

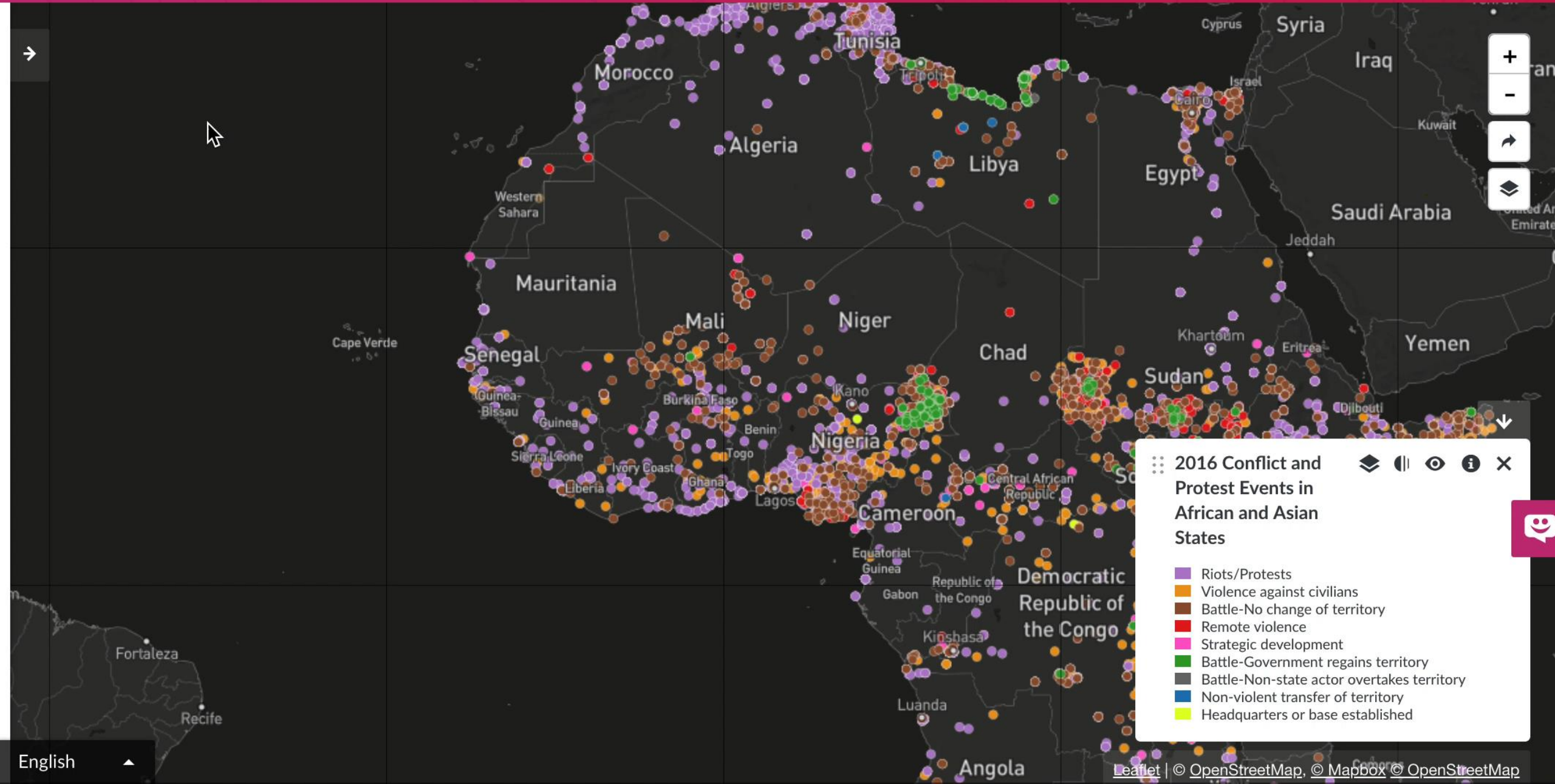


WORLD
RESOURCES
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Addressing Water & Security Challenges

