

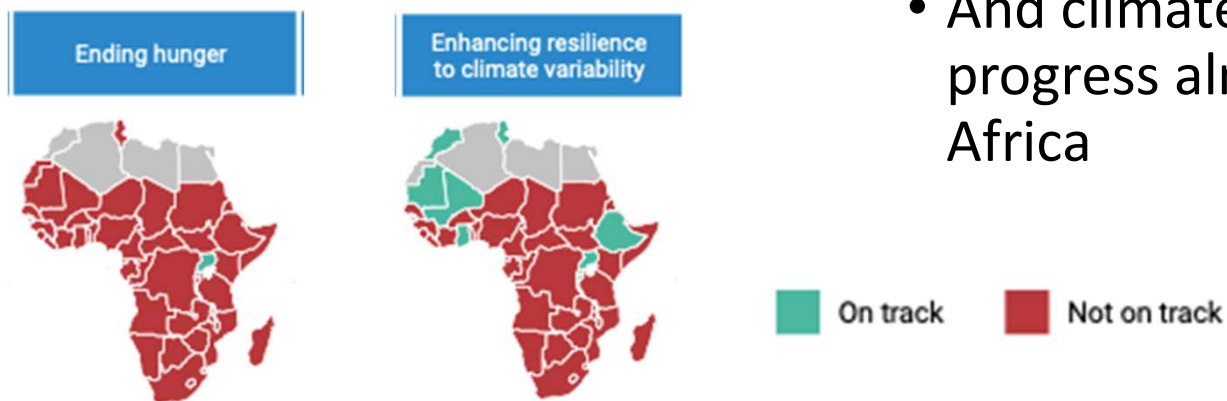
Current state of agriculture and food security in relation to climate change impact in the African context



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Current State of Agriculture and Food security

- Currently 1 in 5 people in Africa face hunger each year – double the rate of any other region and increasing.
- Malabo Declaration of 2014 set the goal of ending hunger by 2025.
- Many sub-goals are being met, but only 1 country is on track to end hunger
- And climate change is stalling progress almost everywhere in Africa



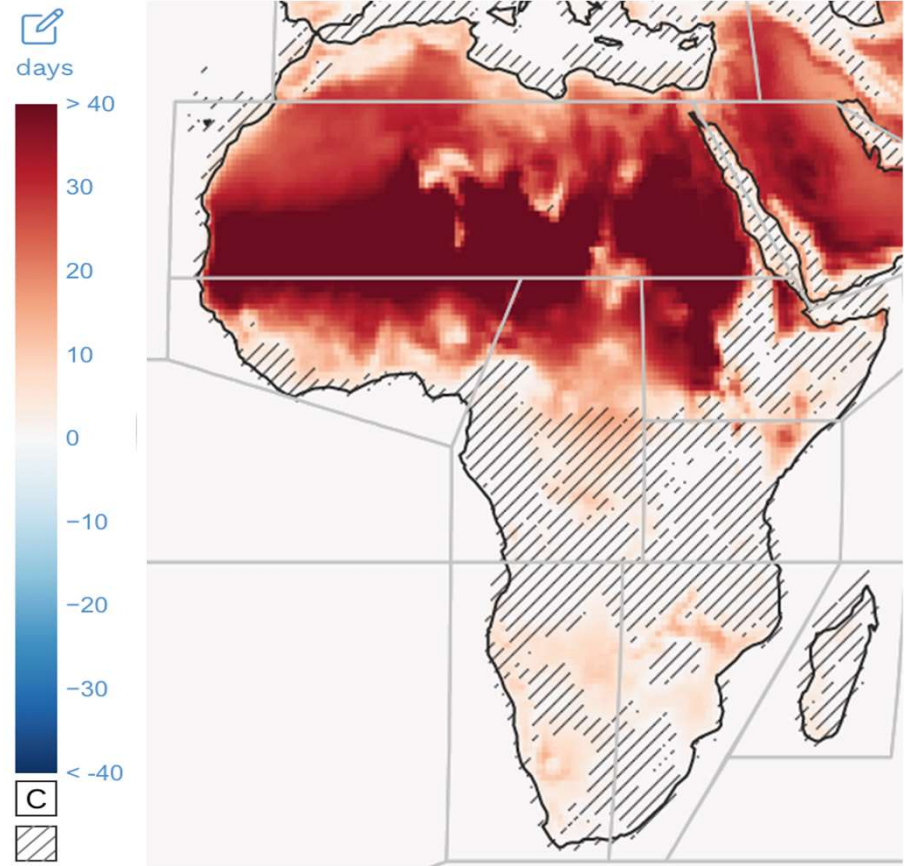
The Climate – what we should be planning for

