

A252

WHEN EVERY DROP COUNTS

The role of Architecture in 2025 Fighting drought caused Health Effects

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East Africa drought 'remains huge crisis' - UK official

By Mike Woolridge
BBC News, Dire Dawa, Ethiopia

20 October 2011 | Africa

Drought Basics Drought is a natural phenomenon during which regions or communities experience shifts in the balance between precipitation and evapotranspiration (the processes of evaporation and transpiration)—a balance that is inherent to the earth's water cycle (see the Understanding Natural Cycles in Water Distribution section).

UN: 70 percent of world could be in drought by 2025

BUENOS AIRES — Drought could parch close to 70 percent of the planet's soil by 2025 unless countries implement policies to slow desertification, a senior United Nations official has warned.

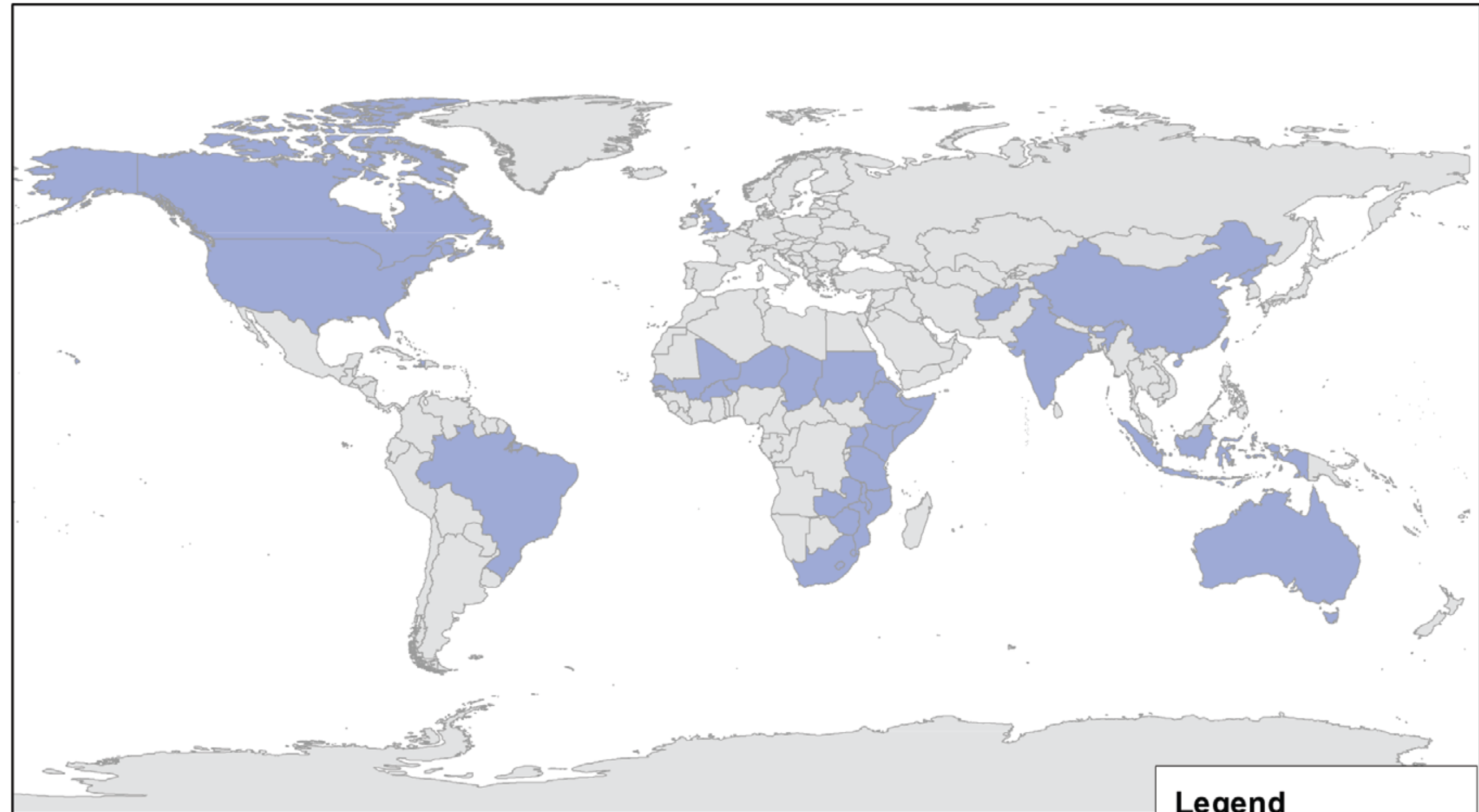
"If we cannot find a solution to this problem... in 2025, close to 70 percent could be affected," Luc Gnacadja, executive secretary of the United Nations Convention to Combat Desertification, said Friday.

Drought currently affects at least 41 percent of the planet and environmental degradation has caused it to spike by 15 to 25 percent since 1990, according to a global climate report.

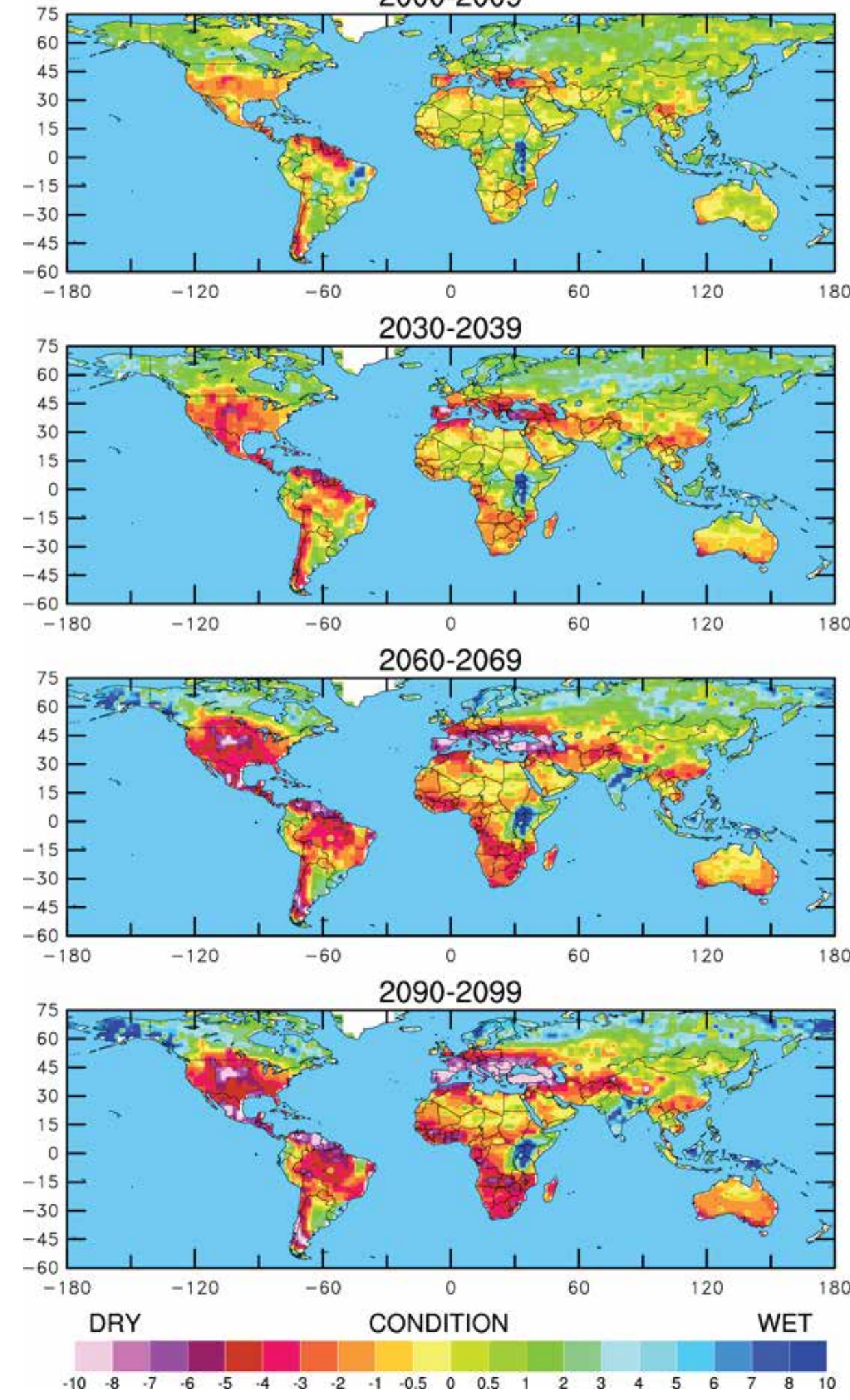
"There will not be global security without food security" in dry regions, Gnacadja said at the start of the ninth UN conference on the convention in the Argentine capital.

