

# DROUGHT, WATER STRESS AND FOOD SECURITY ISSUES: A REVIEW FROM GLOBAL PERSPECTIVE

IAIA23 Conference  
Kuching, Sarawak, Malaysia

CHIZOBA CHINWEZE

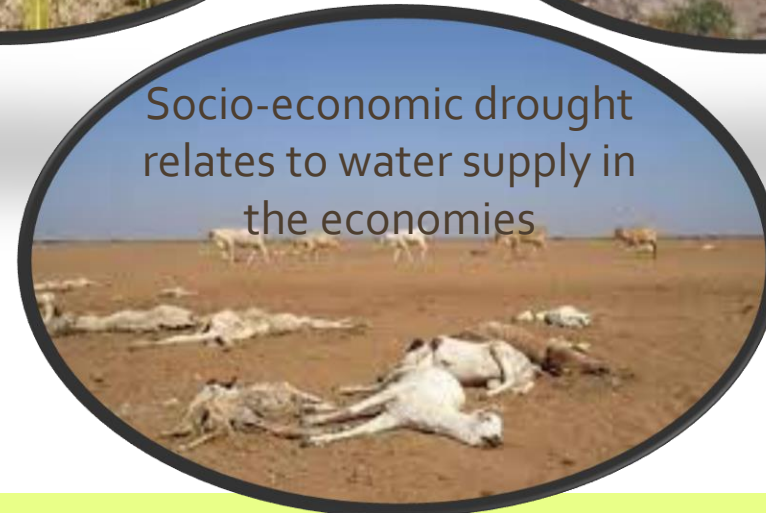
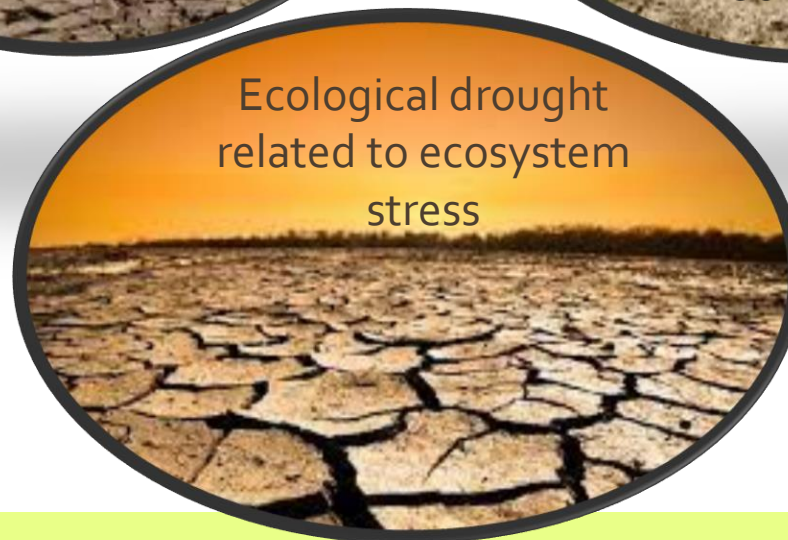


