

What does 1.5 °C Global warming mean for Namibia?

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Research is needed for Climate Action: Why this Analysis



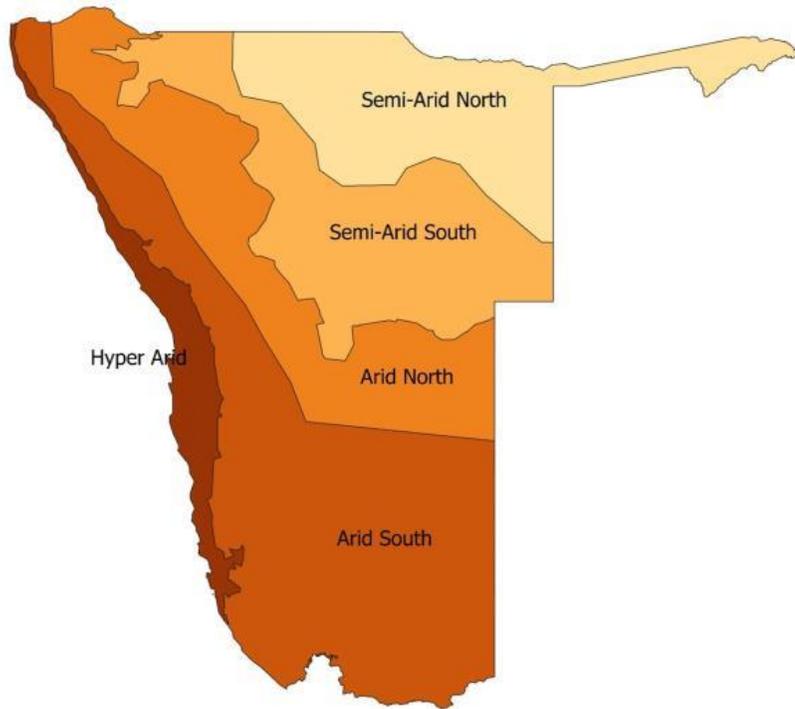
UNAM
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IPCC was asked by UNFCCC to analyse and release a special report on the impacts of global warming of 1.5°C and beyond (IPCC, 2018) above pre-industrial levels – the target set by the Paris Agreement

ASSAR (Led by UCT, Namibian case study led by UNAM) developed a set of country-specific analyses that examine how projected 1.5°C and higher (half degree increments up to 3°C) global warming could affect temperatures, precipitation, and climate extremes within the semi-arid and arid regions of each of the African countries where ASSAR works

Analyses done in these countries: Botswana, Ethiopia, Ghana, Kenya, Mali, and Namibia, provide context specific evidence needed to initiate climate action.