Temperature

- We must strive for 1.5°C
- But prepare for 2° by 2050 and 3° by 2100.
- In many places life threatening heat will make outdoor work in daytime difficult

Rainfall

- In many areas 1:100 yr rain event may increase to 1:40 or 1:20 this century
- Drought conditions will increase in most regions
- Aridity to increase in north and southern Africa
- Check the IPCC Atlas
 - <https://interactive-atlas.ipcc.ch/>



Days per year with temperature > 40°C

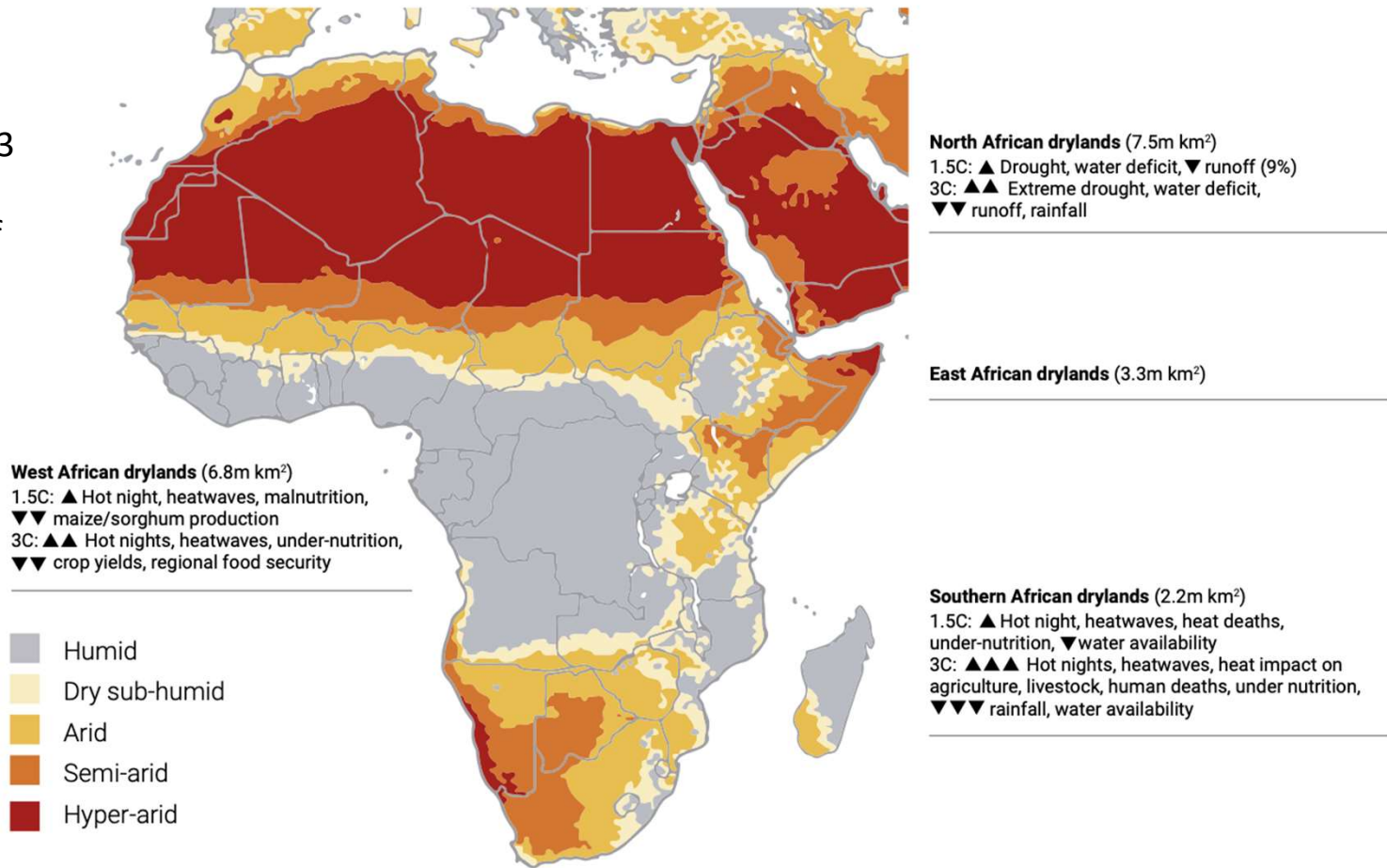
Recent impacts

- Droughts of the 1980's in Ethiopia & Sudan
 - 450,000 lives lost;
 - 16 million livelihoods disrupted
 - Deaths are decreasing – Why?
 - Social safety nets; changing attribution (people don't die from 'drought', but from malnutrition or a disease associated with it)
- Floods claim fewer lives but affect even more livelihoods.
- Flood losses have increased – 5x since 1990s, mostly because more people are exposed along the great rivers of Africa, but partly because of climate change
- There are numerous estimates, and the message is consistent
- Without effective adaptation millions more Africans will go hungry
- The lives of undernourished children will be blighted
- More people will be exposed to flood hazards
- Secondary impacts of CC will increase – e.g. migration

Figure 8. Predicted changes in drylands of Africa, under 1.5°C and 3°C global average rise in temperature

Drylands

- Cover about 2/3 of Africa
- Support 40% of population



Source: IPCC (2019). Climate Change and Land, Special Report; & IPCC (2018). Global Warming of 1.5°C, Special Report

Drylands - Promoting a positive vision

- Cover about 2/3 of Africa and support 40% of population
- Population is young and growing more rapidly than other areas
- After decades of improvement, malnutrition rates have increased to almost 50% over the past decade
- Drylands are the source of most displaced people

Promote a positive vision

- Realistic transformative interventions are needed
- Rethink small-holder v. pastoralist balance
- Rethink rain-fed agriculture
 - What is the best use of water?
- Look to other assets
 - Tourism, solar energy, minerals, open space, cultural heritage