"A green deal is necessary" for developing countries working to combat drought, he stressed.

WATER BASIC



what NCAR says the future drought scenario looks like under climate change over the next 80+ years



Ever Wonder about Water Scarcity?

How Rare?

Only 3% of the world's water is freshwater, and two thirds of that is tucked away in frozen glaciers or otherwise unavailable for use."

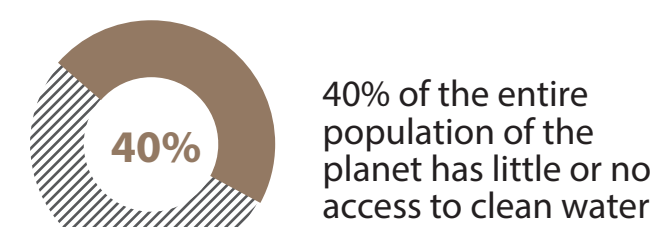
1.1 billion

2.4 billion

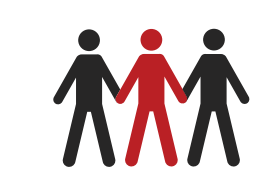
This Water scarcity phenomenon is already affecting every continent

1.2 billion people

an additional 500 million people are approaching this scarcity risk



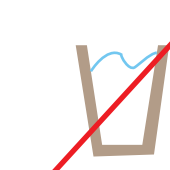
Water Scarcity



affects 1 in 3 people on every continent of the globe.



can occur in area even where there is plenty of rainfall or freshwater



forces people to rely on unsafe sources of drinking water



Increases the risk(s) of contaminating trachoma; plague and typhus

EFFECTS OF DROUGHT

Key climate risks by region

Fig. 2. Key climate risks by region extracted from IPCC Climate Change 2014, Impacts, Adaptation, and Vulnerability: Summary for Policymakers

NORTH AMERICA

Wildfire-induced loss of ecosystem integrity, property loss, human mortality, and mortality as a result of increased drying trend and temperatures

Heat-related human mortality

Urban floods in riverine and coastal areas, inducing property and infrastructure damage; supply chain, ecosystem, and social system disruption; public health impacts; and water quality impairment, due to sea level rise, extreme precipitation, and cyclones

THE OCEAN

Distributional shift in fish and invertebrate species, and decreases in fisheries catch potential at low latitudes, e.g., in equatorial upwelling and coastal boundary systems and sub-tropical gyres

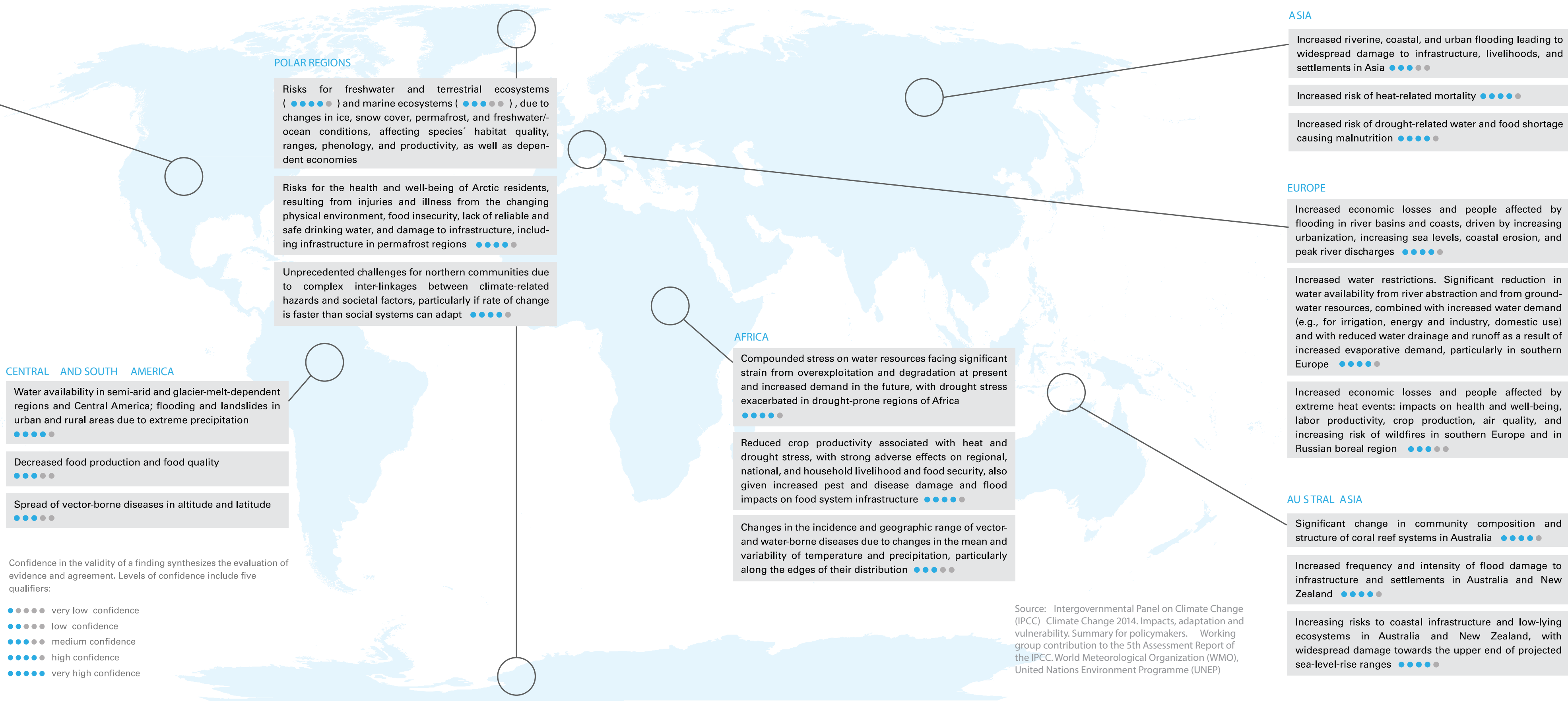
Reduced biodiversity, fisheries abundance, and coastal protection by coral reefs due to heat-induced mass coral bleaching and mortality increases, exacerbated by ocean acidification, e.g., in coastal boundary systems and sub-tropical gyres

Coastal inundation and habitat loss due to sea level rise, extreme events, changes in precipitation, and reduced ecological resilience, e.g., in coastal boundary systems and sub-tropical gyres

SMALL ISLANDS

Loss of livelihoods, coastal settlements, infrastructure, ecosystem services, and economic stability

