

# WMO – Hydrology and water resources

**Dr. Hwirin Kim**

Head, Hydrological and Water Resources  
Services Division, WMO

hkim@wmo.int



**WMO OMM**

World Meteorological Organization

Organisation météorologique mondiale

# Introduction to WMO

- Set up on 23 March 1950
- Successor to International Meteorological Organization (IMO, created in 1873)
- Specialized agency of the United Nations for meteorology (weather and climate), [operational hydrology](#) (*Annex -1 Res. 24, Cg-18*) and related geophysical sciences.
- UN system's authoritative voice on the state and behavior of the Earth's atmosphere, its interaction with the oceans, the climate it produces and the resulting distribution of water resources.
- **Technical Support and Services to 193 Member States**



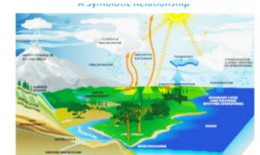
Weather



Climate



Water



Environment



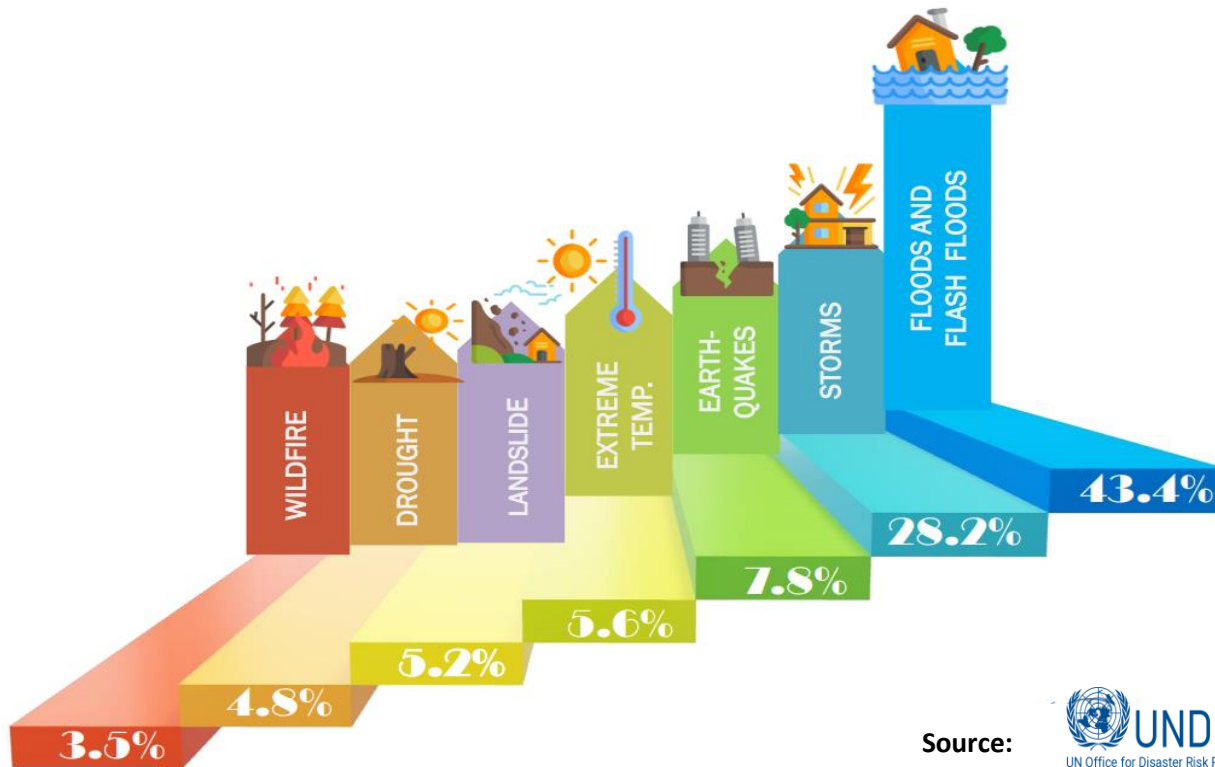
Research



Capacity development



# Disasters in Numbers



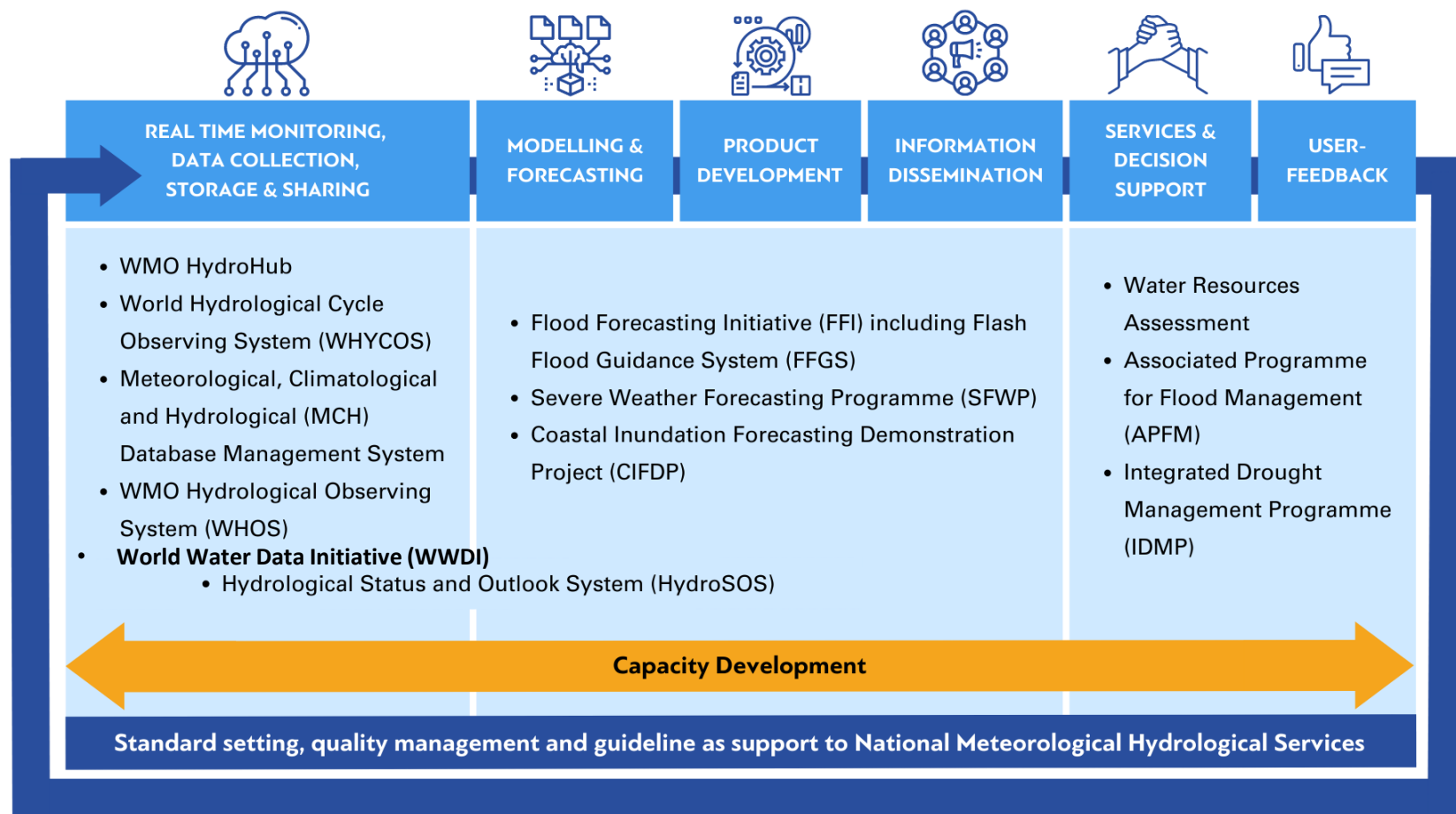
- Between 2000 to 2019 – Over 7000 major recorded disasters
- Millions of lives lost, and billions affected
- US\$ 2.97 trillion in global economic losses
- Floods and droughts together account for nearly half of all the disasters worldwide