Global warming and projections for Namibia



IMPACTS OF GLOBAL WARMING THRESHOLDS ON NAMIBIA'S CLIMATIC ZONES

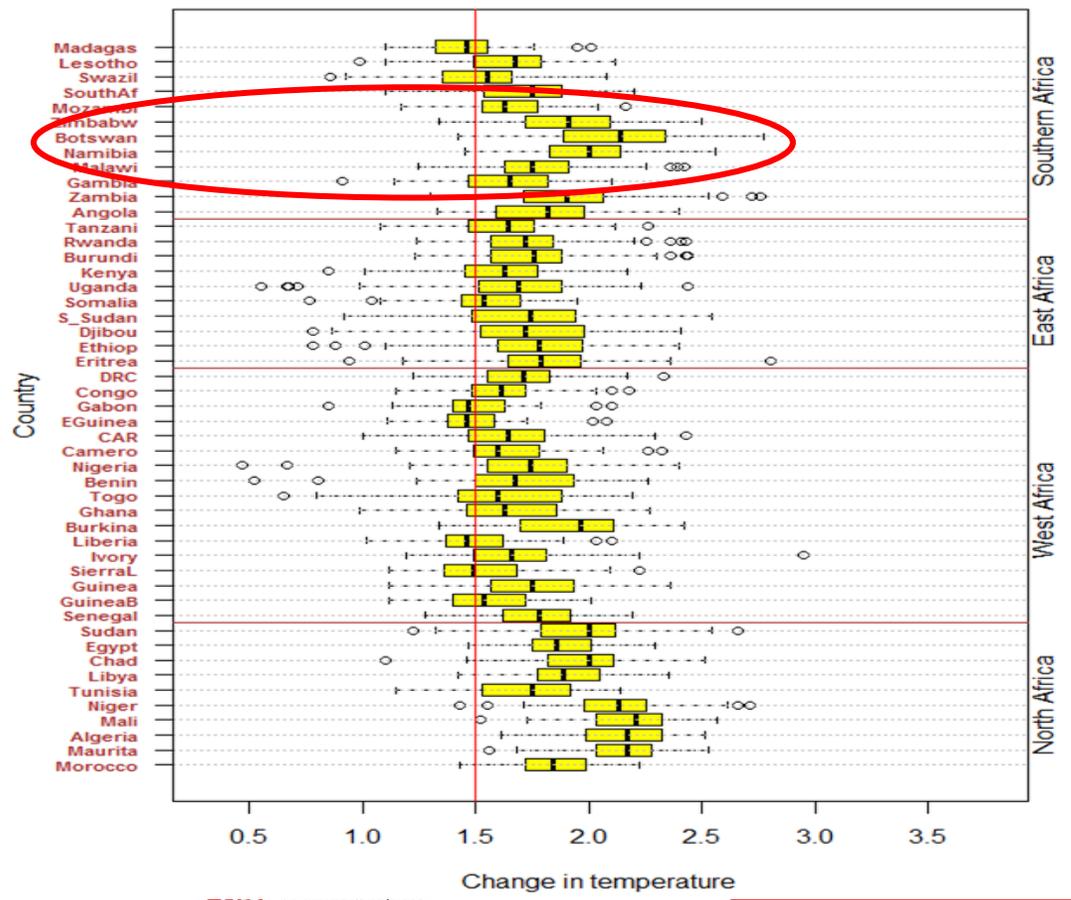
	HYPER ARID				ARID SOUTH				ARID NORTH				SEMI-ARID SOUTH				SEMI-ARID NORTH				NAMIBIA OVERALL			
	1.5°C	2°C	2.5°C	3°C	1.5°C	2°C	2.5°C	3°C	1.5°C	2°C	2.5°C	3°C	1.5°C	2°C	2.5°C	3°C	1.5°C	2°C	2.5°C	3°C	1.5°C	2°C	2.5°C	3°C
Annual rainfall (%)	-6	-9	-12	-16	-7	-9	-16	-18	-4	-6	-9	-13	-3	-8	-8	-12	-4	-6	-9	-12	-4	-7	-11	-14
Duration of dry spells (days)	+10	+17	+18	+25	+12	+18	+22	+28	+13	+17	+21	+28	+12	+17	+22	+30	+13	+17	+21	+28	+12	+17	+22	+27
Duration of wet spells (days)	0	0	-1	-1	0	-1	-1	-1	0	-1	-1	-1	-1	-1	-2	-1	-1	-1	-2	-2	-1	-1	-1	-1
Heavy rainfall days (>10mm/day)	0	0	0	0	0	-1	-1	-1	0	-1	-1	-2	-1	-2	-2	-2	-1	-2	-3	-4	-1	-1	-2	-2
Extreme heavy rainfall days (>20mm/day)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Amount of rain in heavy rainfall events (%)	0	-2	-5	-7	+1	+2	-4	-7	+5	+5	+5	+1	+2	+3	+1	0	+5	+1	+3	+8	+6	+5	+1	+1
Amount of rain in extremely heavy rainfall events (%)	+15	+12	+8	+3	+11	+11	+3	-4	+19	+21	+22	+12	+13	+19	+17	+12	+14	+14	+25	+26	+15	+13	+18	+21
Amount of rain in highest rainfall day (%)	0	-2	-3	-2	0	0	-2	-4	+2	+4	+3	+4	+4	+4	+5	+4	+5	+5	+5	+6	+3	+3	+3	+2
Amount of rain in highest five consecutive rainfall days (%)	0	-5	-5	-4	+1	-2	-3	-5	+2	+2	+4	+3	+2	+1	+2	+2	+2	+2	+2	+4	+3	+1	+2	+1