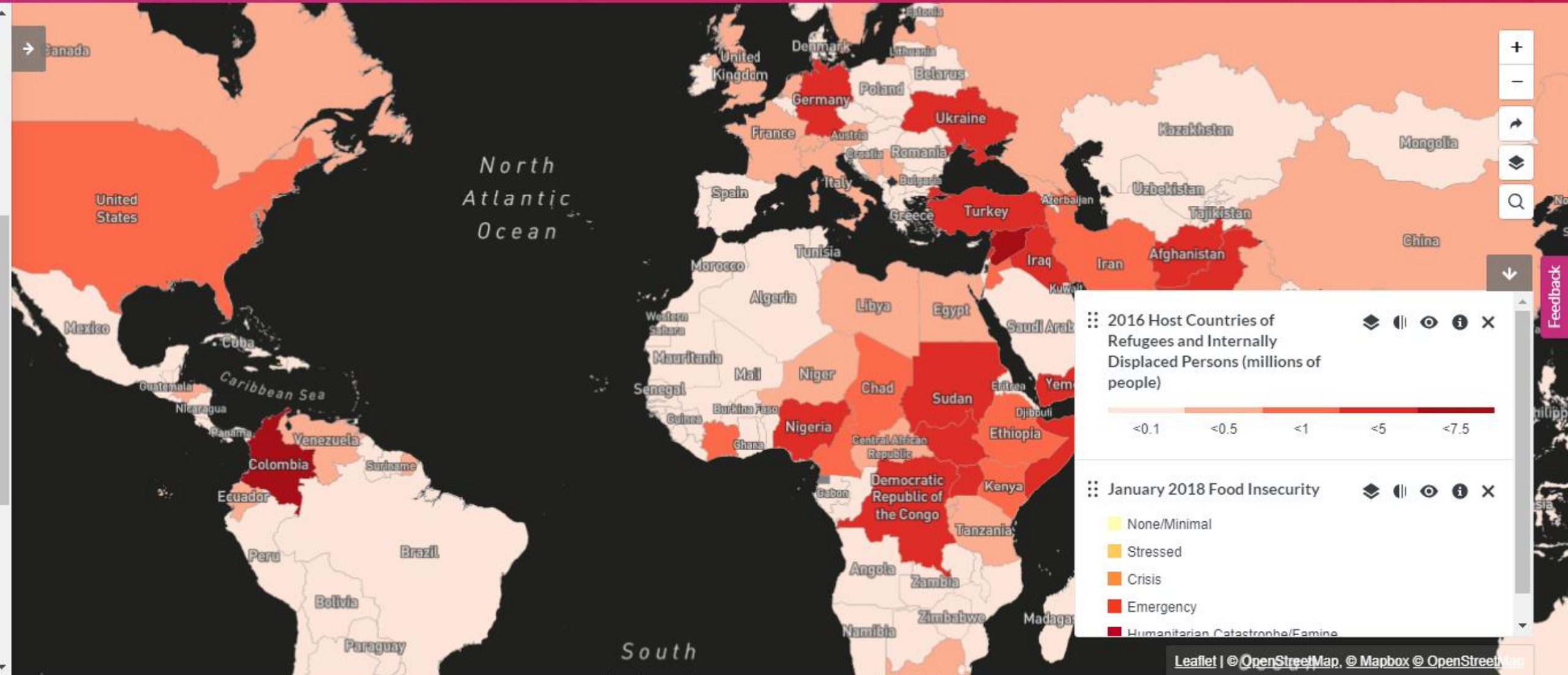
August 28, 2018

CHARLES ICELAND, DIRECTOR, GLOBAL AND NATIONAL WATER INITIATIVES



2016 Conflict and Protest Events in African and Asian States

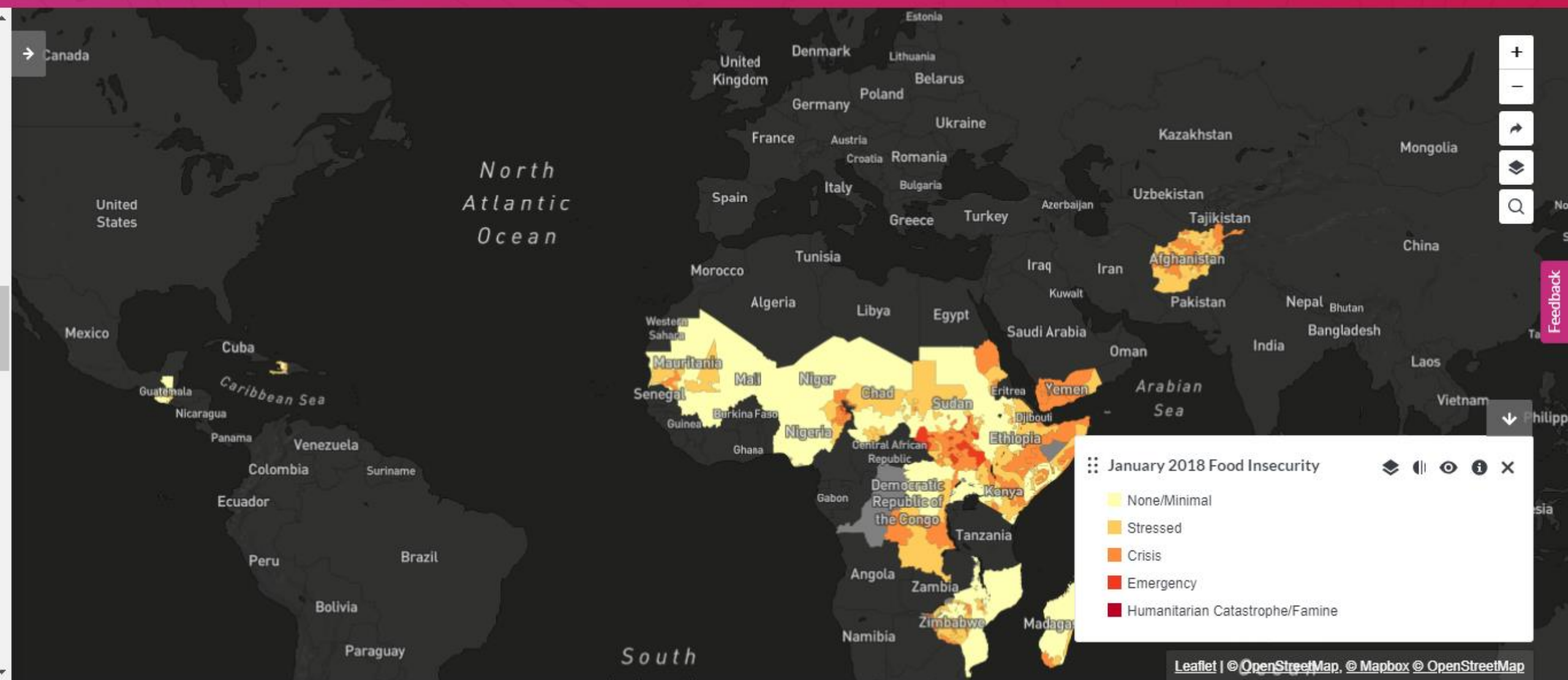
- Riots/Protests
- Violence against civilians
- Battle-No change of territory
- Remote violence
- Strategic development
- Battle-Government regains territory
- Battle-Non-state actor overtakes territory
- Non-violent transfer of territory
- Headquarters or base established