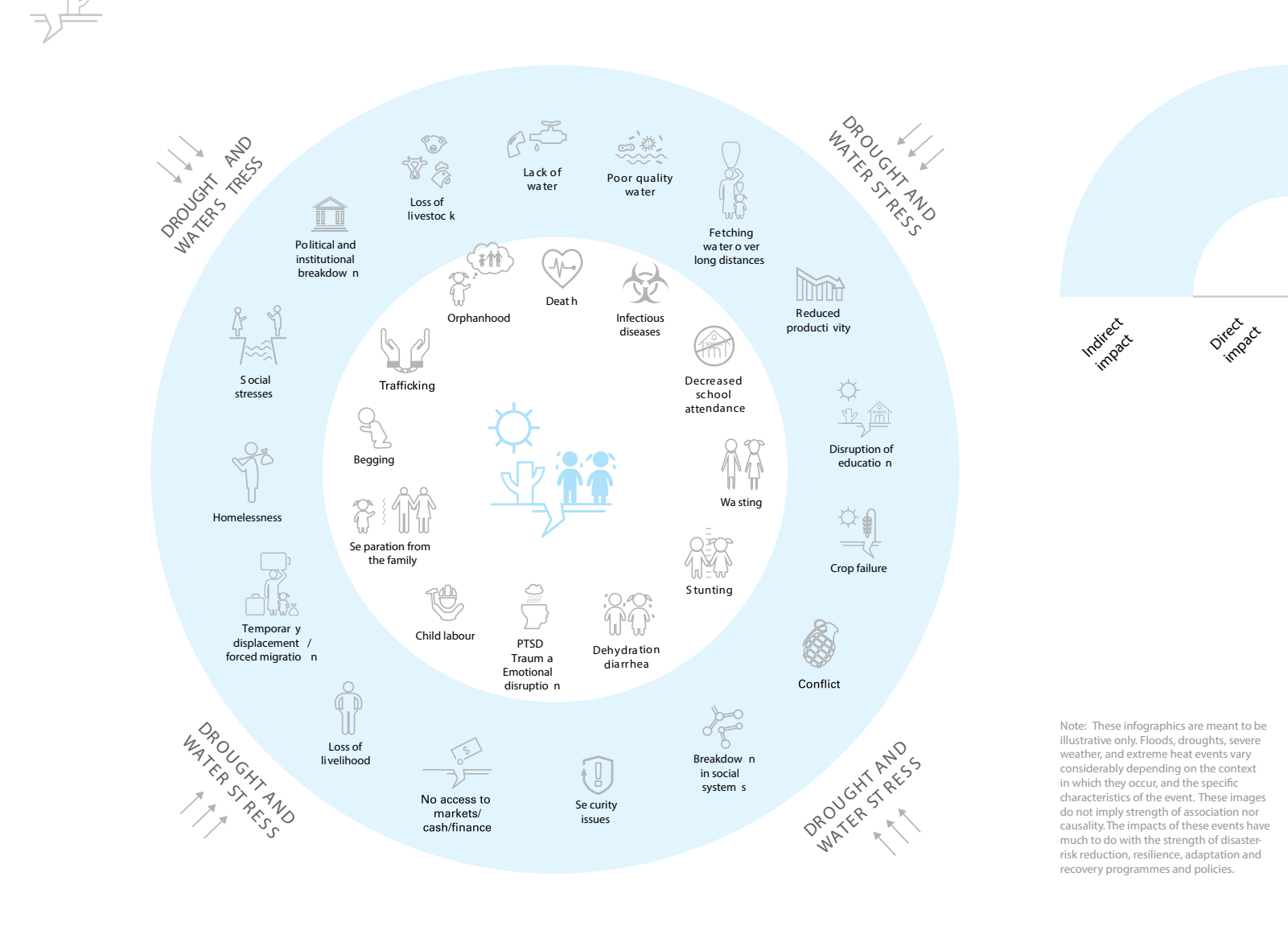
The interaction of rising global mean sea level in the 21st century with high-water-level events will threaten low-lying coastal areas