# What is Drought

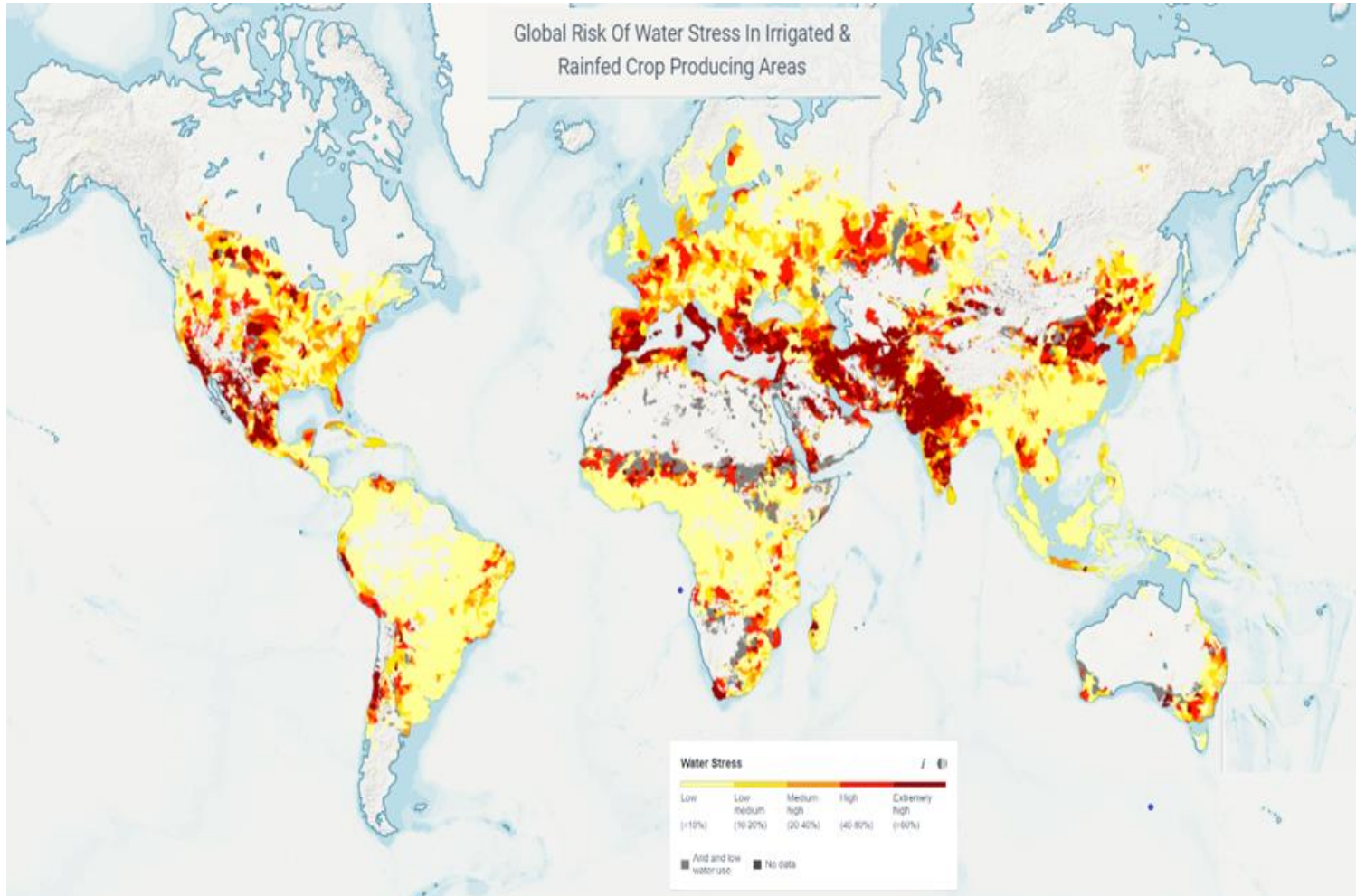


- Drought is a prolonged dry period in the natural climate cycle with serious impacts on agricultural production, food security, health economies, etc.
- Water scarcity impacts 40% of the world's population and 700million people are at-risk of being displaced as a result of drought by 2030.
- Under the climate change scenario, nearly half of the world's population in 2030 will be living in areas of high-water stress