Source:



# Value Chain from Data to Decision-Making

## WMO Hydro related Initiatives



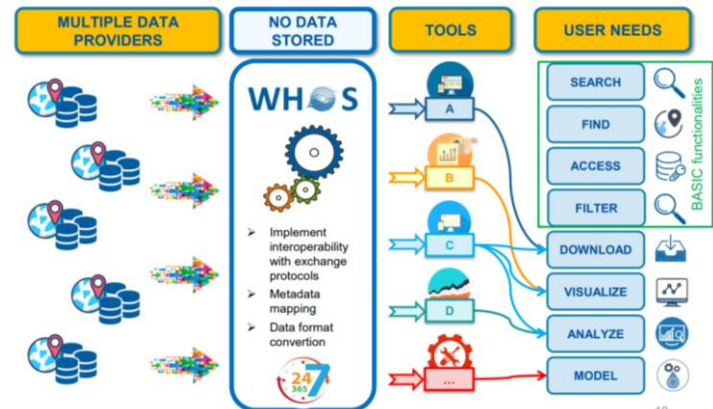
# WMO – Long Term Ambitions in Hydrology

1. No one is surprised by a flood;
2. Everyone is prepared for drought;
3. Hydro-climate and meteorological data support the food security agenda;
4. High-quality data supports science;
5. Science provides a sound basis for operational hydrology;
6. We have a thorough knowledge of the water resources of our world;
7. Sustainable development is supported by information covering the full hydrological cycle;
8. Water quality is known



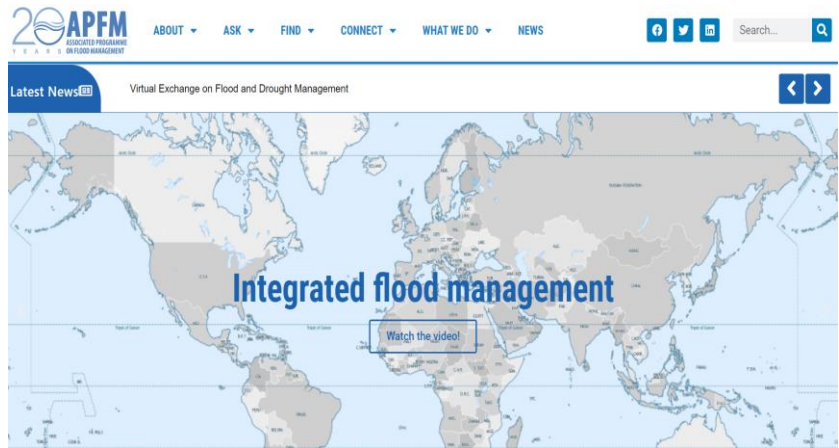
# Snapshot of Hydrology Initiatives

- Quality Management Framework
- Assessment of the performance of flow measurement instruments and techniques
- The Global Hydrometry Support Facility (HydroHub)
- Hydrological data operations and management: WMO Hydrological Observing System (WHOS)



# Snapshot of Hydrology Initiatives

## WMO Flood Forecasting Initiative – APFM, IDMP, FFGS



**IDMP**  
Integrated Drought Management Programme

WORLD METEOROLOGICAL ORGANIZATION  
Global Water Partnership

Home About HelpDesk Resources Activities Drought Resilience +10 Search...

The IDMP supports governments and other stakeholders at all levels on implementing Integrated Drought Management by providing policy, technical and management guidance and by sharing scientific knowledge and best practices.

