

Water & Climate Change

5 October 2021

Perspectives from WMO










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World Meteorological Organization
Organisation météorologique mondiale

Johannes Cullmann
Deputy Secretary-General

SDGs & Indicators

Climate change threatens sustainable development

		1 NO POVERTY	2 ZERO HUNGER	3 GOOD HEALTH AND WELL-BEING	6 CLEAN WATER AND SANITATION	7 AFFORDABLE AND CLEAN ENERGY	8 DECENT WORK AND ECONOMIC GROWTH	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	10 REDUCED INEQUALITIES	11 SUSTAINABLE CITIES AND COMMUNITIES	13 CLIMATE ACTION	14 LIFE BELOW WATER	15 LIFE ON LAND	16 PEACE, JUSTICE AND STRONG INSTITUTIONS
		SDG 1	SDG 2	SDG 3	SDG 6	SDG 7	SDG 8	SDG 9	SDG 10	SDG 11	SDG 13	SDG 14	SDG 15	SDG 16
	CO ₂ Concentration													
	Ocean Acidification													
	Global Mean Surface Temperature													
	Ocean Heat Content													
	Sea Ice Extent													
	Glacier Mass Balance													
	Sea Level Rise													

“The future we want”

2015
+1.2°C



SDG 6 – we are not on track



6.4.2 WATER STRESS

FAO



2.3 billion people **live in water-stressed countries**

of which **721 million** live in high and critically water-stressed countries

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.

IPCC WG-II, AR5

6.5.1 INTEGRATED WATER MANAGEMENT



129 countries are **not on track** to have sustainably managed water resources by 2030

Globally, the current rate of progress **needs to be doubled**

UNEP

6.a.1 INTERNATIONAL COOPERATION



Official development assistance (ODA) commitments to the water sector increased

11%

from 2015 to 2019, but disbursements only rose by 3%

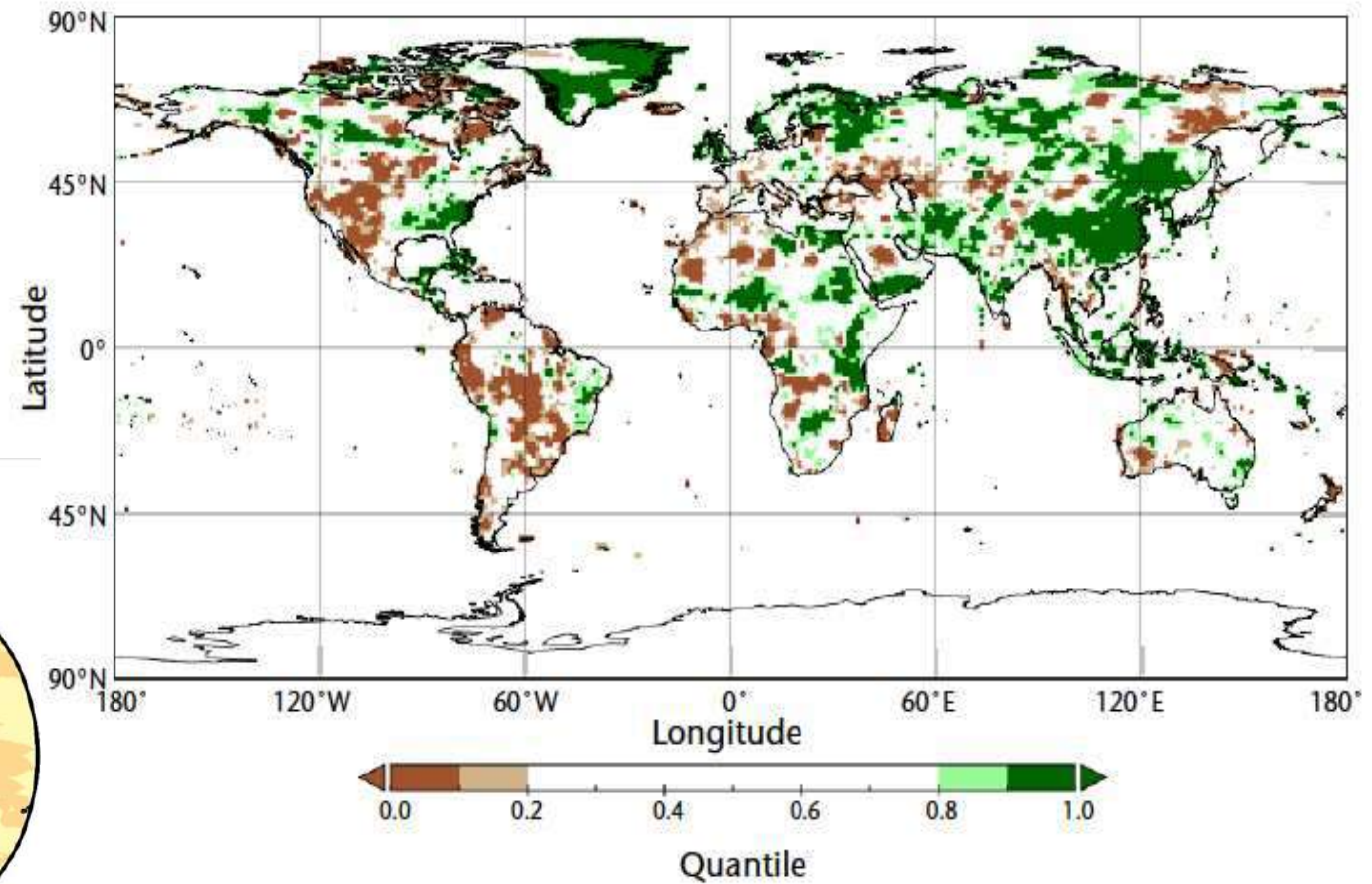
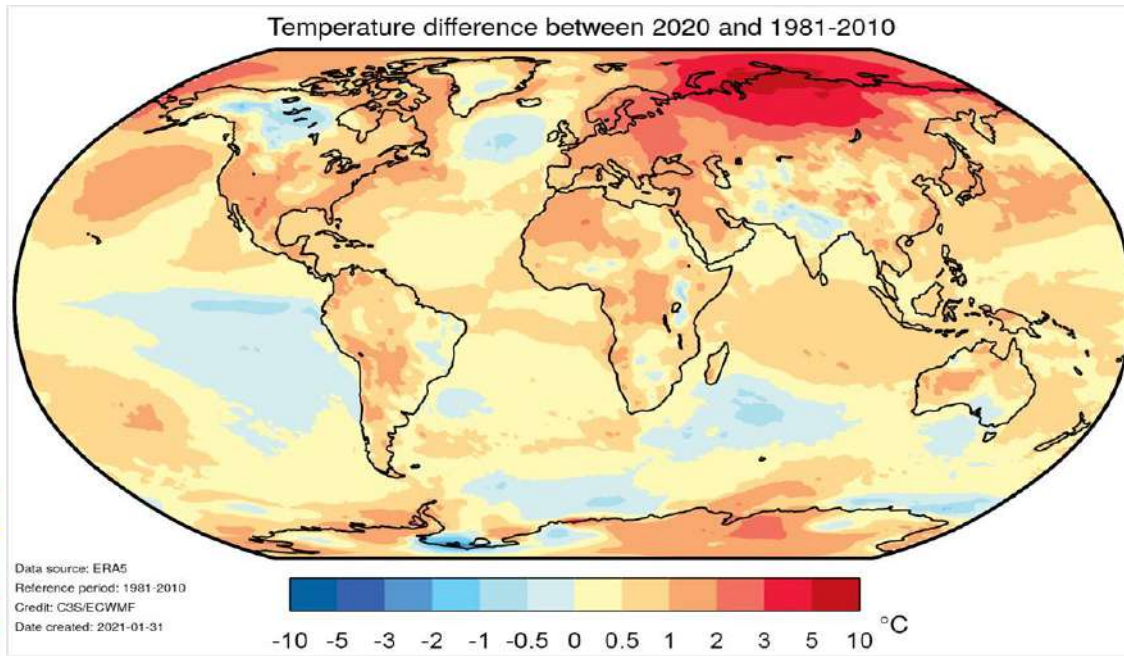