# Types of Drought

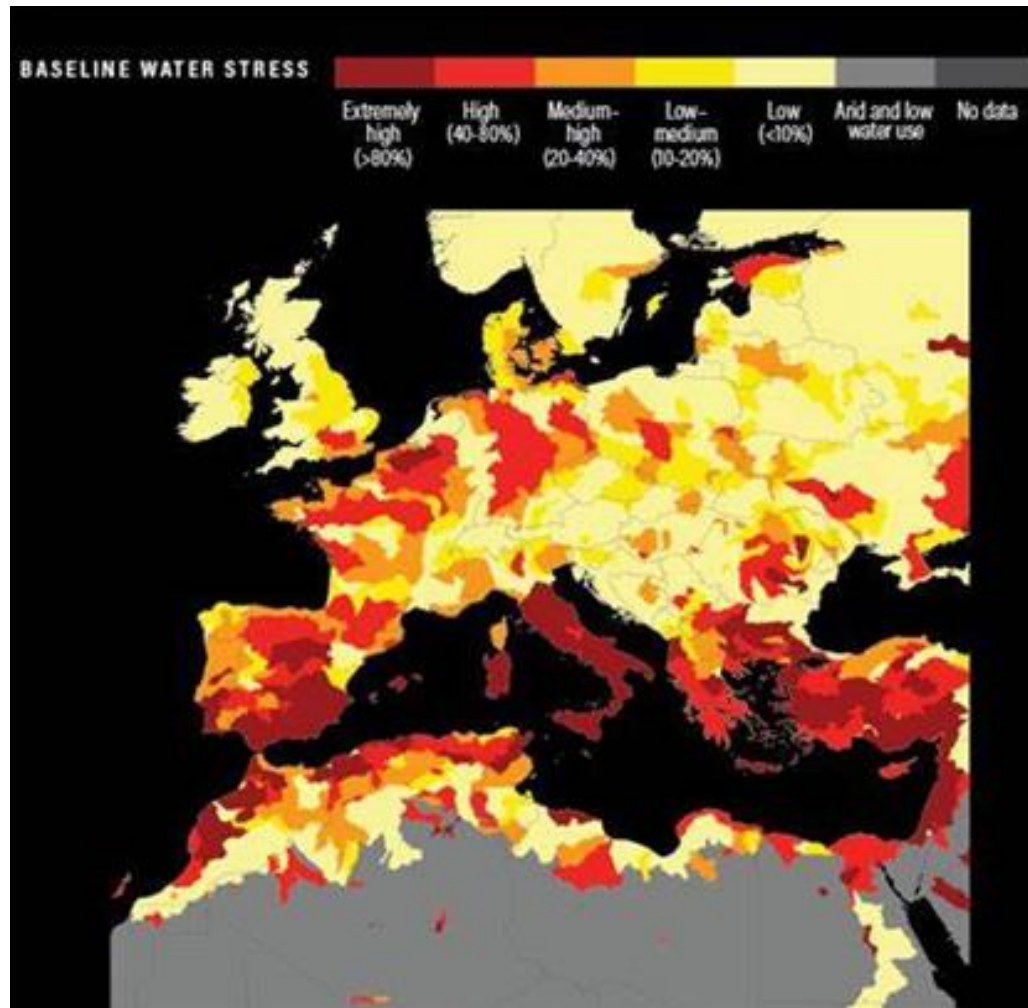


# Global Water Stress in Irrigated and Rainfed Agriculture



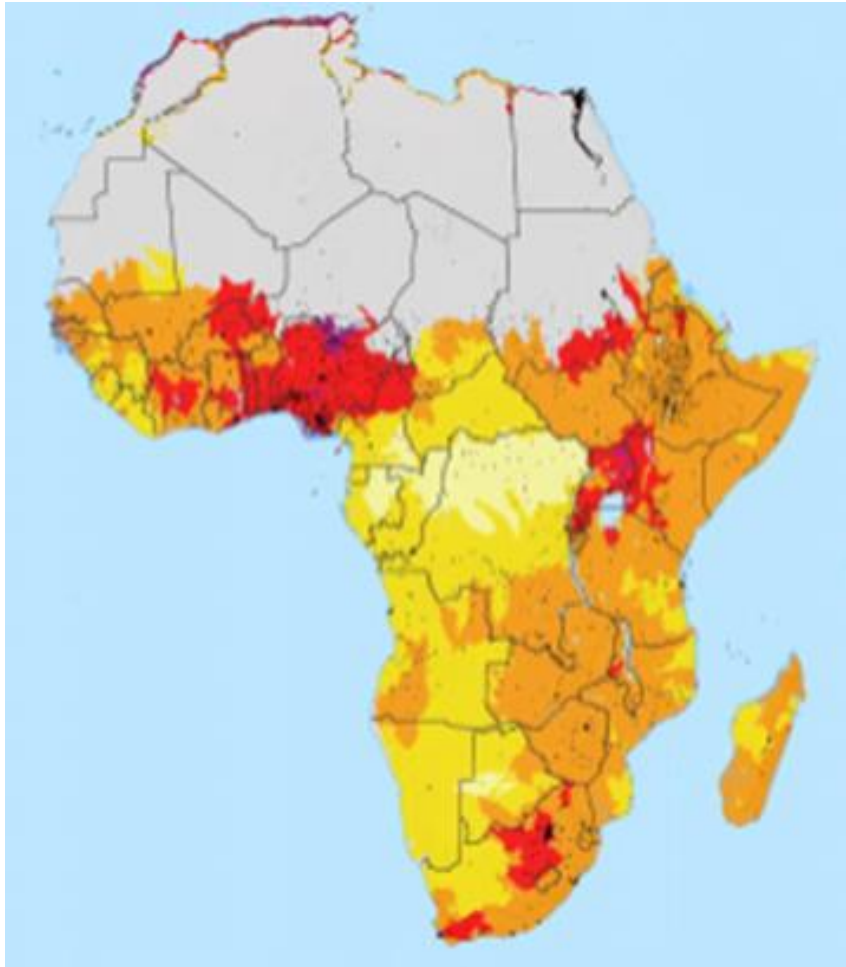
- The Middle East and North Africa (MENA) is the worst off in terms of physical water stress.
- By 2050, it is projected that about 52 percent of the world's population will be vulnerable to the impacts of water shortages.
- The most susceptible sector is the agricultural sector because of its water requirement.

# Middle East and North Africa



- 12 out of the 17 most water-stressed countries are in the MEAN.
- The region is hot (high temperature) and dry (very little rainfall), with low water supply.
- The most affected countries are Qatar, Israel, Lebanon, Libya, Iran, Jordan, Kuwait, Saudi Arabia, United Arab Emirates, Bahrain, Palestine, Turkmenistan and Oman.
- Drought affects food production although countries like UAE imports almost all its food.
- About 18% of the North Africa population is food insecure in 2022.