 - Livelihoods based on natural capital

We must act

The cost of action v. inaction in agriculture

SSA – Based on IFPRI's IMPACT model

Annual costs 2015-2020

- Already investing in resilience: \$6 billion per year
- To further offset CC impacts : \$9 billion
- Total \$15 billion per year (<1% SSA GDP)

- Current external support c. \$1 to 2 billion per year

• Source STA21 Page 43 Tables 2 & 3 & Page 269 -271

- Annual costs of meeting needs with **no adaptation** action: \$200 billion per year (12% GDP) with half required for **crisis water management**
- Benefit cost ratio of acting: 8 to 1 or better
- Much the adaptation will involve sustainable land management, which will have co-benefits especially based on Nature-based-Solutions

Water and food security

- Most adaptive responses to CC involve greater use of water for agriculture
- But there will be greater competition for water across all sectors
- Water management will need to deal with increasing demand in an environment that is
 - increasingly variable and
 - unlike the past
- Only 3% of SSA agriculture is irrigated and much is wasteful
- We can increase irrigation efficiency but at the same time cropping patterns will be shifting (CC and other factors) and water demands will be changing.
- Political, institutional, commercial and managerial issues are as important as technologies

Agriculture & Food Systems - How to respond?

- There will be wholesale changes in what people eat
- Existing technologies will need to be repurposed – e.g.
 - Changes in crop types
 - Rain fed agriculture with ‘precision & deficit irrigation’ - but how to implement that?
 - Reduce food waste
 - Climate Smart Agriculture investment plans (skills and finance)
- New technologies / approaches
 - Climate Information Services
 - Digital Solutions
 - Holistic landscape solutions
 - Radical changes in land tenure, and local leadership

But it is easier to create the visions and the catchy names than to do the hard-slog of implementing them and the associated ‘learning by doing’ (a.k.a. ‘trial and error’)



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