Determining what global warming of 1.5°C and higher means for the semi-arid regions of Botswana, Namibia, Ghana, Mali, Kenya and Ethiopia:

A description of ASSAR's methods of analysis

Global warming and projections for Namibia

Change in Temp at 1.5 °C Global warming

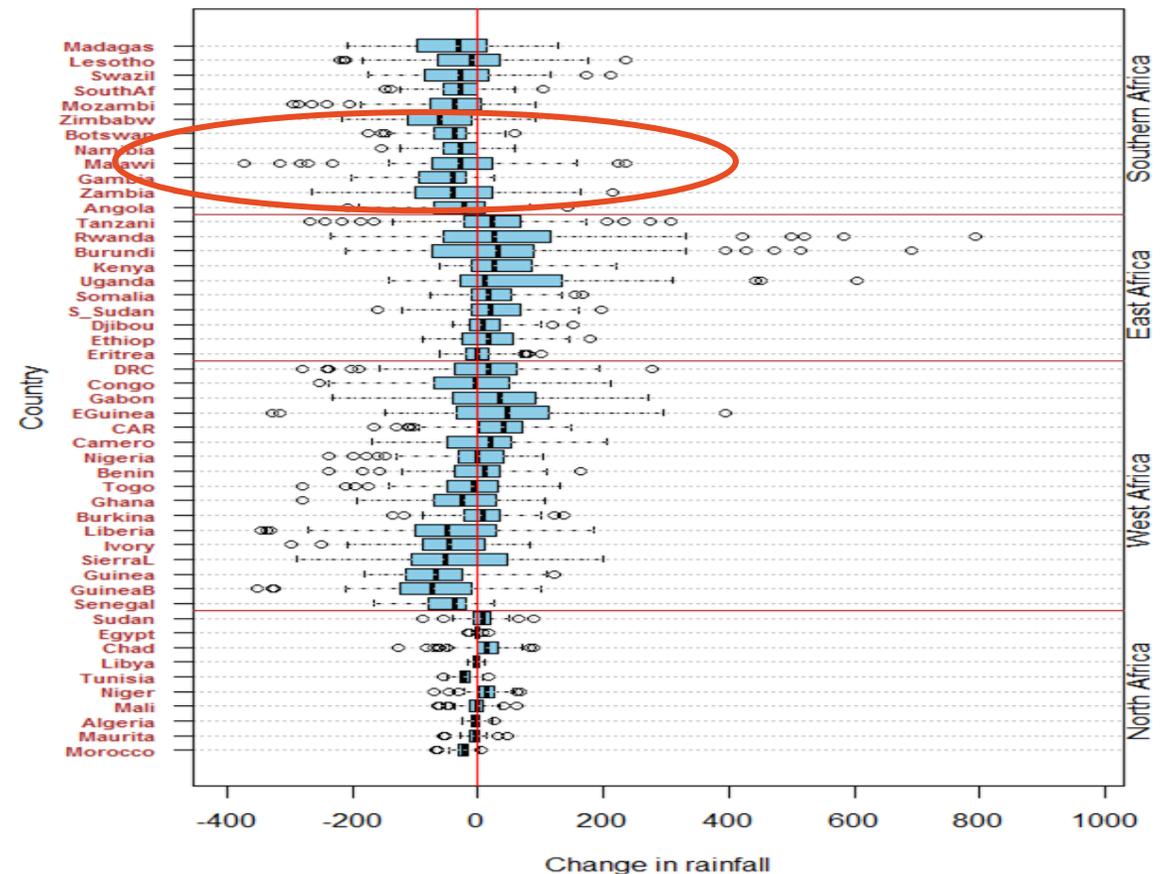


- About 50 countries in Africa
- 44 Countries are above average
- 11 Countries are 33% above the average
- Namibia is in the top 15% countries warming the highest in Africa.
- Southern and northern Africa have countries that are warming the highest
- Botswana is warming the highest in Africa