### News

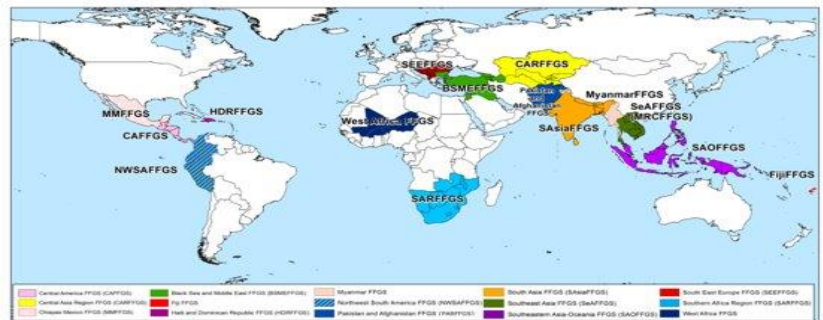


### IDMP Helpdesk



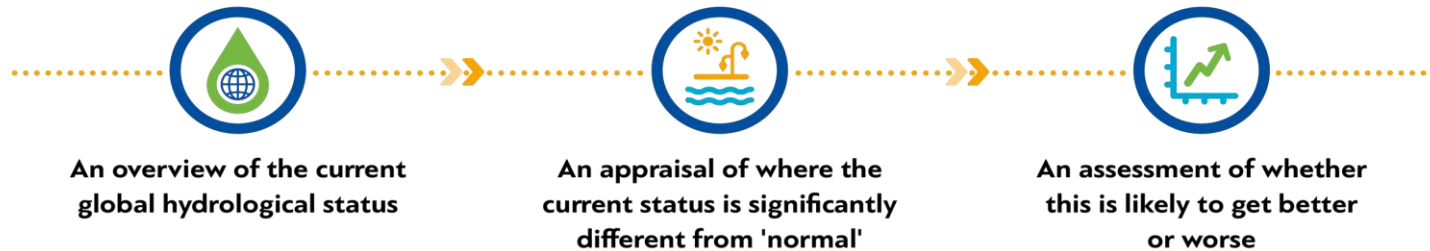
WORLD METEOROLOGICAL ORGANIZATION USAID FROM THE AMERICAN PEOPLE Environment and Climate Change Canada

### FLASH FLOOD GUIDANCE SYSTEM WITH GLOBAL COVERAGE



# Snapshot of Hydrology Initiatives

- WMO Global Hydrological Status and Outlook System (HydroSOS)





# Snapshot of Hydrology Initiatives

## Capacity building in hydrology and water resources management



## The World Water Data Initiative (WWDI)

# WMO and Emerging Technologies

- Through Public Private Engagement (PPE) – piloting AI based flood forecasting
- Hydrohub Innovation Call
- Research call for proposals – Use of drones for hydrometry or rating curves/riverbed profiling
- Integrated urban services and use of IoT sensors