# Sub-Saharan Africa

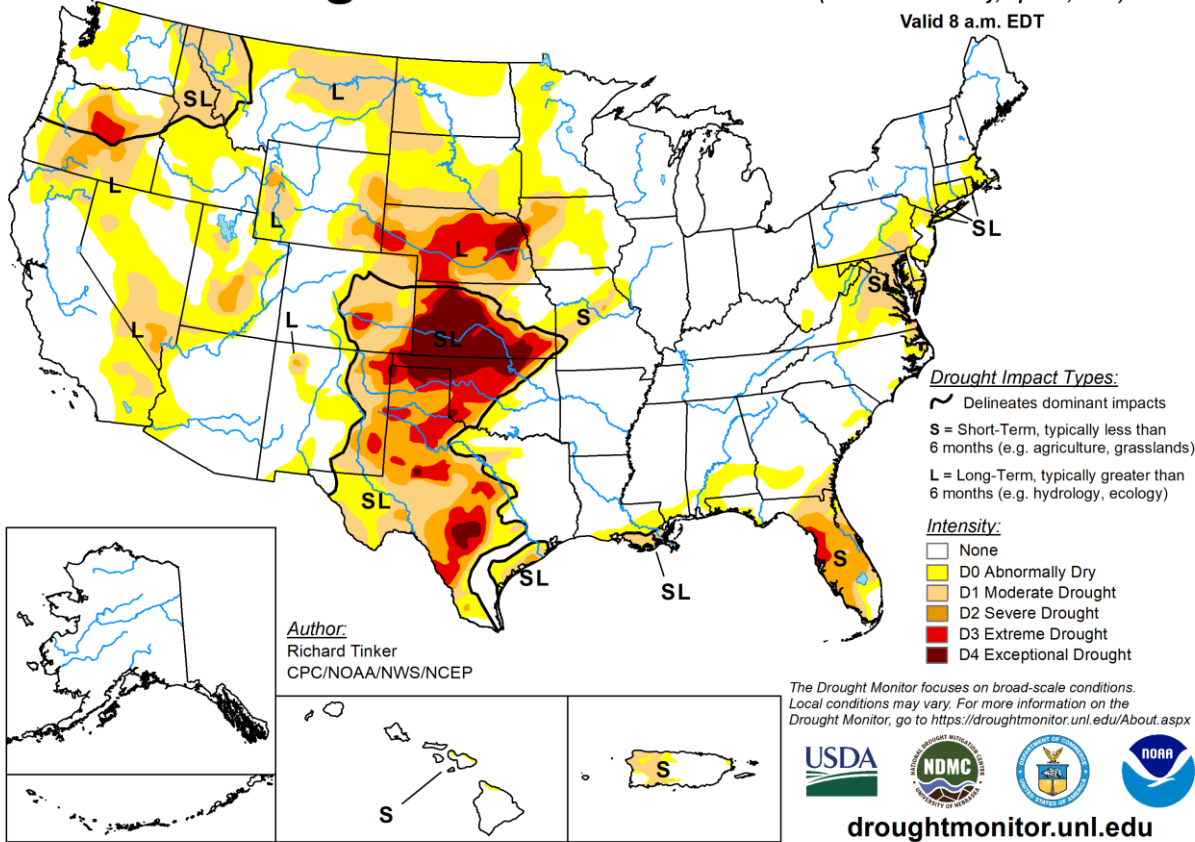


- The regions mostly hit by drought in the sub-Saharan Africa are the West Africa, the Greater Horn part of Eastern and Southern Africa.
- Sub-Saharan Africa is drought-prone, and this has negative implications for agricultural production/crop yield as over 95% of the agricultural production is rainfed and 90% of the rural population depend on agriculture as their main source of income.
- In 2022, 51% of the population are food insecure, with about, 123 million people (12 percent of SSA's population) are projected to be acutely food insecure—suffering from high malnutrition and unable to meet minimum food consumption needs.