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Source: UN Water, SGD 6 Progress report, March 2021

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

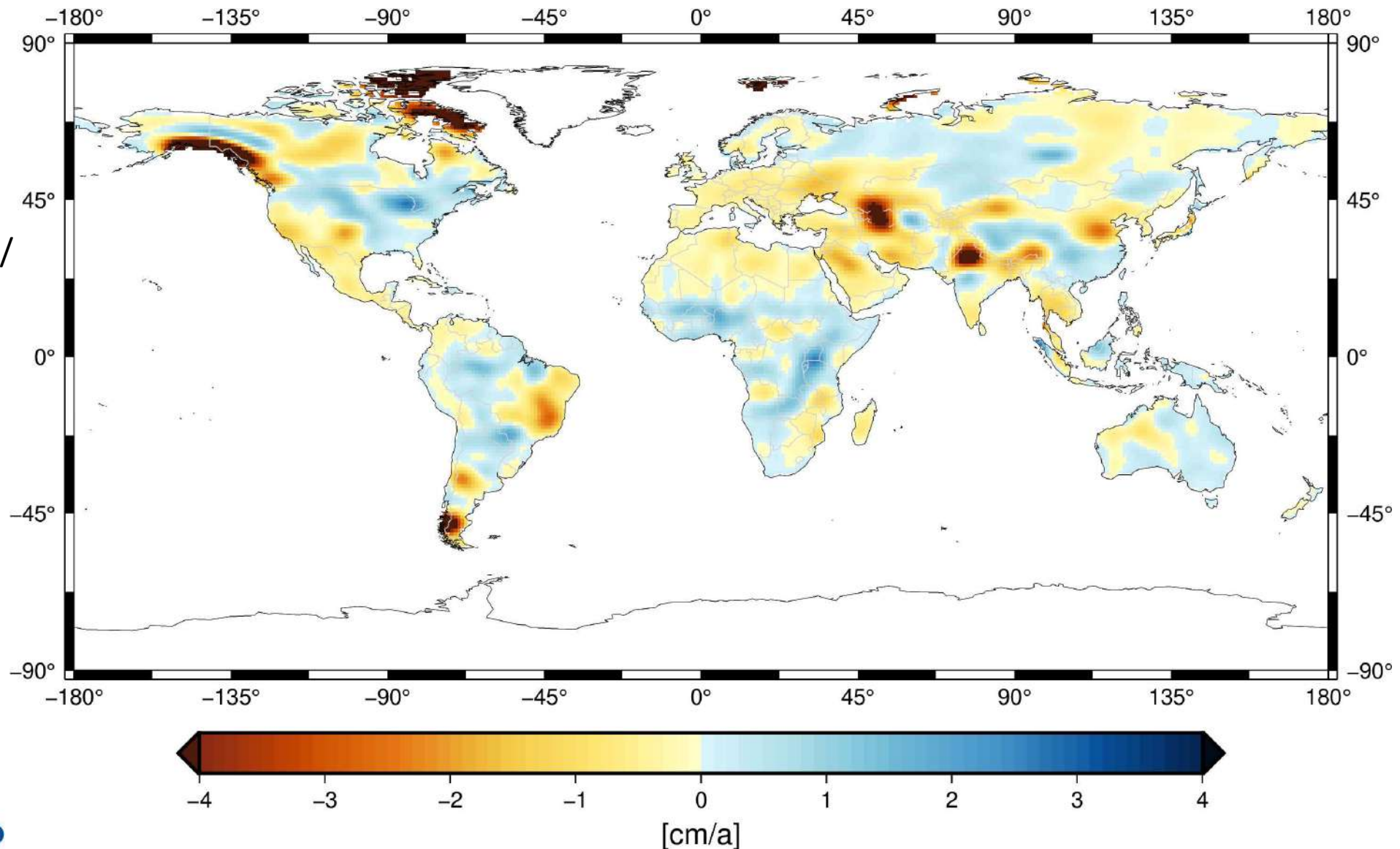
Water is top priority in 79% NDCs



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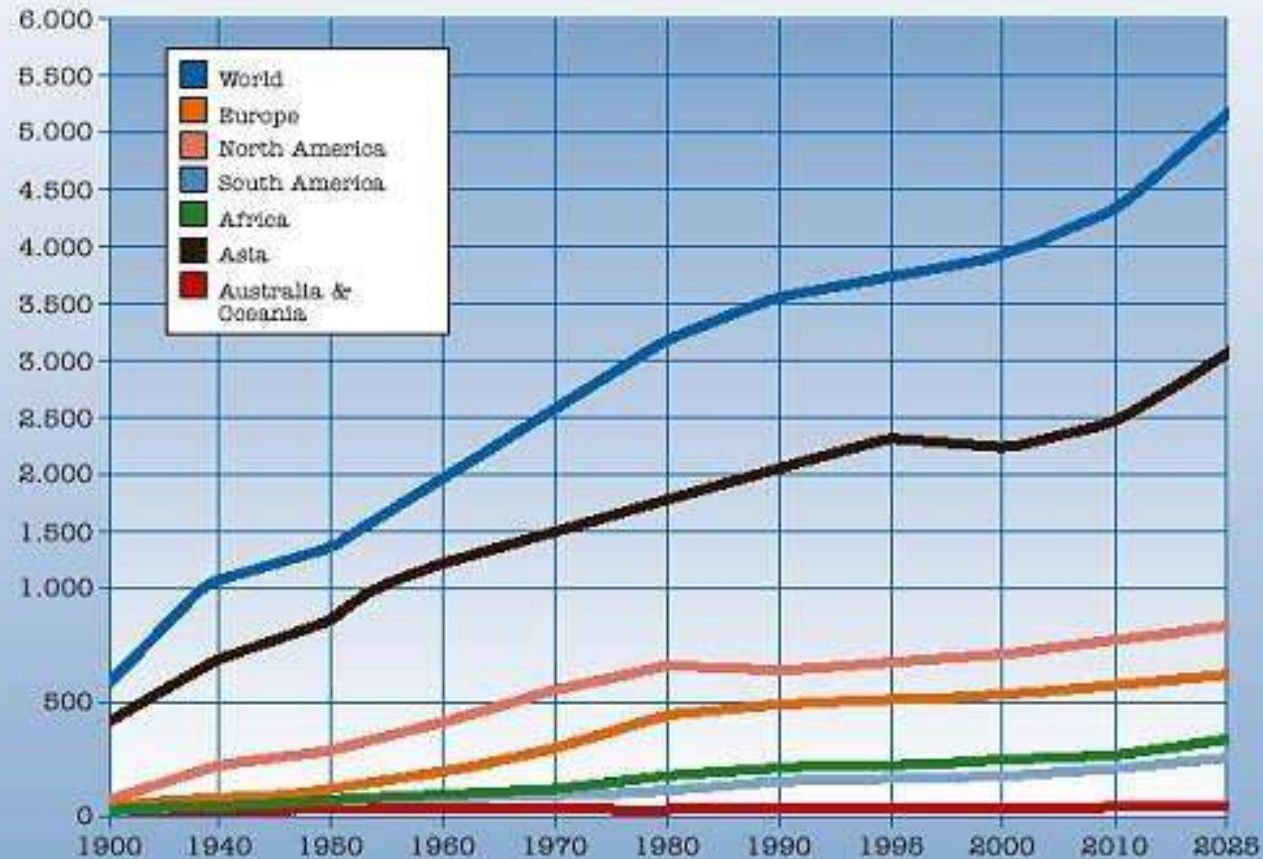
Total water loss in last 20 years

Loss 1 cm of
water equivalent/
year



Global Water Consumption 1900 - 2025

(by region, in billion m³ per year)



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Source: wrsc.org, World Resources SimCenter

