER

Mr. Ernest Gibson
UN Secretary-General’s Youth Advisory Group on Climate Change
Tangible desired outcomes of the Coalition

- Global water observing system
- Financing for societal benefits in water & climate development
- Cooperation sharing benefits of river basin scale adaptation activities
- Unified mechanism for integrated climate and water stocktake
- International mechanism to monitor and address water loss from melting cryosphere
Every bit of warming matters.
Every life matters.
Climate and water action can reduce risk and save millions from floods and droughts.

The water crisis can be mitigated.
Reverse the current trend of loosing water.

Integrate water and climate monitoring & information systems.
Establish common practices for water & climate impact assessment.

Water can unite.
Agree on transboundary benefit sharing arrangements.

No nation can resolve water challenge alone!
Thank you