# USA

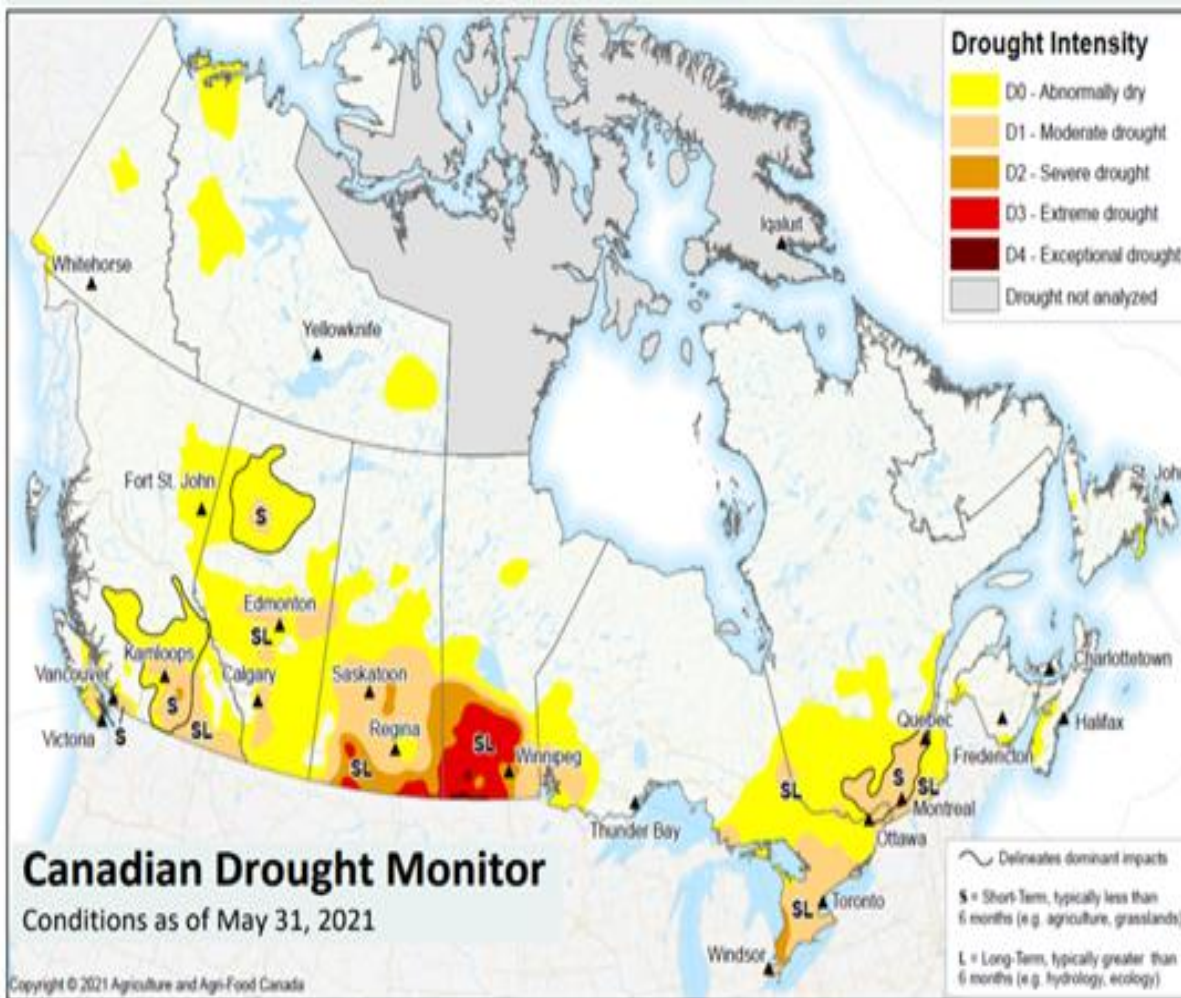
## U.S. Drought Monitor

April 25, 2023  
(Released Thursday, Apr. 27, 2023)  
Valid 8 a.m. EDT



- In the US 37.9% of the land area is experiencing drought which affects about 67.1million people.
- These dry regions; include such areas as parts of California, Oklahoma, Minnesota and Colorado.
- More than one in five (21.6%) adults in the United States reported household food insecurity in the summer of 2022, an increase of more than 6% from April 2021.