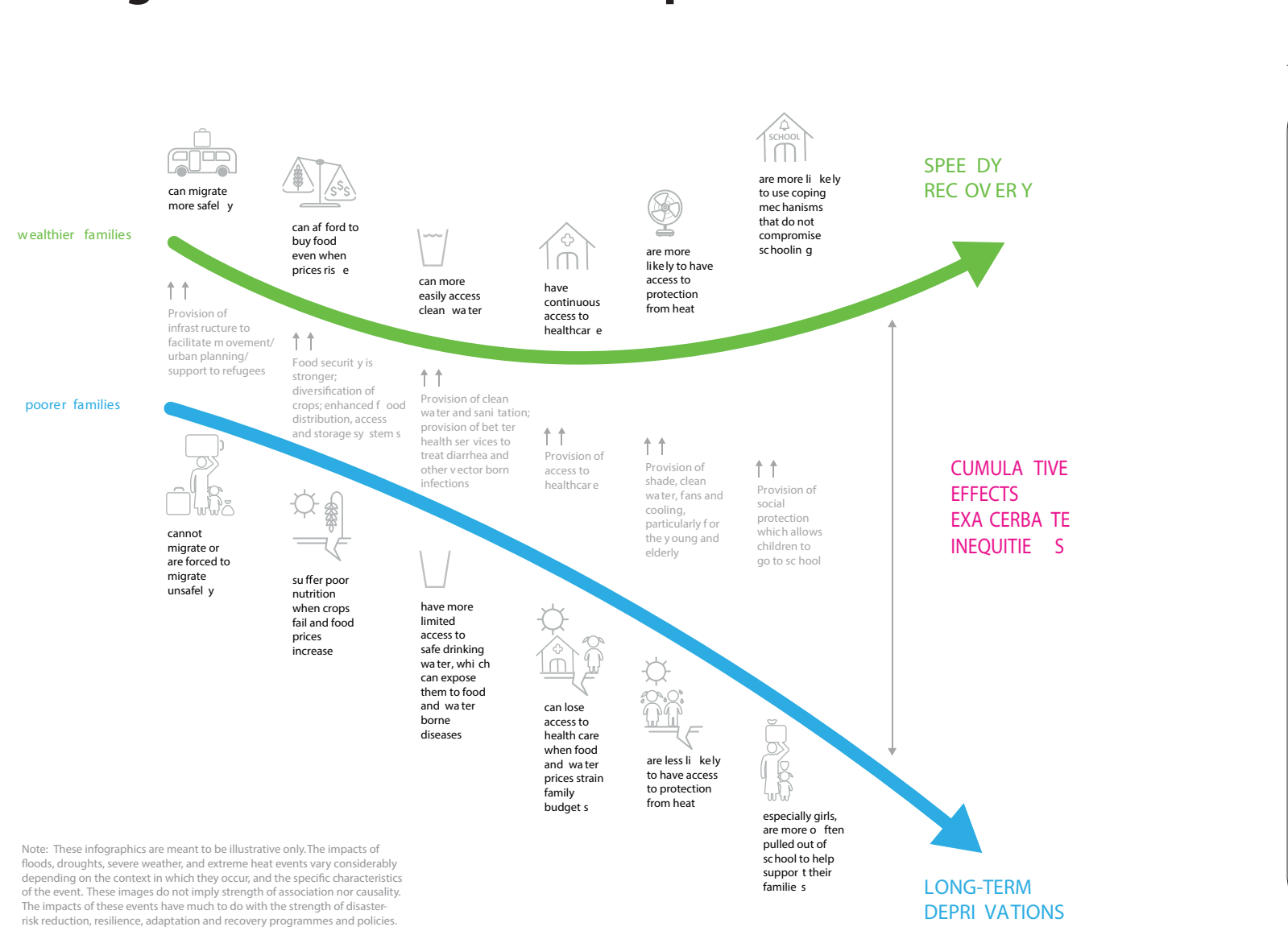
The impact of climate change

HEALTH EFFECTS OF DROUGHT

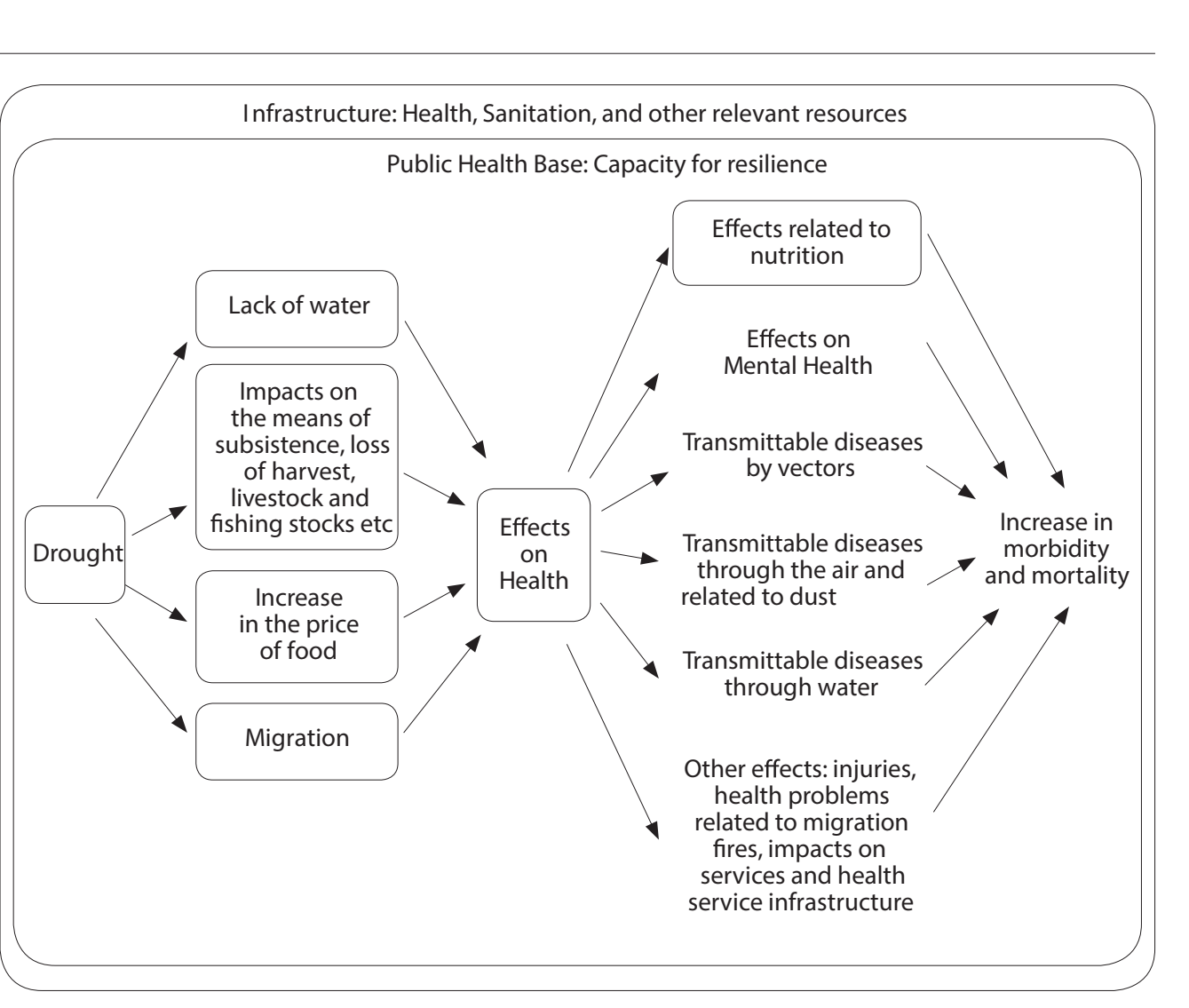
Potential impacts of droughts and water stress



