WMO Drought Activities

Petteri Taalas
Secretary-General

International Seminar on Drought and Agriculture
FAO, Rome, 19 June 2017
“Climate is the primary world power”

Philosopher Baron de Montesquieu (1689-1755)

De l’Esprit des Loix, 1748 (partie III, livre XIX, chapitre XIV, paragraphe VI): “L’empire du climat est le premier de tous les empires”.

Philosopher Baron de Montesquieu (1689-1755)
Global risks landscape 2017

World Economic Forum
Global temperature 1880-2016

Average

Increase

ECMWF

WMO OMM
Global Ocean Heat Content

- Pentadal average 0-700 m through 2012-2016
- Pentadal average 0-2000 m through 2012-2016

NOAA/NESDIS/NODC Ocean Climate Laboratory
Updated from Levitus et al. 2012
Arctic sea ice volume 1979-2016: -74 %
Growing number of weather related disasters
Global Disaster Statistics (1970-2012)

(a) number of reported disasters
Total = 8,835 disasters (1970–2012)

(b) reported deaths
Total = 1,944,653 deaths (1970–2012)

(c) reported economic losses
Total = US$ 2,390.7 billion (1970–2012)

((a) Droughts | Extreme Temperature | Floods | Mass Movement Wet | Storms | (b) Wildfires | (c) (in US$ billion, adjusted to 2012))
World map of natural hazards

Source: Munich Re 2011
Global adaptation index

2014 Annual Scores for 157 Countries

Univ. Notre Dame
Impacts of hydrometeorological and climatological hazards (1955–2014)

Human losses by decade (millions)

Economic losses by decade (billions of US$ adjusted to 2013)

Reduction of the number of victims thanks to greater effectiveness of early warning systems and prevention measures
Precipitation anomalies 2016
GPCC Precipitation Percentile
January 2016 – December 2016
(reference period 1951–2010)
NO EMISSION CUTS

NOW => 2081-2100
2000-2500?
Various emission pathways:
Improved weather forecasts

Improvements in anomaly correlation of 500 hPa height forecasts of the European Centre for Medium-Range Weather Forecasts (ECMWF) for the northern and southern hemispheres linked to the increase in satellite observations and skill of numerical models
Weather to climate: seamless framework for GFCS

- Forecast lead time:
  - Minutes
  - Hours
  - Days
  - 1 Week
  - 2 Weeks
  - Months
  - Seasons
  - Years
  - Decades
  - Centuries

- Forecast uncertainty:
  - Climate scenarios and projections

- Socioeconomic benefits:
  - Warnings and alert coordination
  - Watches
  - Forecasts
  - Guidance
  - Threat assessment

Adapted from NOAA 2011
3 Pillars of Integrated Drought Management

**MONITORING/EARLY WARNING**
Drought status

**MITIGATION & PREPAREDNESS**
Actions and measures to mitigate drought impacts and prepare to respond to drought emergencies more effectively

**VULNERABILITY & IMPACT ASSESSMENT**
Who/What is at risk & Why?
Prioritization/Ranking

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INTEGRATED DROUGHT MANAGEMENT

DROUGHT CHARACTERIZATION STUDIES

FEEDBACK
UN level challenges and opportunities

- Challenge: work in silos, overlapping and competing activities
- Too little action at country level, meetings & speeches instead

WMO, partnerships

- FAO: weather & climate services for local farmers, El Nino
- WHO: climate-air quality-health
- UNDP & World Bank: sustainability/climate resilience of investments
Integrated Drought Management Programme (IDMP)

• Established in 2013 at HMNDP

• Main co-sponsors WMO and Global Water Partnership along with over 30 other organizations including FAO & UNCCD

• Supports stakeholders at all levels by providing policy and management guidance and by sharing scientific information, knowledge and best practices for Integrated Drought Management.

• Contributes to global coordination of drought-related efforts of existing organizations & agencies
Drought Projects

  – Eastern Europe, Latin America, Asia-Pacific, North Africa and Western Asia East and Southern Africa, West Africa

• IDMP Regional Projects
  – Central and Eastern Europe (since 2013)
  – Horn of Africa (since 2014)
  – West Africa (since 2015)
  – South Asia Drought Monitoring System (since 2014) – with IWMI
  – Central America (since 2013).
  – South America (since 2015) - Developing South American Drought Monitoring System
  – Pacific Islands (since 2016)
Drought Publications

AGRICULTURAL DROUGHT INDICES
PROCEEDINGS OF AN EXPERT MEETING

2 - 9 JUNE 2010, MURCIA, SPAIN

Handbook of Drought Indicators and Indices

Integrated Drought Management Programme

National Drought Management Policy Guidelines
A Template for Action

Integrated Drought Management Programme
Thank you