2016 Host Countries of Refugees and Internally Displaced Persons (millions of people)

January 2018 Food Insecurity

- None/Minimal
- Stressed
- Crisis
- Emergency
- Humanitarian Catastrophe/Famine

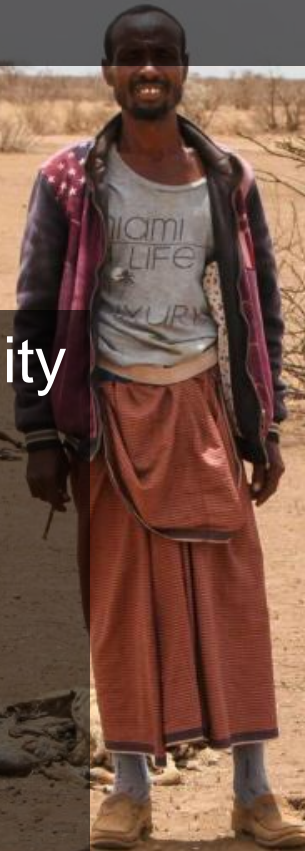


January 2018 Food Insecurity

- None/Minimal
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WATER TRENDS CAN CONTRIBUTE TO POLITICAL INSECURITY

1. Diminished water supply or quality
 - Drought
 - Unusable water
 - Dammed/diverted water
2. Increased water demand
3. Extreme flood events