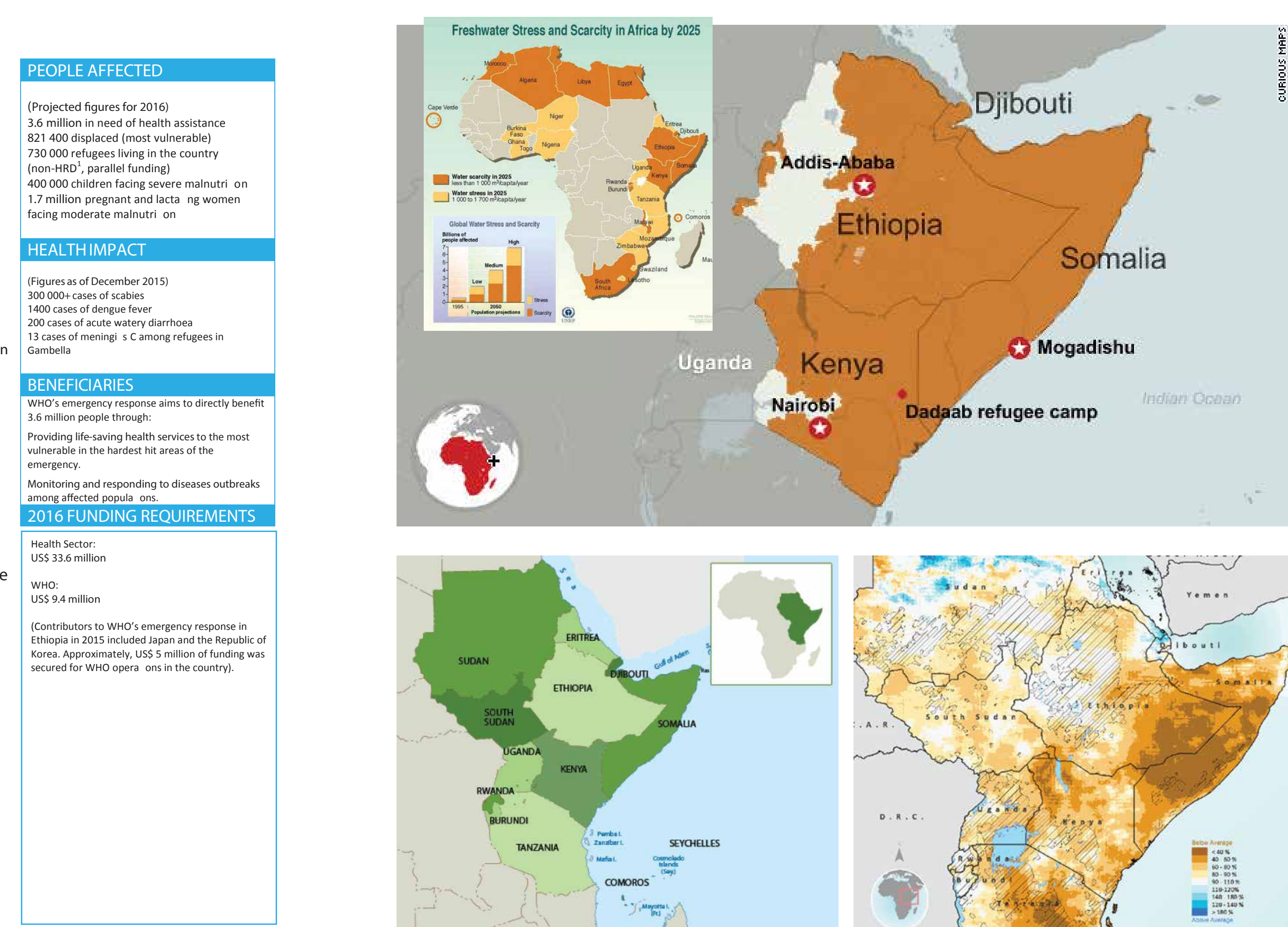
Droughts can exacerbate inequities



Effects on living conditions and health



SITE SELECTION AND ANALYSIS



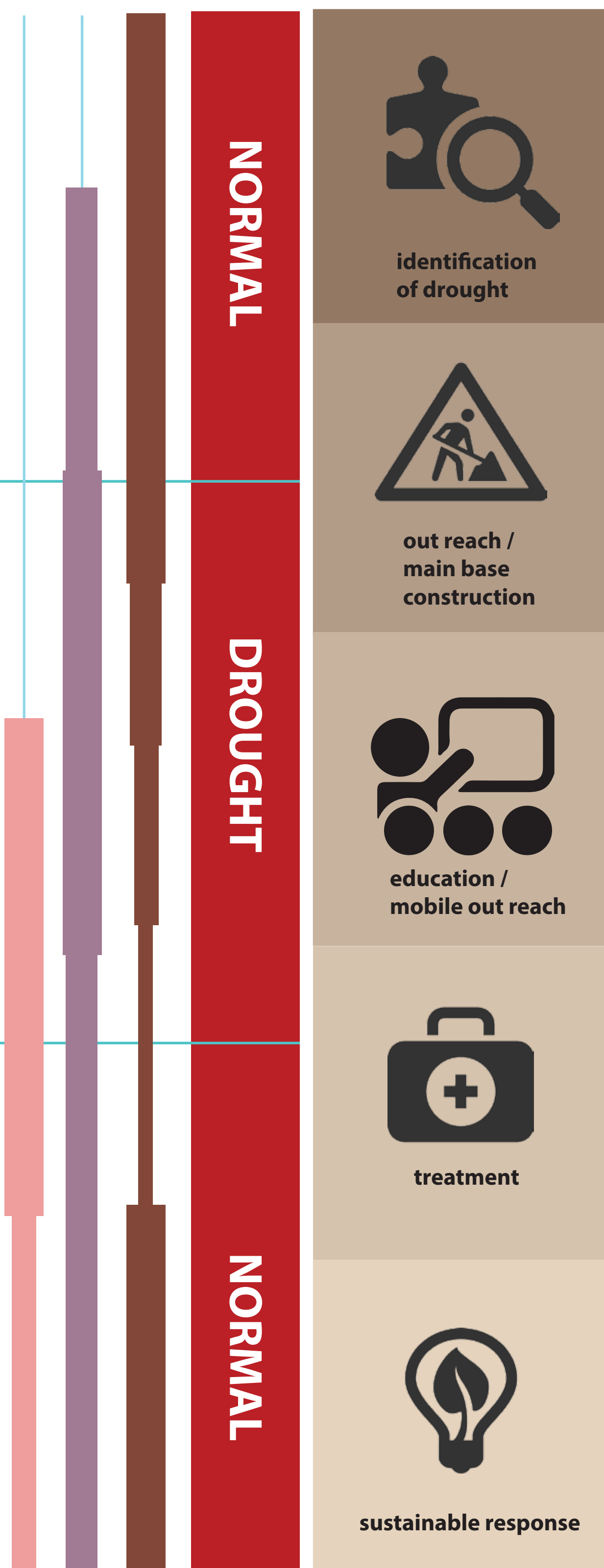
At a glance

- El Niño has triggered one of the worst droughts Ethiopia has experienced in decades, leading to severe food insecurity and water shortages that have had a devastating impact on people's health.
- The Federal Ministry of Health is showing remarkable leadership and commitment to the response; setting up a Commission to strengthen and streamline the country's management of the humanitarian emergency. Furthermore, the Government provided over US\$ 200 million to the response in 2015 and has allocated a first instalment of US\$ 97 million to support food distribution on early in 2016.
- The crisis has reached proportions that would be difficult for any government, anywhere, to manage. Partner (including donor) support is being called upon to scale up existing efforts to save lives and protect and restore livelihoods.
- WHO requires US\$ 9.4 million to achieve two objectives in support to the response in 2016 and prevent further escalation of the crisis:
 - Provide Life-saving health services to the most vulnerable groups within the population.
 - Detect and respond to on-going disease outbreaks exacerbated by food and water shortages.