State of the Global Climate: 2020 +1.2°C

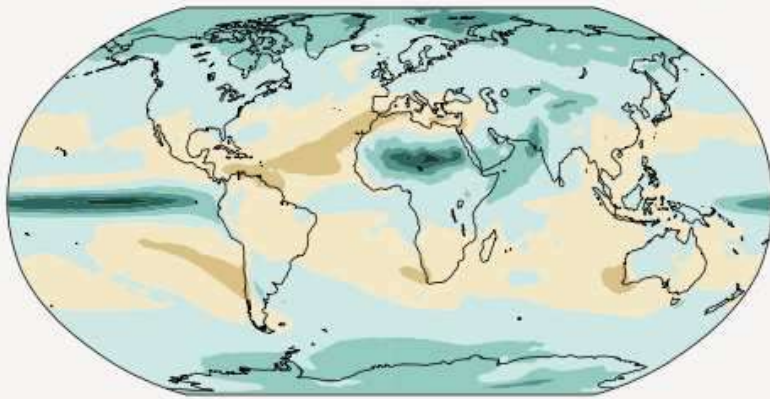
FIGURE 1 THE NUMBER OF UNDERNOURISHED PEOPLE IN THE WORLD CONTINUED TO RISE IN 2020. BETWEEN 720 AND 811 MILLION PEOPLE IN THE WORLD FACED HUNGER IN 2020. CONSIDERING THE MIDDLE OF THE PROJECTED RANGE (768 MILLION), 118 MILLION MORE PEOPLE WERE FACING HUNGER IN 2020 THAN IN 2019 – OR AS MANY AS 161 MILLION, CONSIDERING THE UPPER BOUND OF THE RANGE



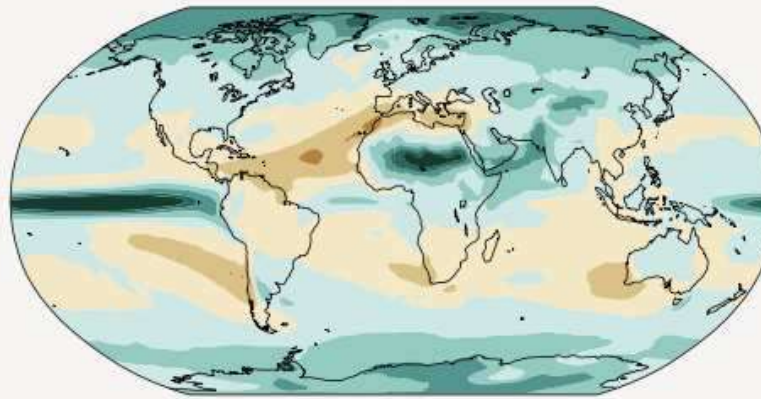
With every additional amount of global warming changes get larger

Annual mean precipitation

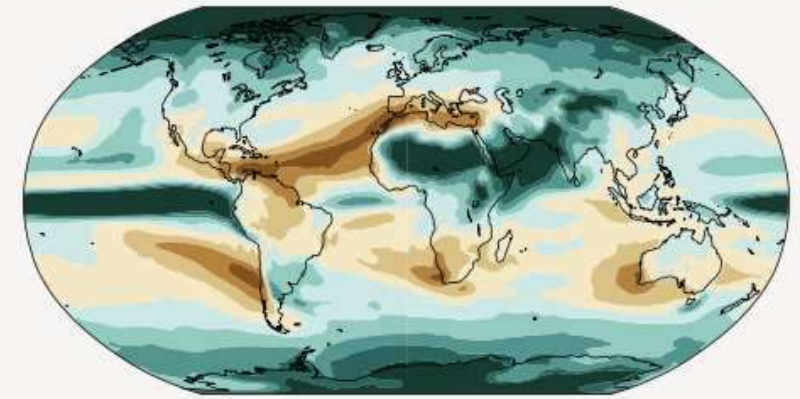
Simulated change at 1.5 °C global warming



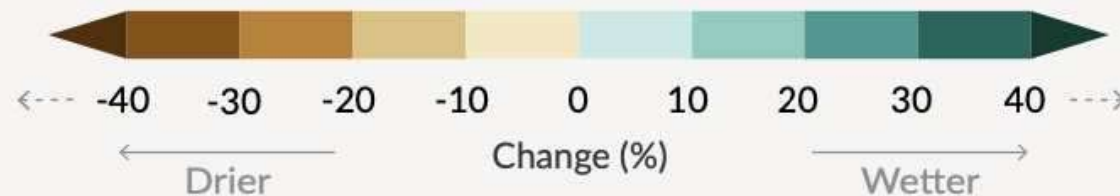
Simulated change at 2 °C global warming



Simulated change at 4 °C global warming



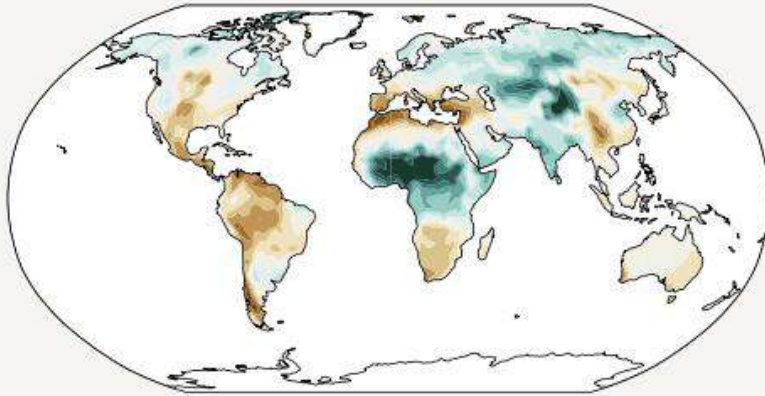
Relatively small absolute changes may appear as large % changes in regions with dry baseline conditions



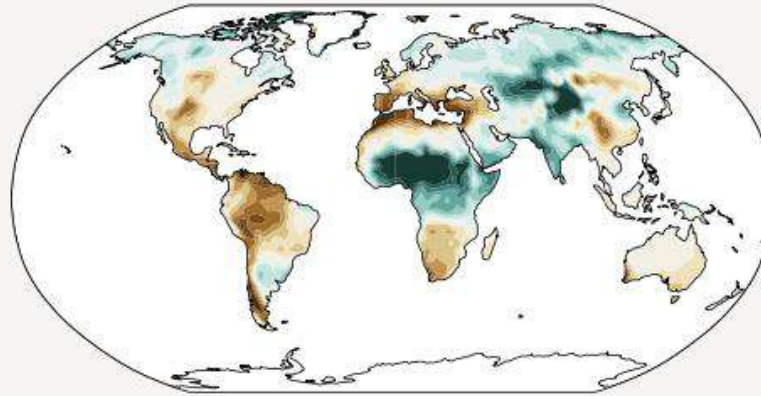
With every additional amount of global warming changes get larger