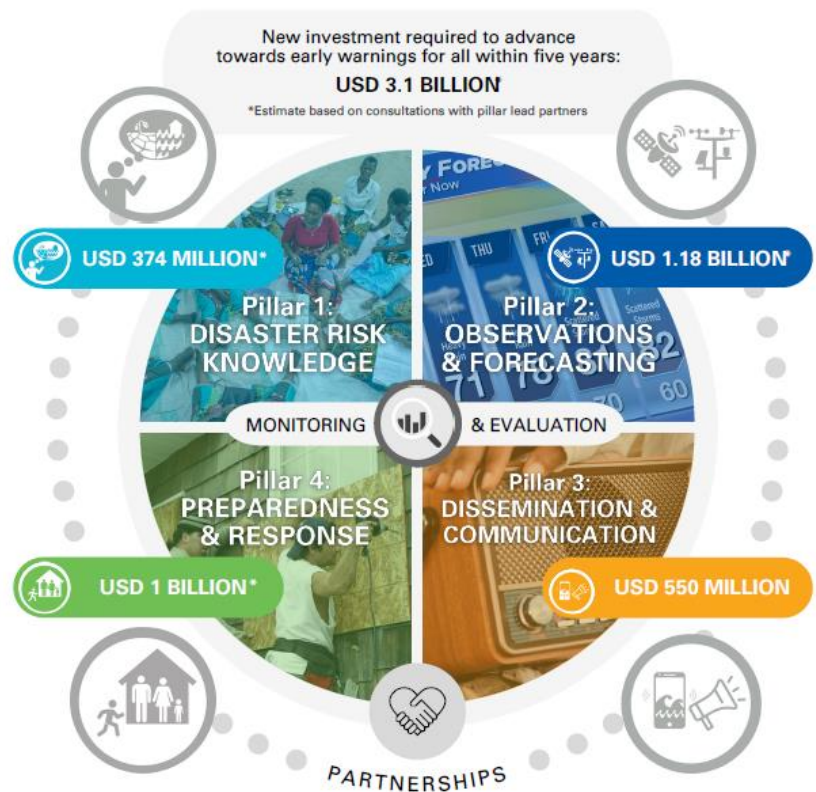


# EARLY WARNINGS FOR ALL (EW4All)

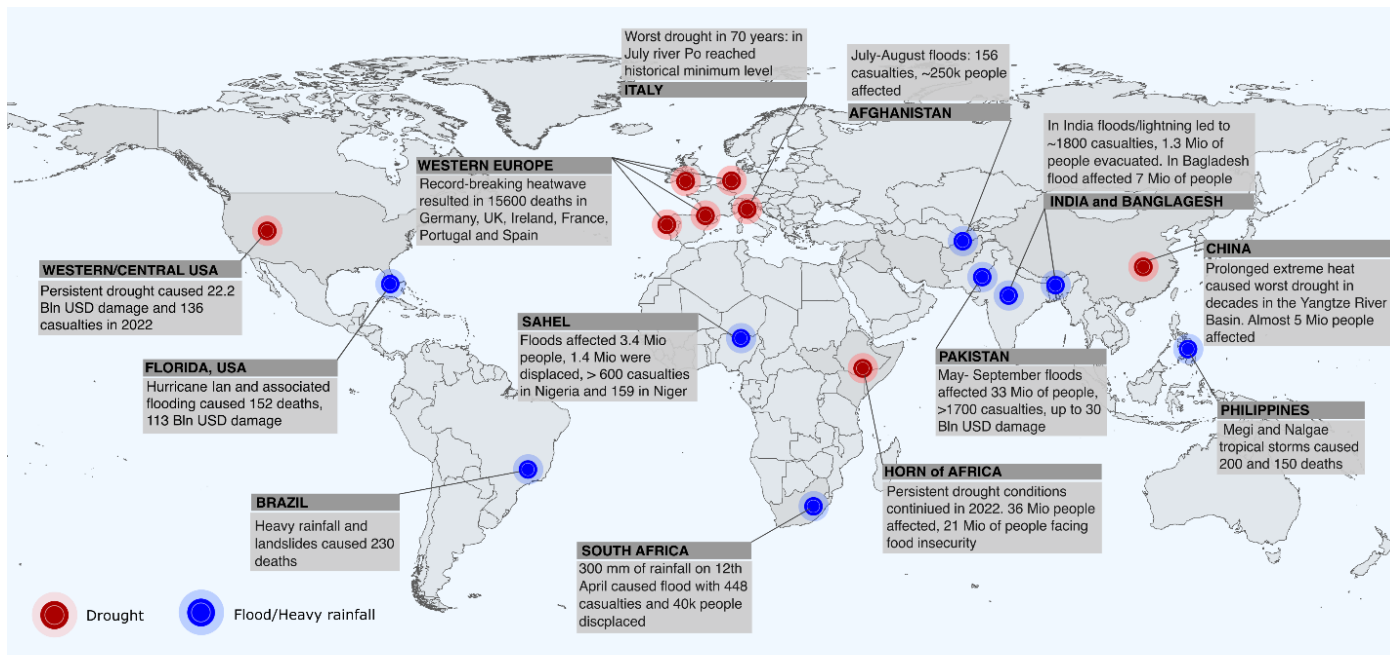
- In March 2022, United Nations Secretary-General, António Guterres, announced the United Nations would spearhead new action to ensure every person on Earth is protected by early warning systems within five years. He tasked the World Meteorological Organization to lead this effort.