Site Location

ETHIOPIA SOMALI

FUTURE NEED



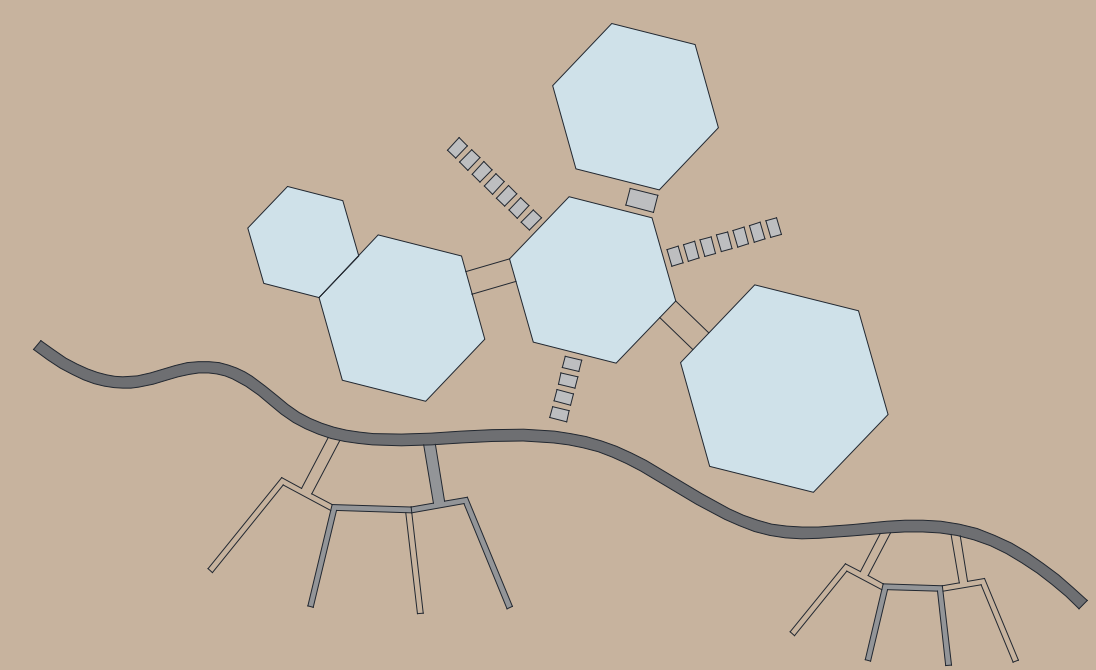
Long-term
Short-term
Response



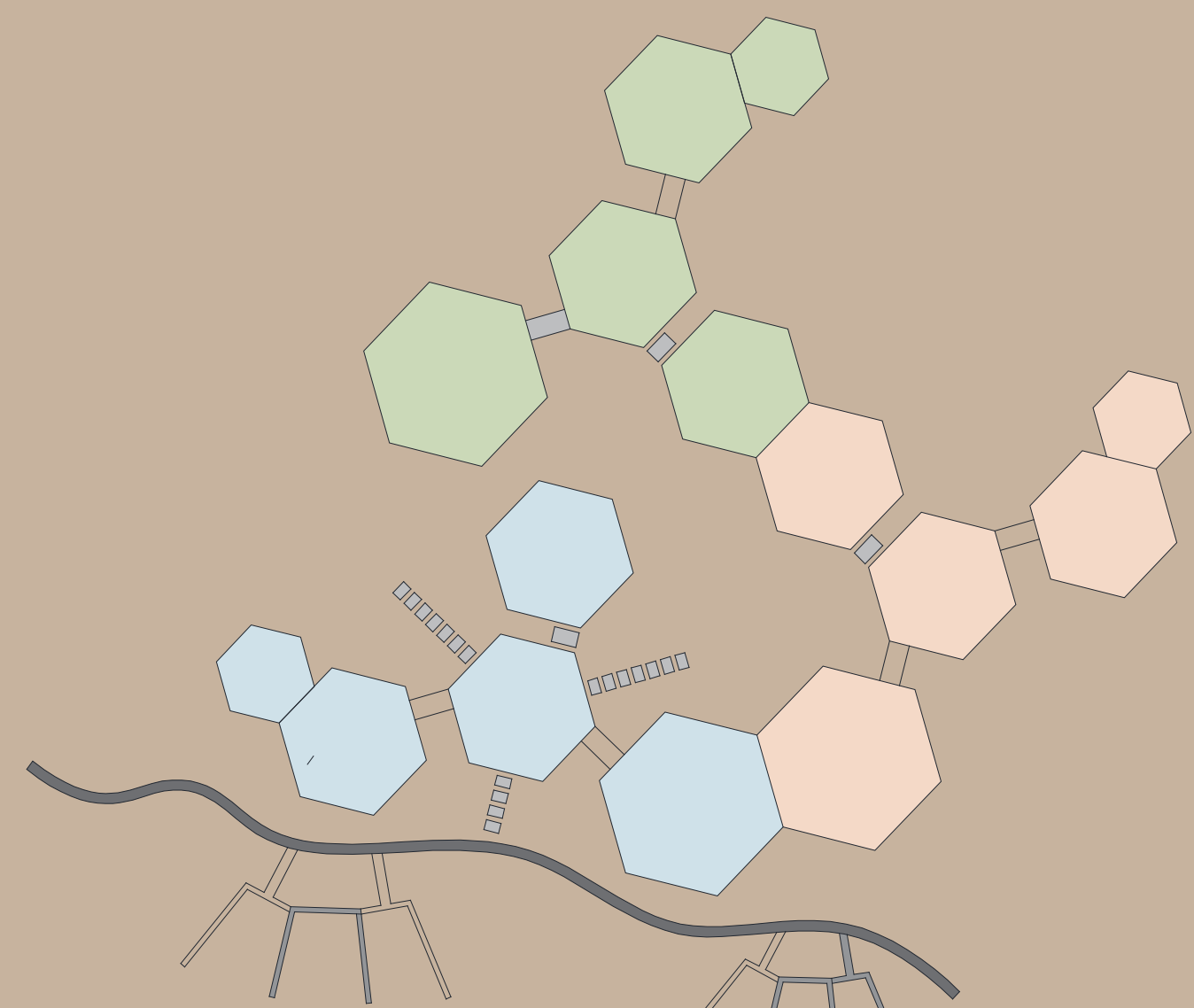
CONCEPTUAL diagr

SMART

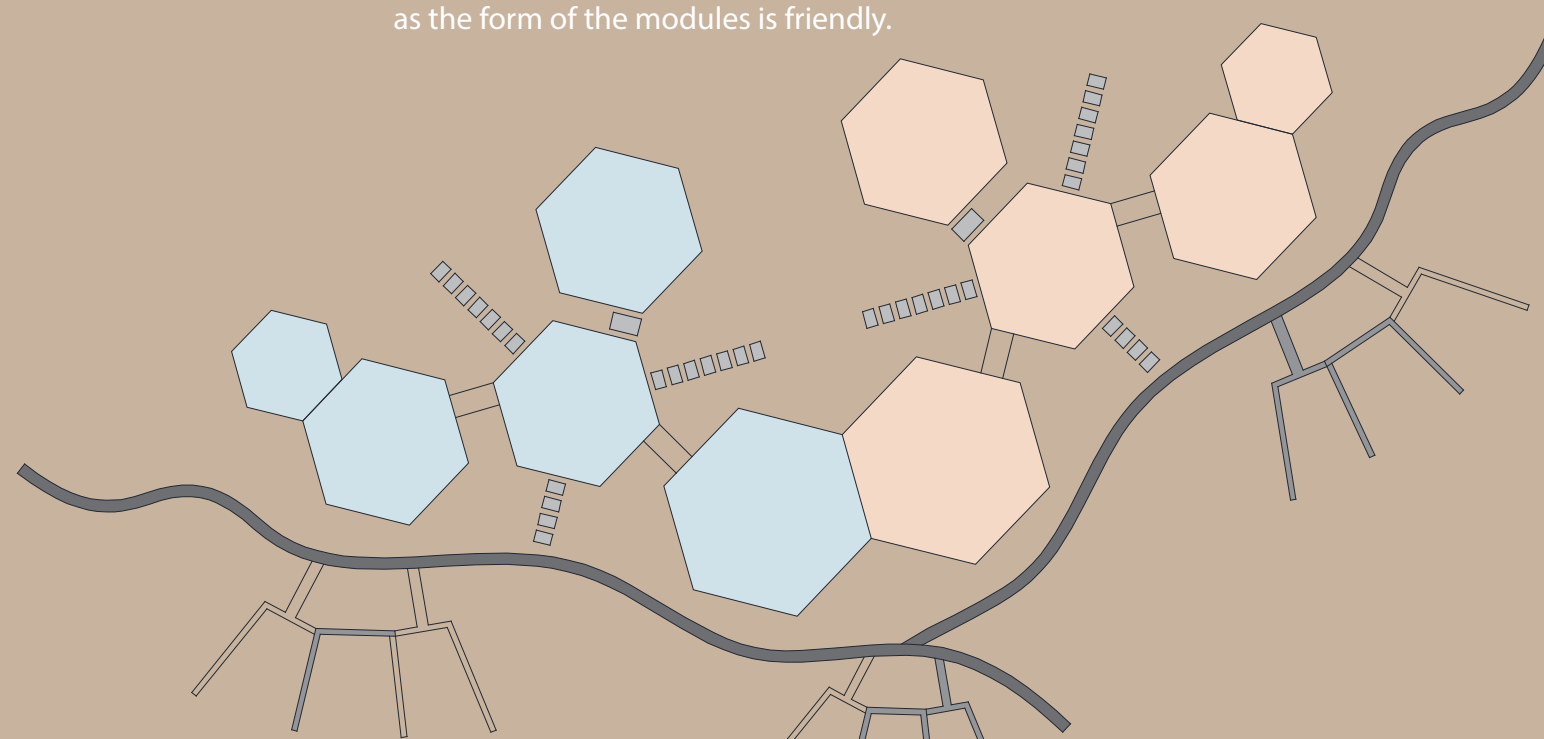
Smart Mobile Architectural Techn



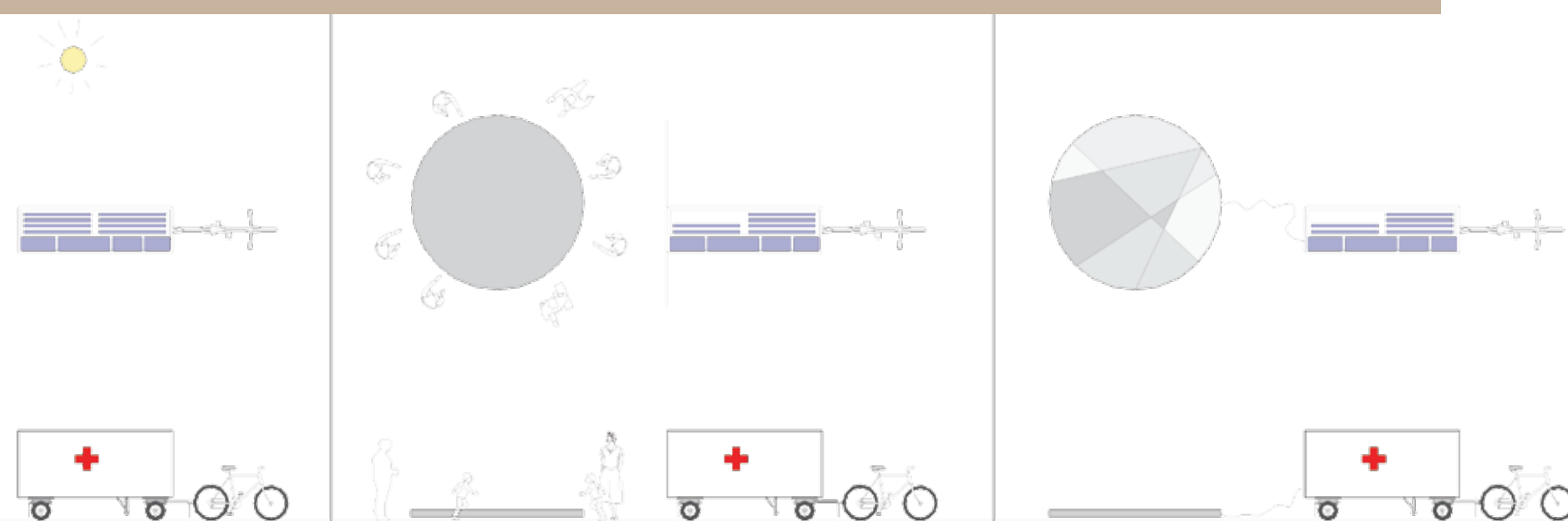
Central Healthcare center - is the core district serving for a limited community.