Annual mean total column soil moisture

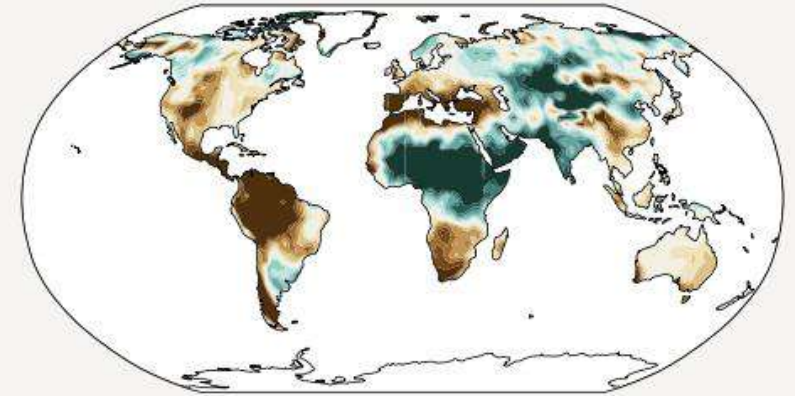
Simulated change at 1.5 °C global warming



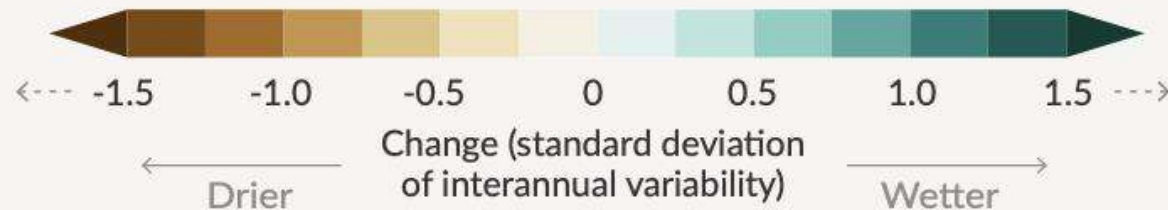
Simulated change at 2 °C global warming



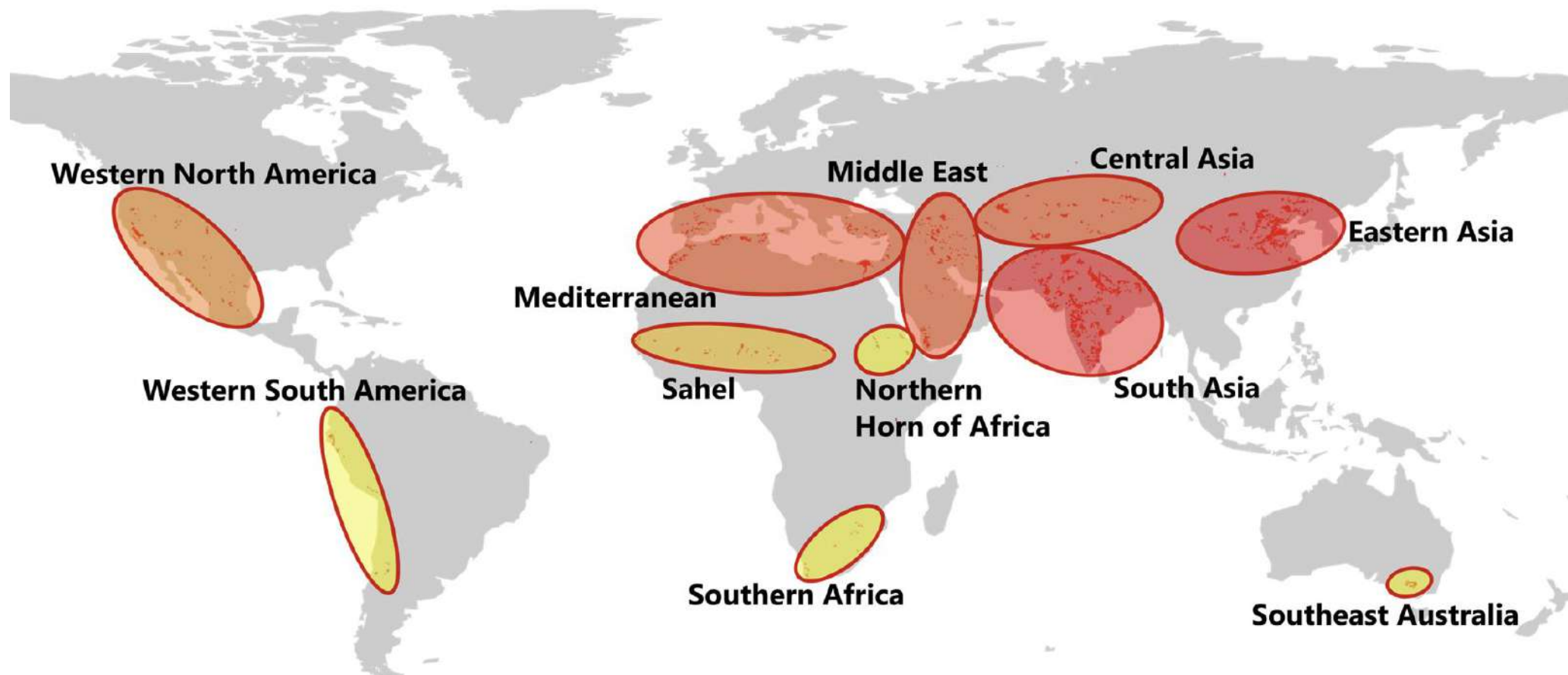
Simulated change at 4 °C global warming



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



Global water stress hotspots



