Backgrounder:

Regional impacts + the 1.5°C climate target – Africa

South Africa

South Africa's NDC is rated by Climate Action Tracker as "highly insufficient" - well below what is needed to reach the 1.5°C temperature target contained in the Paris Agreement. Current South African climate pledges are consistent with the world warming by 3°C - 4°C.

- South Africa has ratified the Paris Agreement, and pledged to keep domestic emissions to 20-82% by 2030, on 1990 levels.

- South Africa has a long-term goal to stabilise emissions over 2025-2035 followed by a decline in emissions to 28% above 1990 levels.

Projected impacts across the African continent

With 1.5°C of global warming:

- In today's climate, the average African region experiences one to three heatwaves per year. Under 1.5°C of warming, this number could more than double by 2050.

- Compared to now, megacities like Lagos in Nigeria will be more vulnerable to heat stress, with perhaps twice as many becoming affected by the middle of the century, meaning more than 350 million people exposed to potentially deadly heat.

- Rising temperatures, drought, and unstable weather patterns have serious implications for global food production. Every degree of global temperature rise reduces global yields of wheat by 6.0%, rice by 3.2%, maize by 7.4%, and soybean by 3.1%. Some regions are more affected than others - for example in West Africa, wheat yields could fall by up to 25% if temperatures rise 1.5°C.[1]

With more than 1.5°C of global warming:

- Globally, agricultural yields fall rapidly between one and three degrees celsius of warming. Once local temperatures reach 3°C above pre-industrial levels, all crops are negatively affected, wherever they are in the world - including in temperate regions.[2] Fish species go locally extinct, with serious impacts on fisheries.[3]

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[1] Differential climate impacts for policy-relevant limits to global warming: the case of 1.5C and 2C (Earth System Dynamics, 2016), p.337.

[2] IPCC, AR5, WGII, Chapter 7, p.497.

[3] IPCC, AR5, WGII, Chapter 7, p.508.

- By the end of the century, 29% of the global population face 'beyond tolerable' risk in at least two out of the three main sectors - water, energy and food, and environment. More than nine out of ten people exposed and vulnerable people are in Africa and Asia.

- Without immediate global cuts in carbon dioxide emissions, average temperatures in Africa will rise more than two degrees celsius above pre-industrial levels by 2050. By this time, heat extremes never experienced before by humans in this part of the world could affect 15%[4] of sub-Saharan Africa's land area in the hot season, causing deaths and threatening farmers' ability to grow crops.

- This part of the world is likely to warm faster than the global average. If global temperatures rise by 2°C, summer temperatures in the Middle East and North Africa region could increase by more than double that. The region is currently home to more than 500 million people. By 2050, daytime temperatures could rise to 46°C on the hottest days. Temperatures of 30-40°C can be deadly and this could make parts of the region uninhabitable because of extreme heat. Rising temperatures are also likely to lead to water shortages. In North Africa, a 3°C temperature increase could cause rain fed maize yields to drop by 15-25% by 2080.[5]

- Under 3.5°C of warming, people in sub-Saharan Africa would be at higher risk of Malaria.[6]

- Under 4°C of warming, the subtropical region of North Africa is likely to experience a rise in monthly summer temperatures of more than 6°C .[7]

- 35% of cropland is expected to become unsuitable for cultivation 4°C or more of warming.[8]

- Under a high emissions scenario (RCP8.5) where temperatures rise 4°C - 6°C by the end of the century, sub-Saharan Africa could see about 53.5 million climate migrants by 2050. This is about 3% of the current population.[9]

Benefits of limiting temperature rise to 1.5°C:

- 55 million fewer people in African countries would be at risk of hunger, compared to a 2°C future.[10]

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[4] Turn down the heat: Climate extremes, regional impacts, and the case for resilience (2013), The World Bank, p.xxvi.

[5] UNDP-GEF report: Climate Change Adaptation in the Arab States, p.26.

[6] Turn down the heat: why a 4°C warmer world must Be avoided (2012), The World Bank, p.56.

[7] Turn down the heat: why a 4°C warmer world must Be avoided (2012), The World Bank, p.38.

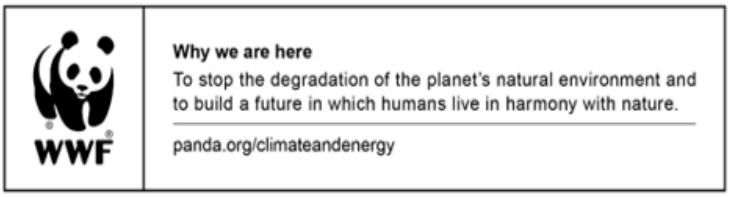
[8] Turn down the heat: why a 4°C warmer world must Be avoided (2012), The World Bank, p.62.

[9] Groundswell: Preparing for Internal Climate Migration, (2018), World Bank Group, p.111.

[10] Clements, R. (2009). The Economic Cost of Climate Change in Africa.

- By 2100, 90% of the world's population,[11] particularly poor countries in Africa, Asia, and Latin America, would be likely to experience reduced economic damages compared to those at warming at 2°C.

This paper was prepared by GSCC to support understanding of issues arising from the IPCC's Special Report on 1.5°C warming.



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[11] Large potential reduction in economic damages under UN mitigation targets (208), Nature, p.552.