Global warming and projections for Namibia

- West Africa indicate highest reductions in rainfall
- Southern Africa indicates reductions in rainfall, Zimbabwe with the highest reduction
- North Africa has minor changes in rainfall
- This means temperature increases are a problem for Namibia and Botswana

Change in rainfall at 1.5 °C Global warming



adaptation responses.

		GLOBAL WARMING ABOVE PRE-INDUSTRIAL LEVELS				
		15°C	2°C	2.5°C	3°C	
Projected climate changes ³	 CLIMATE	Mean temperature (°C)	▲ 2	▲ 2.7	▲ 3.3	▲ 4
		Heat waves (days)	▲ 50	▲ 78	▲ 114	▲ 148
		Annual rainfall	▼ 4%	▼ 7%	▼ 11%	▼ 14%
		Heavy rainfall (days)	▼ 1	▼ 1	▼ 2	▼ 2
		Dry days	▲ 12	▲ 17	▲ 22	▲ 27
Estimated impacts ⁴	 WATER	Evapotranspiration rates ⁵	▲ 10%	▲ 14% ⁶	▲ 17% ⁶	▲ 20% ⁶
		Surface runoff ⁷	▼ 19% ⁶	▼ 30% ⁶	▼ 40% ⁶	▼ 50% ⁶
		Groundwater recharge rates ⁸	▼ 33% ⁶	▼ 49% ⁶	▼ 66% ⁶	▼ 82% ⁶
	 AGRICULTURE	Cereal crops ⁵ (productivity)	▼ 5% ⁶	▼ 10%	▼ 15% ⁶	▼ 20%
		Livestock ⁵ (productivity)	▼ 5%	▼ 20%	▼ 35%	▼ 50%
	 HEALTH	Malaria ⁹ (months of risk)	▼ 23% ⁶	▼ 34% ⁶	▼ 44%	▼ 56% ⁶
		Heat stress ¹⁰ (number of days of exposure)	▲ 21	▲ 41	▲ 41	▲ 188
	 BIODIVERSITY	Desert encroachment ⁵	▲ 11% ⁶	▲ 18% ⁶	▲ 18%	▲ 43%
		Species loss ¹¹	▲ 30% ⁶	▲ 40%	▲ 50%	▲ 60%

CALL TO CLIMATE ACTION – SDG13

•Half a degree can make a big difference

- In climate hotspots like SARs, an increase of just half a degree in global temperatures can make a big difference, as these seemingly small increments can lead to distinct climatological conditions at local levels.
- Time for Action in now – SDG13
- Global action aims to keep global mean increase in temperature to 2 degrees Celsius, with an aim of 1.5 degrees Celsius, above pre-industrial levels, urgent collective action is required!