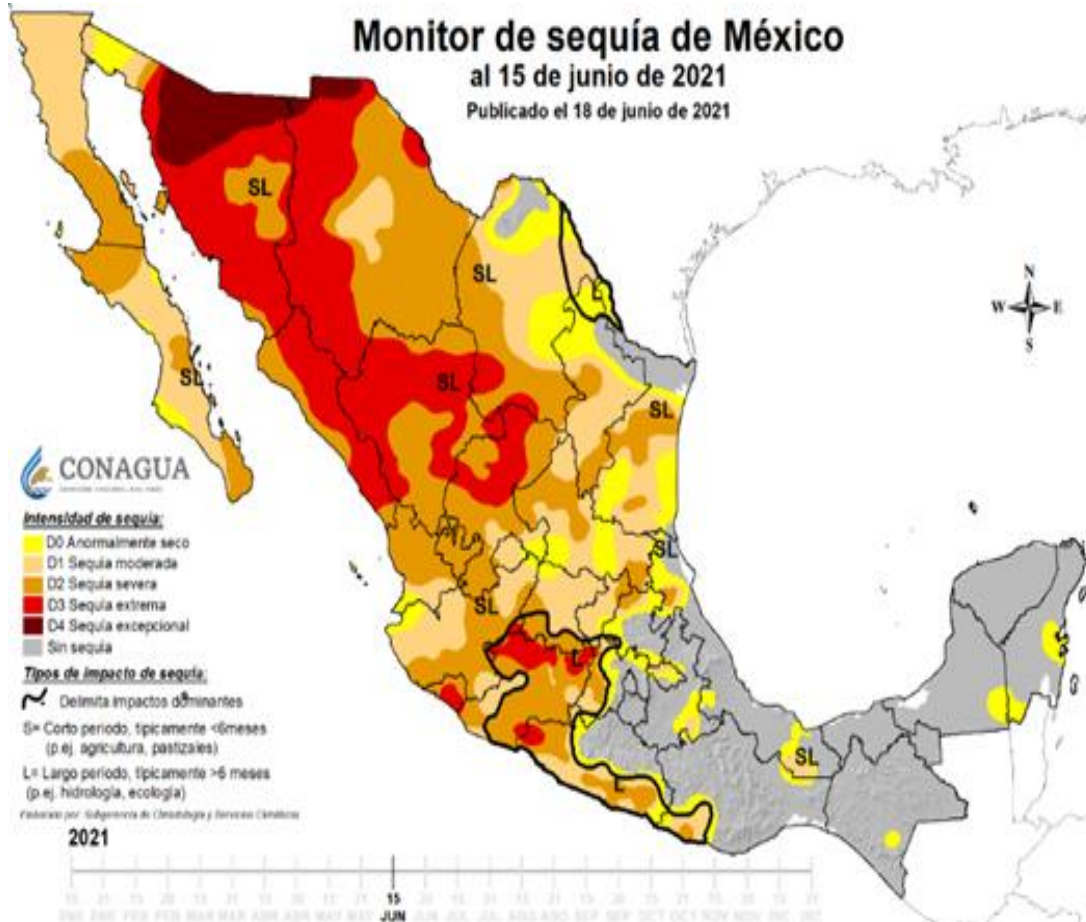
# Canada



- 27% of the National landscape is affected by abnormally Dry (D0) and Moderate to Exceptional Drought (D1-D4) conditions.
- 85% of the agricultural extent was affected by dry and drought conditions.
- Southern Manitoba and Saskatchewan are the most vulnerable regions.
- 7 million Canadians reported going hungry at least once between March 2020 and 2022—that's more than one in five people across the country.