## Pillar Leads:

- Pillar 1: UNDRR
- Pillar 2: WMO
- Pillar 3: ITU
- Pillar 4: IFRC

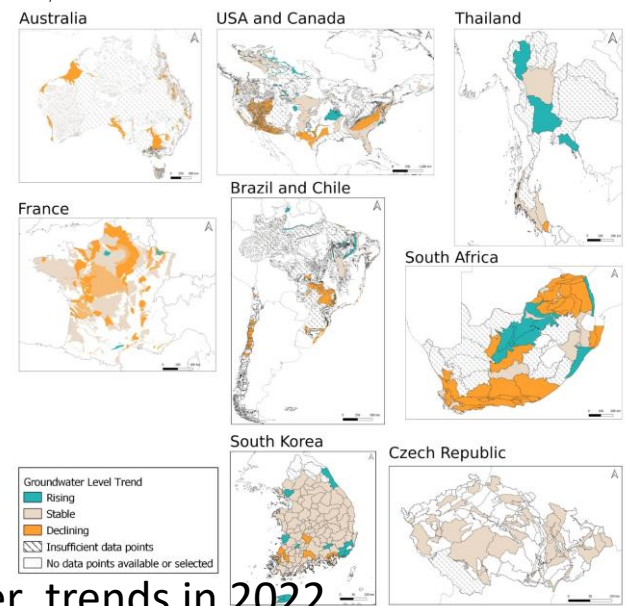
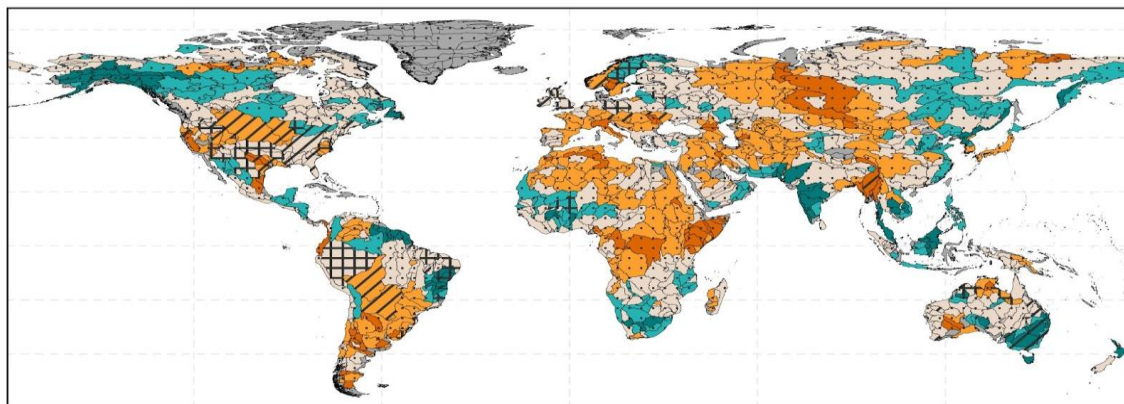


# State of Global Water Resources 2022



Sources: WMO Global State of the Climate Report 2022, EM-DAT, 2023; World Bank; ReliefWeb and others

## Selected High Impact Hydrological Events 2022



# Thank you



**WMO OMM**

World Meteorological Organization  
Organisation météorologique mondiale