Global Water Stress Hotspot

Large

Small

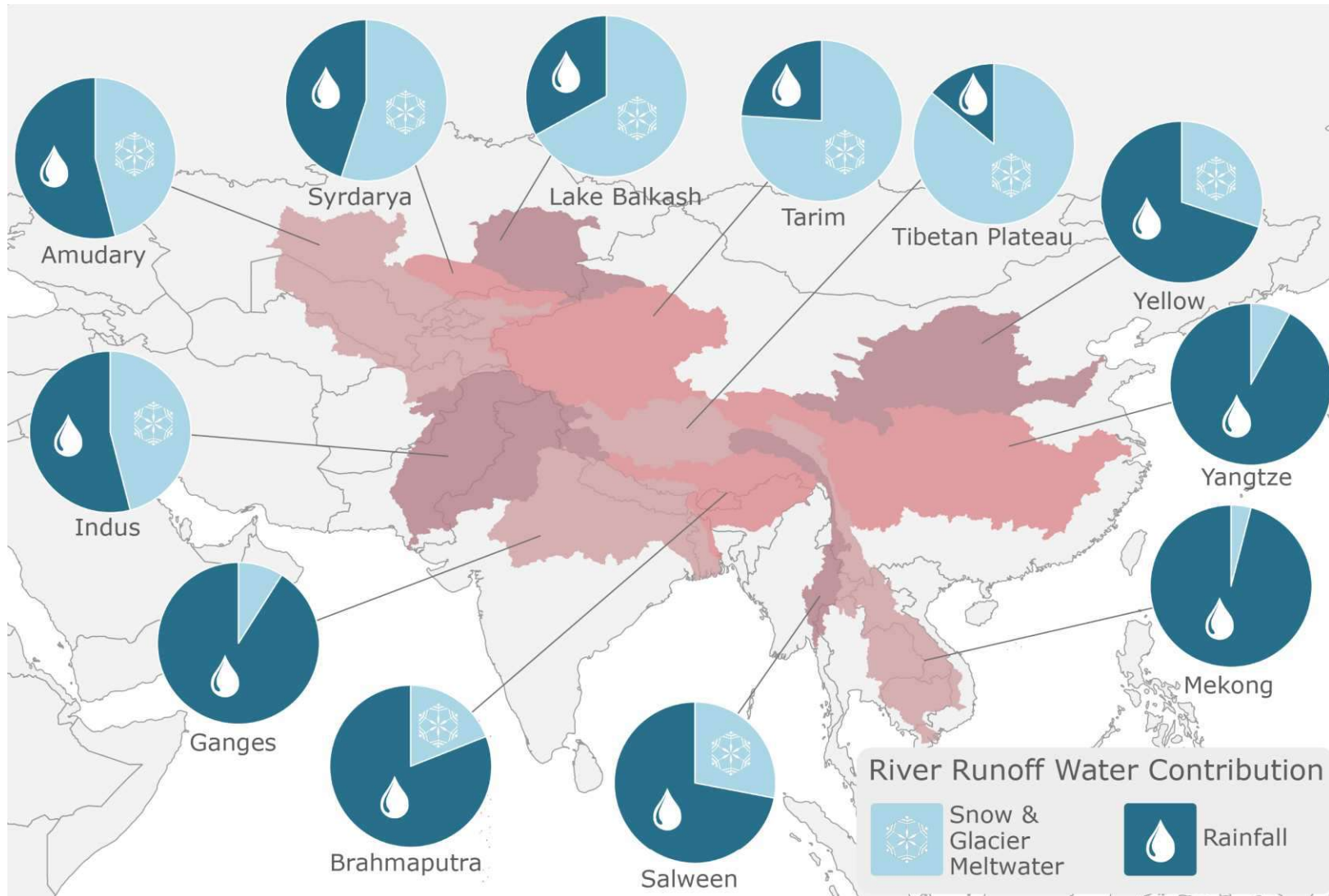
Spatial extent of affected areas within
Global Water Stress Hotspots

World Meteorological Organization 2021
Based on data from the Food and
Agriculture Organization and the World
Resources Institute



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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?