Expansion prototypes- If the condition is sevre and needs more support extending modules will be delivered through satellite communication via the smart pole; expansion choice are various as the form of the modules is friendly.



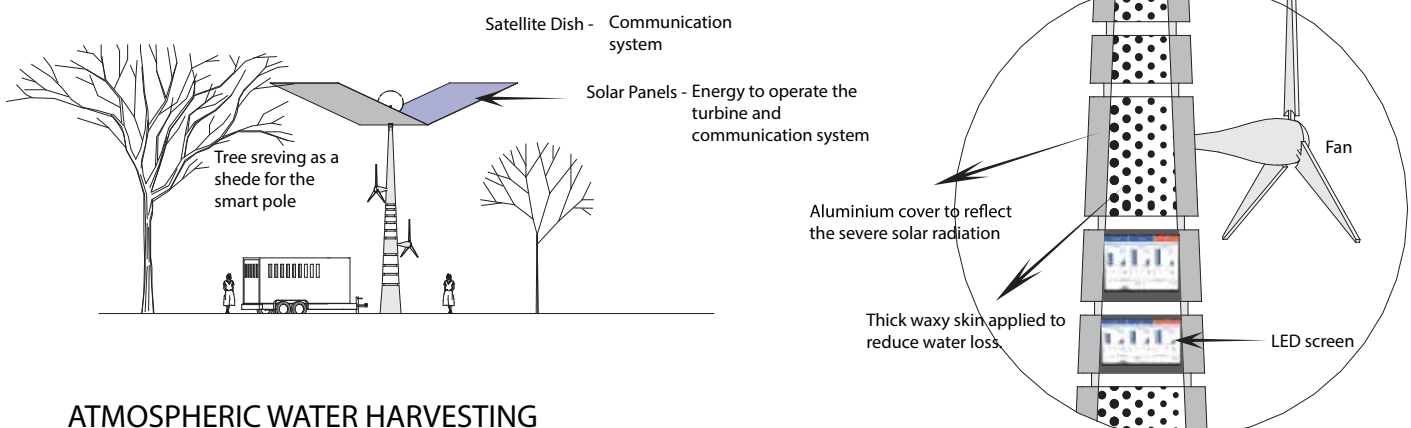
Expansion prototypes- If the condition is sevre and needs more support extending modules will be delivered through satellite communication via the smart pole; expansion choice are various as the form of the modules is friendly.



The Mobile aid center will be transported to the desired location via a donkey, cycle or other medium.

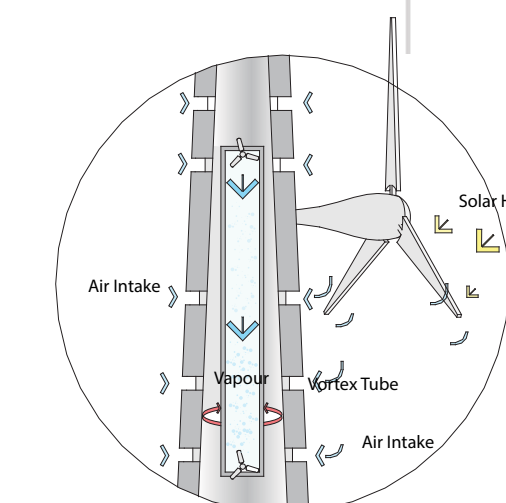
Inflatable plastic will be laid out in a desired manner. Locals will assist the process at all times.

Inflatable Plastic bags will be plugged-in to the mobile aid center.