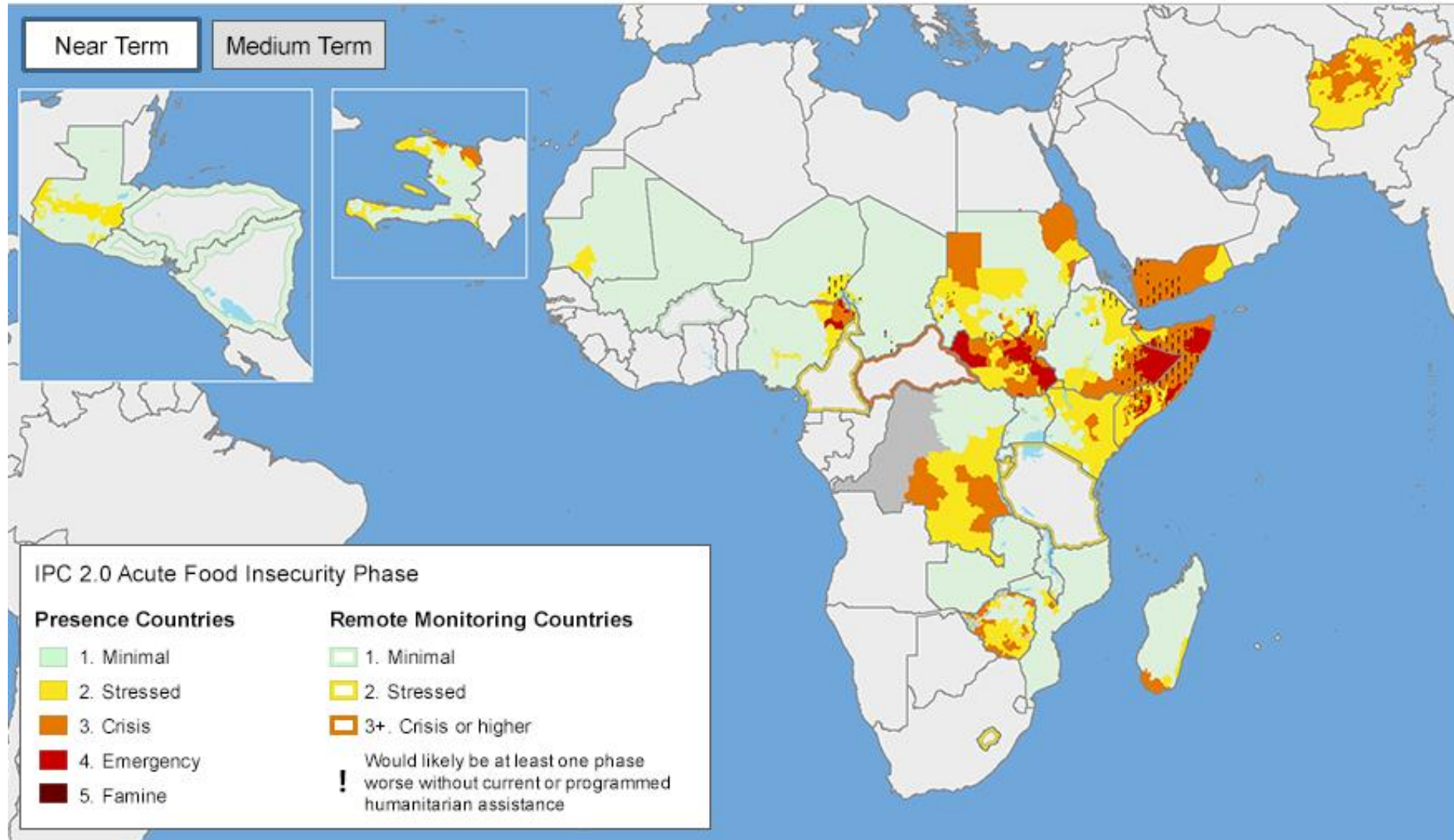


1. DIMINISHED WATER SUPPLY: DROUGHT

- Drought in failed states
- Drought in countries that can influence global grain prices