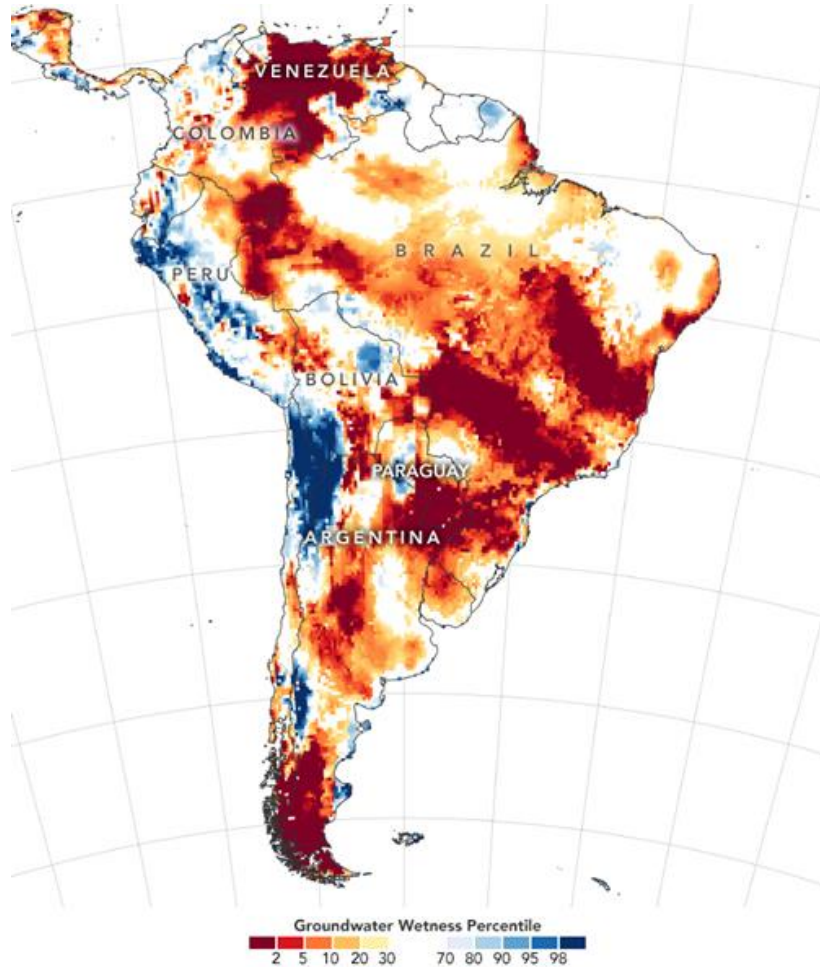


# Mexico



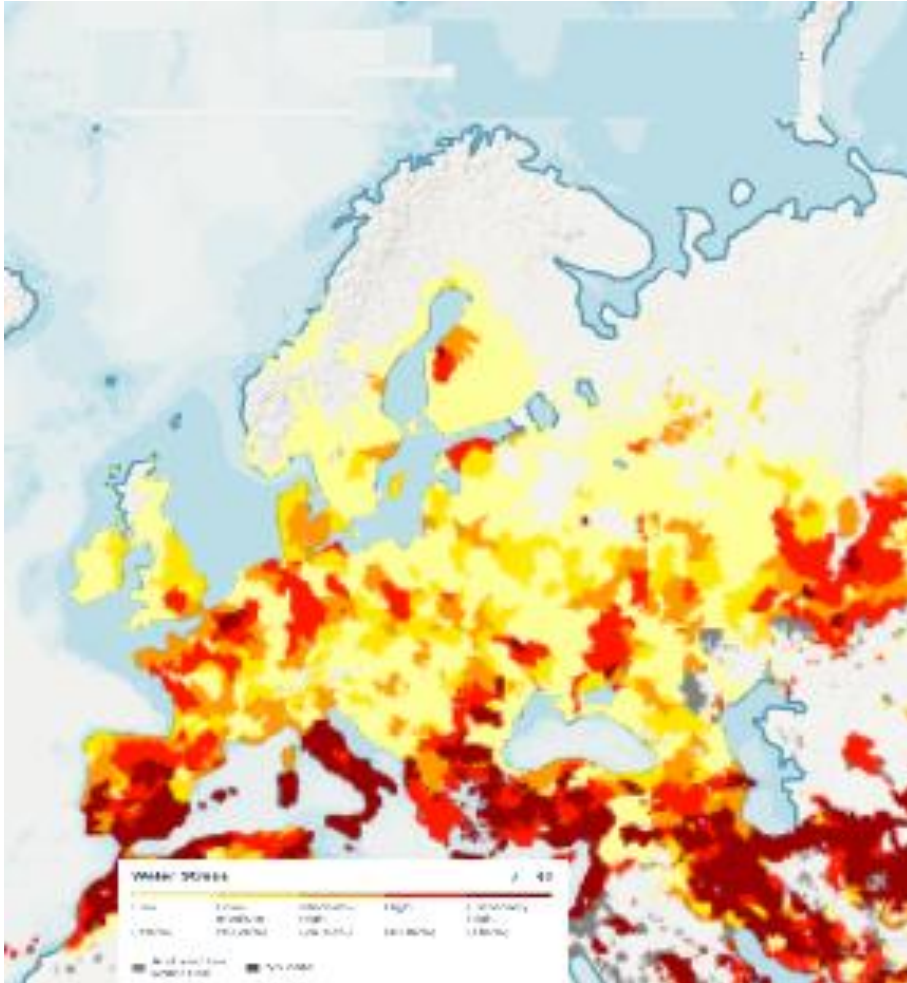
- Nearly 85% of Mexico is experiencing one of its most widespread and intense droughts.
- 125 million population are exposed to water stress.
- Moderate to severe drought (D1 to D2) occurred in Veracruz, Oaxaca and the Yucatan Peninsula, while the western part of the country experienced extreme drought (D3).
- These affect some agricultural crop production, such as corn production.
- In Mexico, three out of every ten people face some degree of food insecurity.

# South America



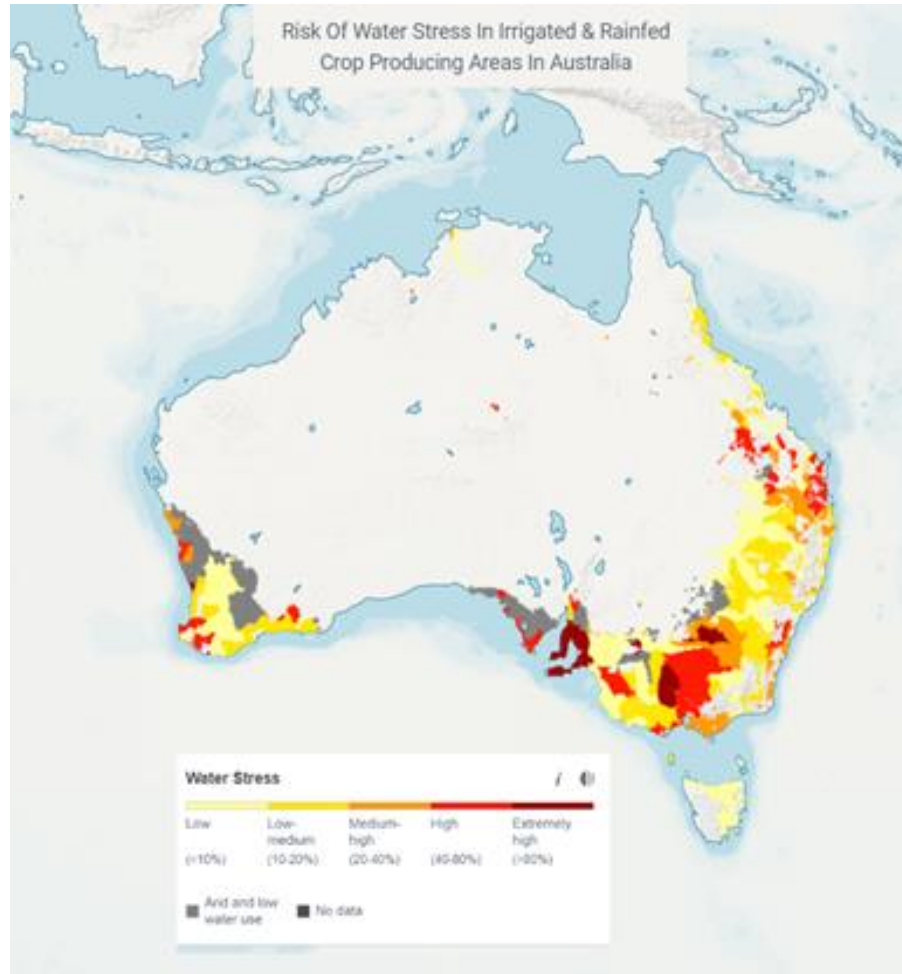
- Drought conditions occur in almost all the regions of South America, particularly in Argentina, Venezuela, Brazil, Columbia, and Paraguay.
- The ENSO (El Niño Southern Oscillation) determines the climatic conditions creating extreme and irregular weather events.
- In Argentina over 60 per cent of the territory is classified as drylands.
- Rain-fed agriculture practiced by small farmers and indigenous groups is threatened.
- 18.5% of the population are food insecure