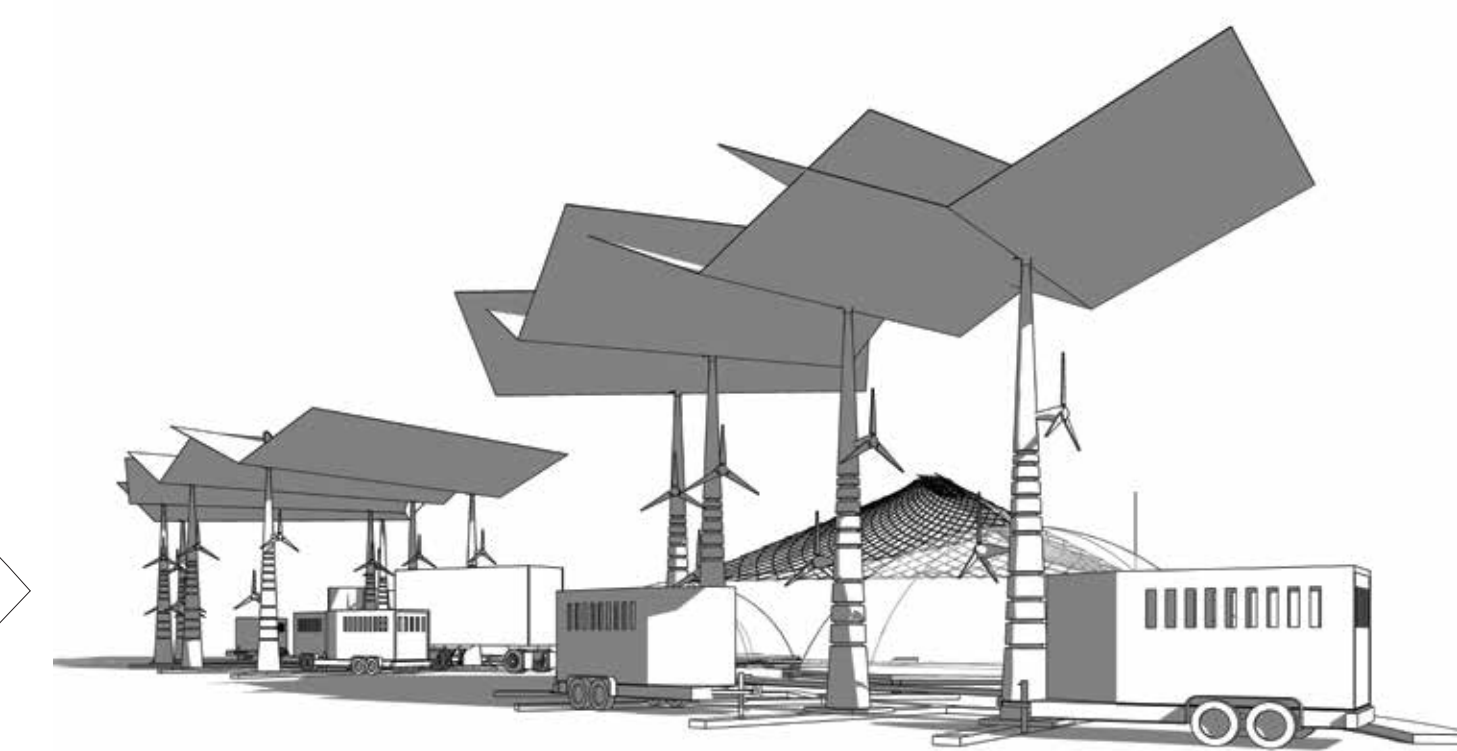
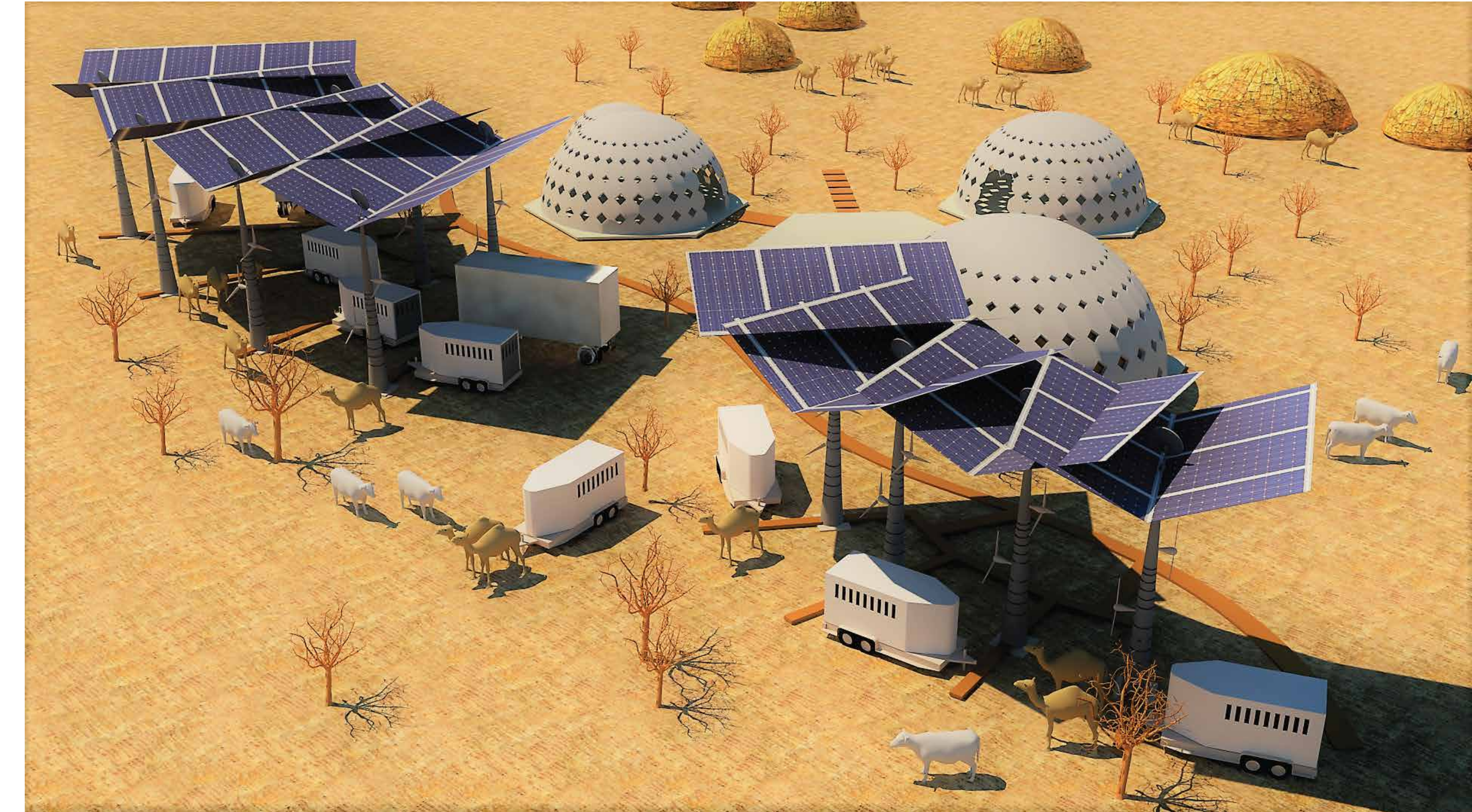
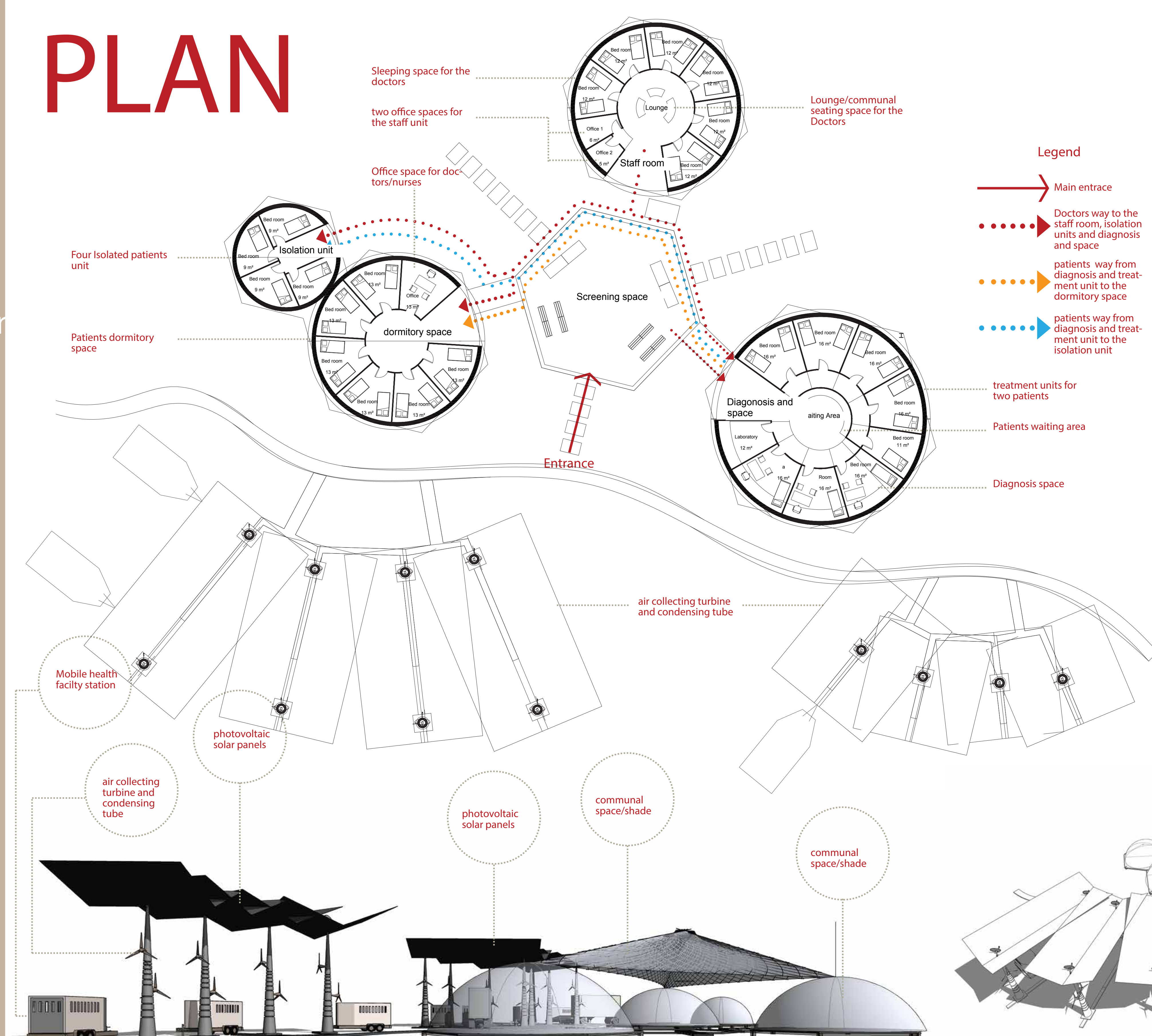
ATMOSPHERIC WATER HARVESTING (Water from Air) - roughly 11.5 millilitres of water could be derived from every cubic meter of air in deserts. Solar panels

Smart Pole - while harvesting water it also communicates with professionals around the globe via the satellite and display LED.



ATMOSPHERIC WATER HARVESTING (Water from Air) - Airdrop pumps air through a network of underground pipes; this cools the air until it condenses, delivering water to the roots of plants.

PLAN



view of the smart poles gives a shade for the mobile units while giving energy and water



a mobile healthcare unit that can gain its energy from solar panel and has satellite connection for communication



starts to expand for maximum and efficient use of the unit



unfolding the side structure to host a bed for patient



the mobile unit when fully functions

LOCATION 1

LOCATION 2

Inflatable Plastic bags will also serve as a shelter for the nomadic people, so it will be decorated with local materials.

Mobile aid center departs to other locations leaving the Inflatable Bag to the society.



Bio mimicry: learning from cactus