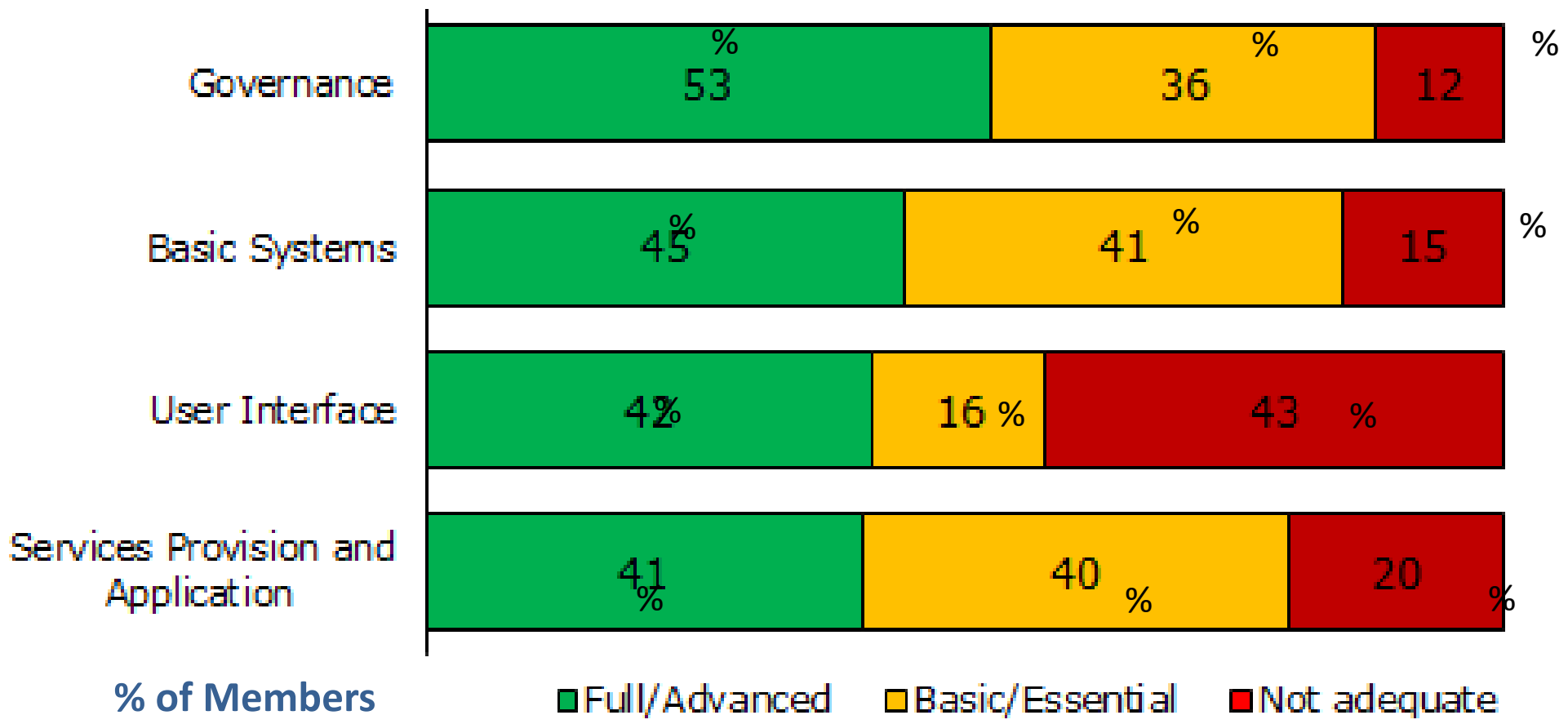


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Basin scale contributions from snow and glacier meltwater to major river runoff - Asia