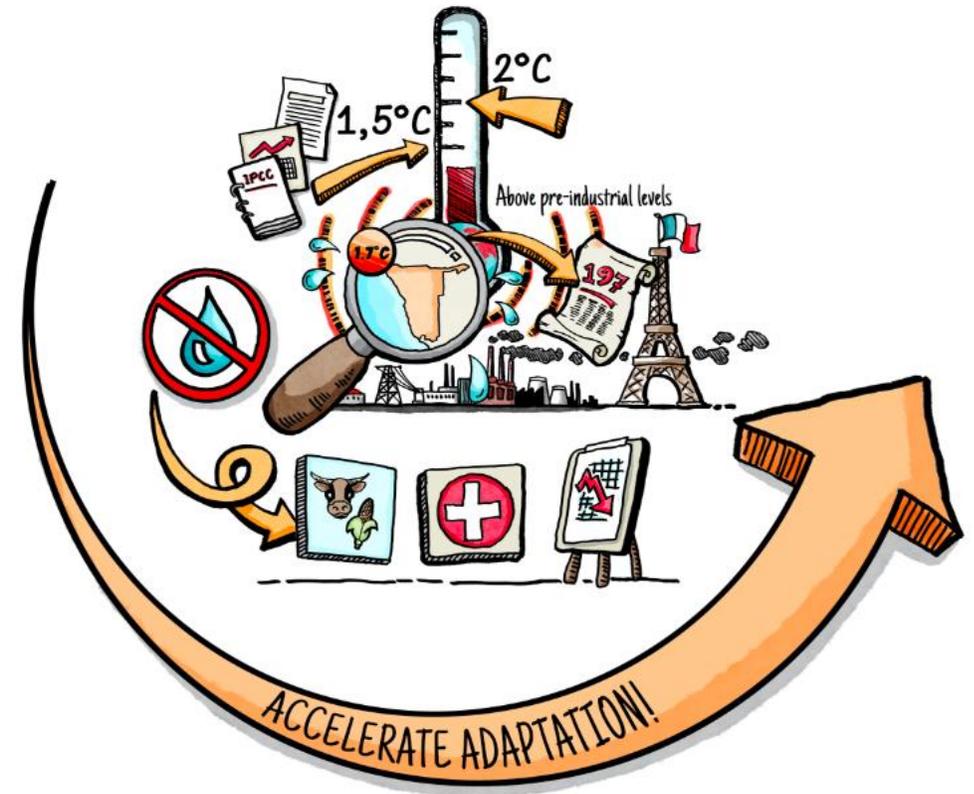
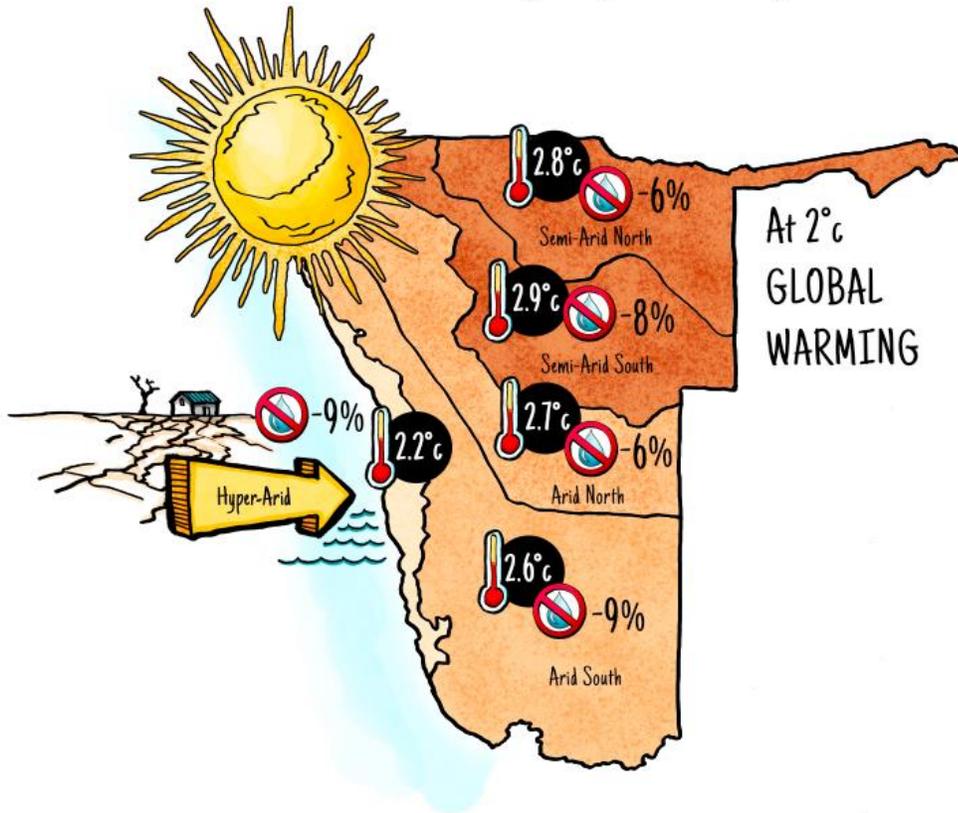
•Semi-Arid Countries in Africa are hotspots for climate change too