# Europe



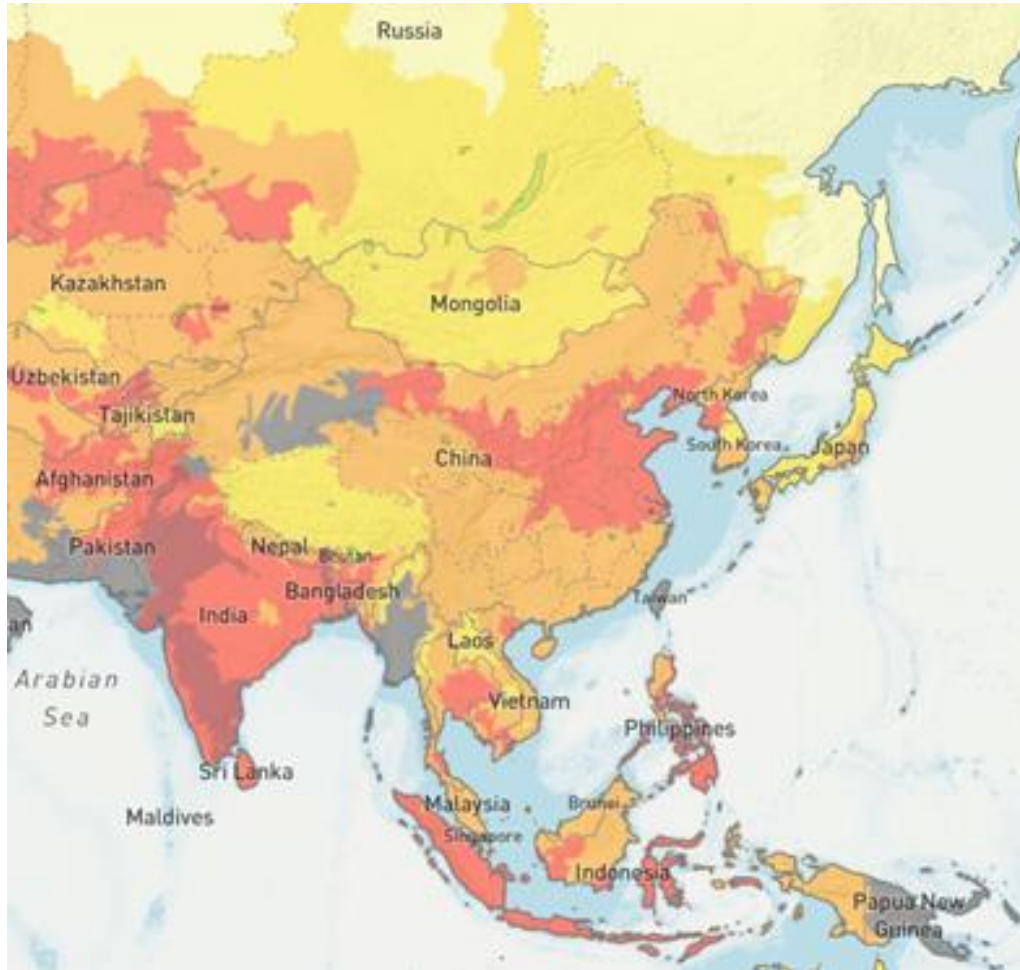
- In Europe 17% of the land area have been affected by water scarcity impacting 11% of the European population.
- The recurring dryness in central Europe determined a reduction of crop yield prospects.
- About half of the EU population will experience shortages in water supply which is an indication of water stress.
- 9.7% of the population are food insecure, the Russian invasion of Ukraine heightening food crisis.

# Australia



- Australia experiences recurring droughts, which has its toll on the livelihoods of the farmers and rural communities.
- it is projected that with increases in population; the national water demand is expected to double by 2050.
- Water required for agricultural system to increase by 80 per cent by 2050.
- Over 2 million households in Australia (21%) have experienced severe food insecurity in 2022.

# Asia



- In Asia, the southern countries are most drought-prone; these include Afghanistan, India, Pakistan and Sri Lanka as well as Bangladesh, Vietnam and Nepal.
- India as the most water stressed region in Asia, abstracting more than 80% of their available supply on average every year.
- The water crisis in the region impacts food production and livelihoods.
- 27% of the population are food insecure.

## Summary

- “Drought” is a global issue that impacts directly on agricultural production and food security
- We are off track to achieving the SDG targets for hunger and malnutrition by 2030.
- Climatic variability and change, as well as increased consumptive use of water resources may lead to future water supply crisis.
- We need a proactive strategy to wisely manage our limited water resources to ensure food security.



**Thank You**

[ud2001ng@yahoo.com](mailto:ud2001ng@yahoo.com)