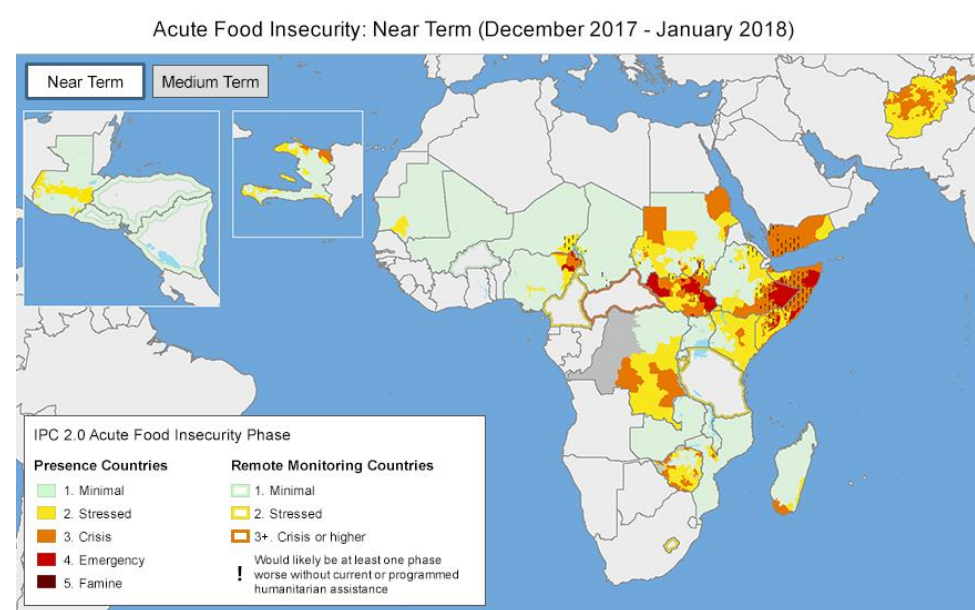
CASE STUDY: SOMALIA

Acute Food Insecurity: Near Term (December 2017 - January 2018)



CASE STUDY: SOMALIA

- Engage diplomatically and/or with peace-keepers
- Avert famine via donor-supported social safety-net programs
- Sustainably rehabilitate highly degraded environments



1. DIMINISHED SUPPLY: DAMMED OR DIVERTED WATER

- Dams in the absence of agreement
- Water diversions in the absence of agreement

CASE STUDY: GRAND RENAISSANCE DAM

- \$5 billion project
- Africa's largest hydroelectric dam

CASE STUDY: GRAND RENAISSANCE DAM

- Engage in negotiation of watershed agreements
 - Levels of withdrawals
 - Seasonal standards for river flows
 - Rules to govern management of large dams and other infrastructure
- Develop water data and information systems to monitor compliance

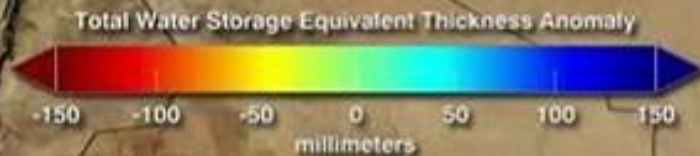


2. INCREASED WATER DEMAND

- Chronically stressed irrigated areas
- Chronically stressed urban areas
- Rising water and land pressures in rain-fed areas

CASE STUDY: SYRIA

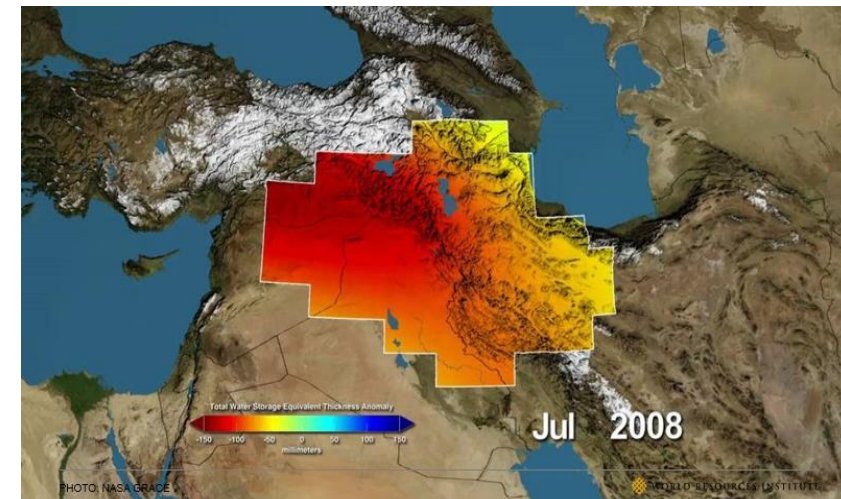
Major groundwater losses in the Tigris and Euphrates river basins between 2003 and 2009



Jul 2008

CASE STUDY: SYRIA

- Place demand caps on irrigated agriculture in water-stressed regions and replace flood irrigation schemes with drip irrigation technologies
- Plant water-efficient and drought-resistant crops
- Insurance payouts for farmers to cover crop losses



3. EXTREME FLOOD EVENTS

- River floods, flash floods, coastal storm surges
- Floods in countries that can influence global grain prices

CASE STUDY: DEVASTATING FLOODS ACROSS SOUTH ASIA in 2017

Over 1,200 dead and over 40 million affected in India, Nepal, Bangladesh, and Pakistan



CASE STUDY: DEVASTATING FLOODS ACROSS SOUTH ASIA

- Invest in dams, dikes, and levees
- Protect existing forests and wetlands
- Don't build in areas at high risk for flooding



EFFECTIVE & LEGITIMATE GOVERNANCE SYSTEMS

- Without “effective” or “legitimate” state, technical measures will likely fail
- The international community must therefore offer to help these countries strengthen their governance systems

THANK YOU

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