- Under both 1.5°C and 2°C future global climate scenarios, climate stressors and existing vulnerabilities interact to make SARs climate change hotspots.
- Semi-Arid Countries - Adapt well, adapt quickly
- At current emission rates, the 1.5°C global temperature increase mark could be crossed as early as 2026, with the 2°C mark being crossed 14 years later in 2040. This will leave very little time to respond to any associated impacts.

What does 1.5 degrees Celsius mean for Namibia

Animation Video 5:52 minutes

What are the expected impacts for each climatic zone at 2 degrees global warming?





6 minutes exercise

- How many years left for the climate change impacts to adversely affect the Namibian water sector?
-
- Construct about 100 words - a strong argument why Namibia need a US\$ 100 million funding from Green Climate Fund and Partnerships with one or two annexed countries. Use evidence you learned from this presentation.
- Which sector are you going to invest this money on?
- Why?



What does 1.5 °C Global warming mean for Namibia

NAMIBIA IS HEATING UP: WHAT DOES GLOBAL WARMING OF 1.5°C MEAN FOR US?

1.5°C is too much for Namibia

The world's temperatures have increased by 1°C since pre-industrial times. Global leaders have agreed to limit global warming well below 2°C, ideally 1.5°C.

Temperatures in Namibia are set to rise much more rapidly than the global average. As an arid country with a hot climate, a 1.5°C global increase will mean an increase of 2°C for Namibia, which could be exceeded within the next decade.

Namibia needs to act now to adapt to rapid changes in local weather and climate.

How is Namibia responding?

Namibia has developed a National Policy on Climate Change and identified adaptation and mitigation actions in the National Climate Change Strategy and Action Plan, as well as its Nationally Determined Contribution (NDC).

What can you do?



Seek out regular weather and climate forecasts to inform your farming practices and adapt to the changing climate.



Diversify your farming to include drought and flood resistant crops, heat-tolerant livestock breeds, and try to earn income from non-farming activities.



Practice soil and water conservation, through conservation agriculture, agroforestry, drip irrigation and water-demand management.



Implement rangeland management practices such as thinning of encroacher bush, reforestation, planting fodder grasses and avoiding overstocking.



Store surplus grain and fodder to use during periods of poor harvest.



Undertake controlled harvesting of local species such as mopani worms, mopani trees and freshwater fish, to preserve species diversity.



Share resources and join or establish community support groups, such as cooperatives, and credit and savings associations.



Take preventative measures to protect yourself against heat exposure and water-borne diseases, for example using mosquito nets and keeping hydrated.



What to expect

Decreasing annual rainfall across the country

Decreased rainfall and increased drying and expansion of hyper-arid areas may lead to a loss of productive land suitable for crops and livestock.

Increased health risk and disease

Increasing temperatures and changing rainfall patterns will change the prevalence of diseases. Malaria is expected to reduce in Namibia because the drier conditions may shorten the mosquito breeding season. However, increasing temperatures may result in outbreaks in new areas.

Increased extreme weather events

Floods and droughts may become more frequent and intense, affecting water availability, food production and people's livelihoods. Contaminated water sources from flood or drought events may cause cholera and hepatitis E.

Increasing local temperatures and heat waves

The semi-arid regions will experience the highest temperature increase, with extreme heat and water scarcity affecting crops and people's livelihoods. Heat waves will be longer and more frequent, making people more vulnerable to heat stroke and heat exhaustion.

Increased loss of local species and expanding desert zones

An estimated 30% of species will be lost, and expanding desert and shrublands may replace savannah grasslands. Biodiversity impacts may affect livestock production (due to reduced grazing), malnutrition, and the tourism industry.

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