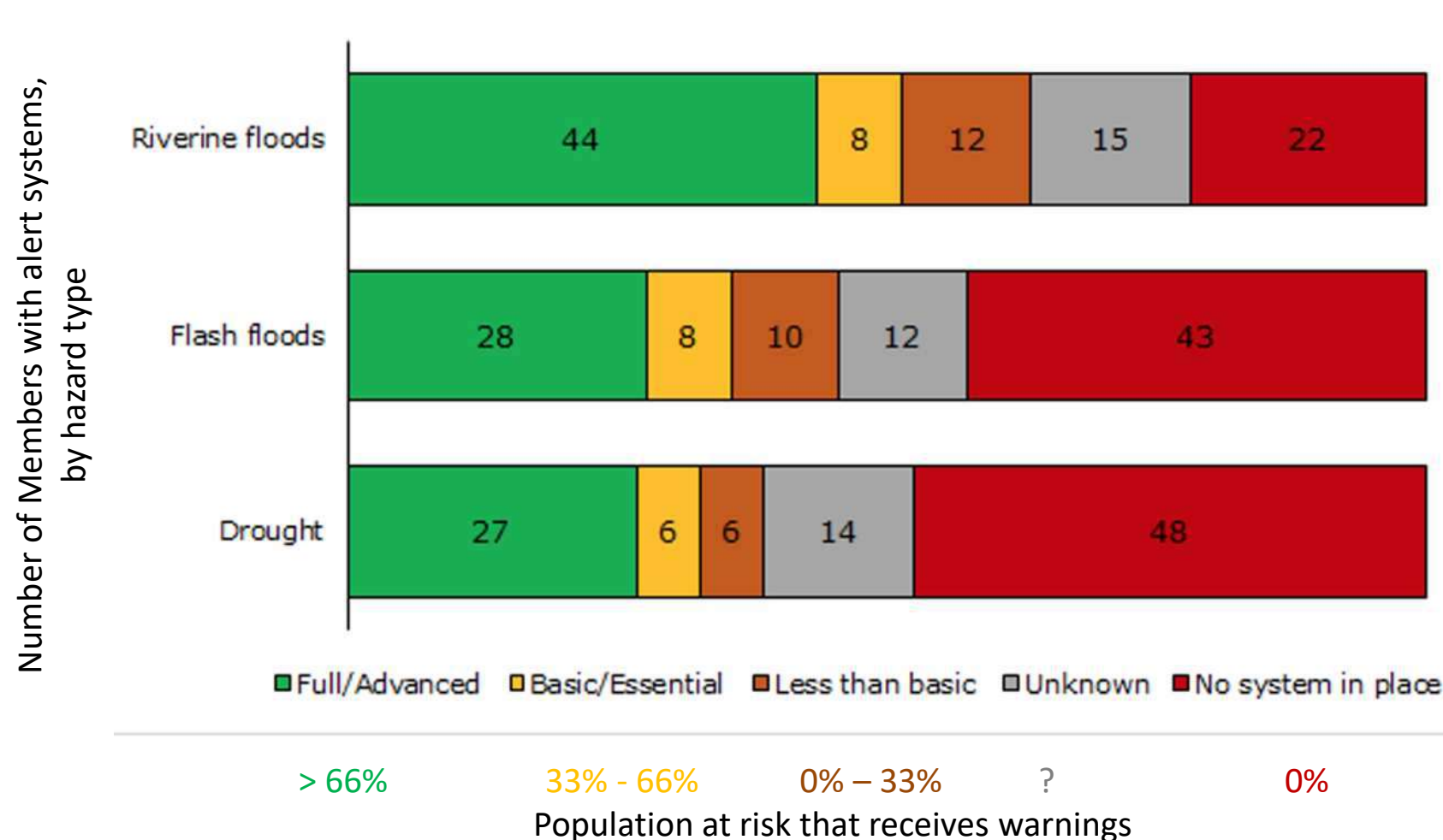


HYDRO CAPACITY AT A GLANCE



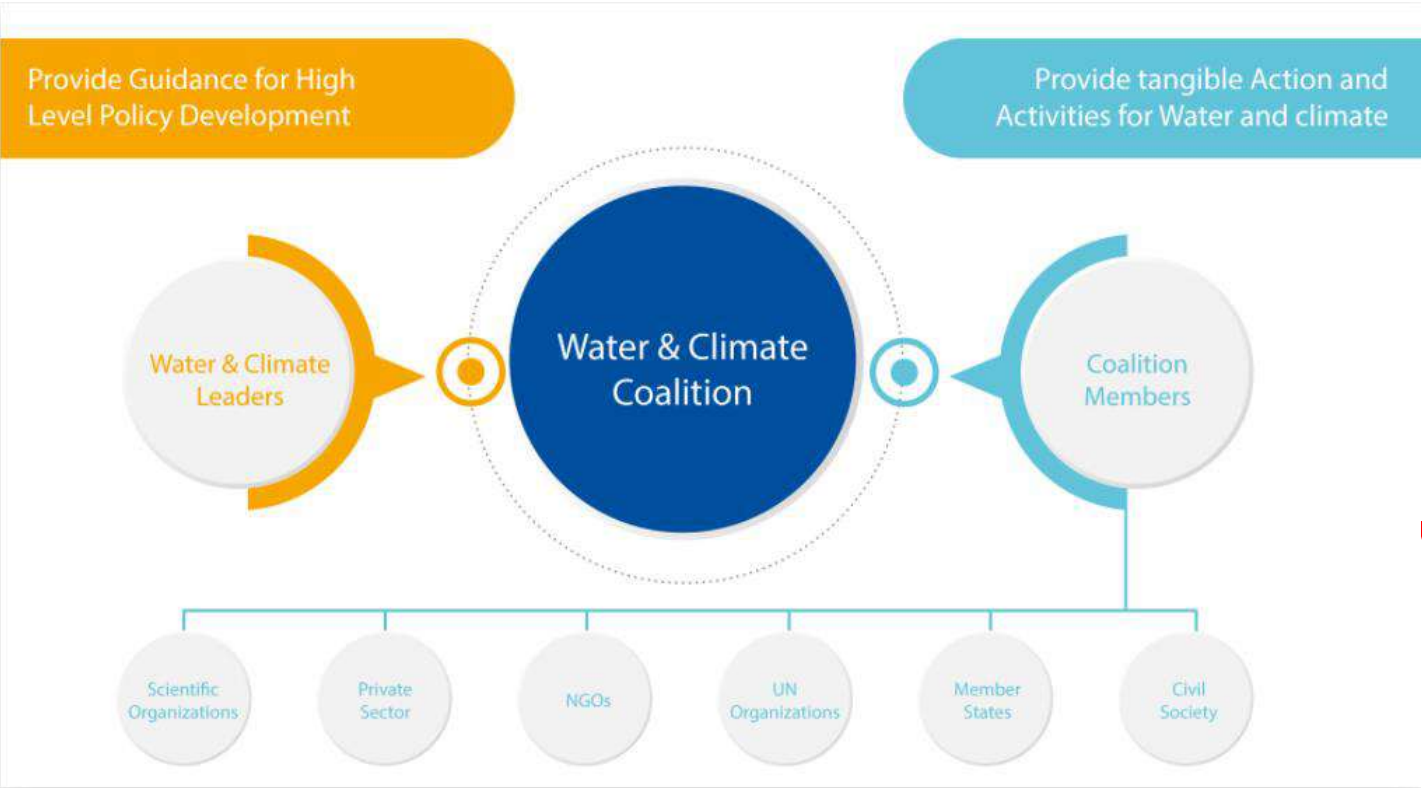
- 60% of Members do not have a good level of service
- 43% of Members have an inadequate interaction with users

Population at risk must receive warnings

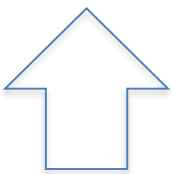


46% of Member States have inadequate drought and flood forecasting systems
Only 33% are reaching 2/3 or more of the population at risk

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 Sélom 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



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Key messages

1

Every bit of warming matters.
Every life matters.

Climate and water action can
reduce risk and save millions
from floods and droughts

3

Integrate water and climate
monitoring & information
systems.

Establish common practices for
water & climate impact
assessment.



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

2

Water can unite.

Agree on transboundary
benefit sharing arrangements.

4

No nation can resolve water challenge alone!



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Thank you



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