

Climate adaptation ambition in the face of increasing risks from cyclones, floods and tornadoes in (Southern) Africa

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of south africa

F2F Keynote Presentation Made during the

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- **Key Pointers to Take Home**

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- **Introduction and Background**

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- **Increasing risk of slow onset and extreme climate events in (Southern) Africa**

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- **A Call for Adaptation Ambition Everywhere by Everyone**

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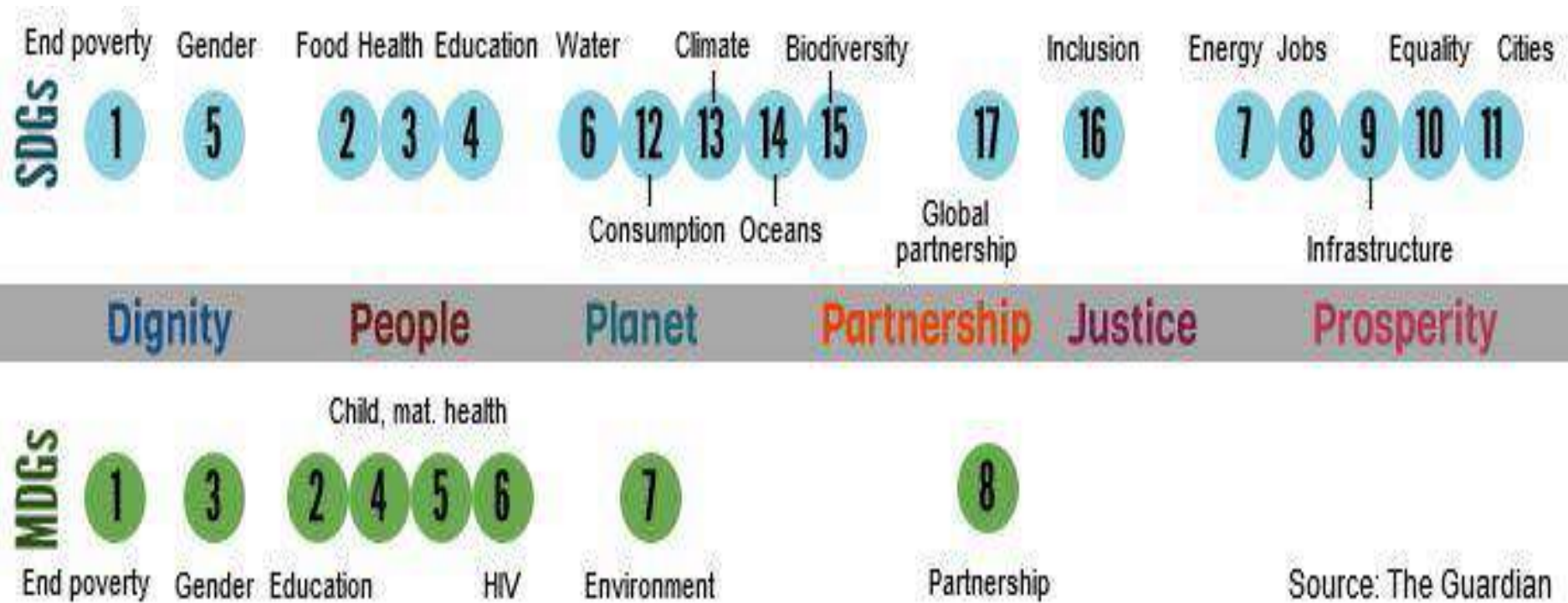
- **Conclusion**

Key policy pointers to take home

1. We hear of carbon taxes/levies etc., but the world seems reluctant and/or silent on **strong adaptation taxes/levies**.
2. Climate change has **inseparable linkages** with the attainment of the 2030 Agenda for Sustainable Development and the 17 intertwined SDGs
3. To reach the required **adaptation ambition** levels, we need to be ready regarding high-level political and management buy-ins, policy frameworks, funding, institutional capacity, **scaling-up quick and big wins programmes and projects on the ground**, close ranks on terminology, raise awareness and education, and establish strong collaboration networks
4. While there has been ambition in (I)NDCs, this has not been the same with **NAPs** (that embed both L&D, as well as resilience building, including what I call the B4 Model)

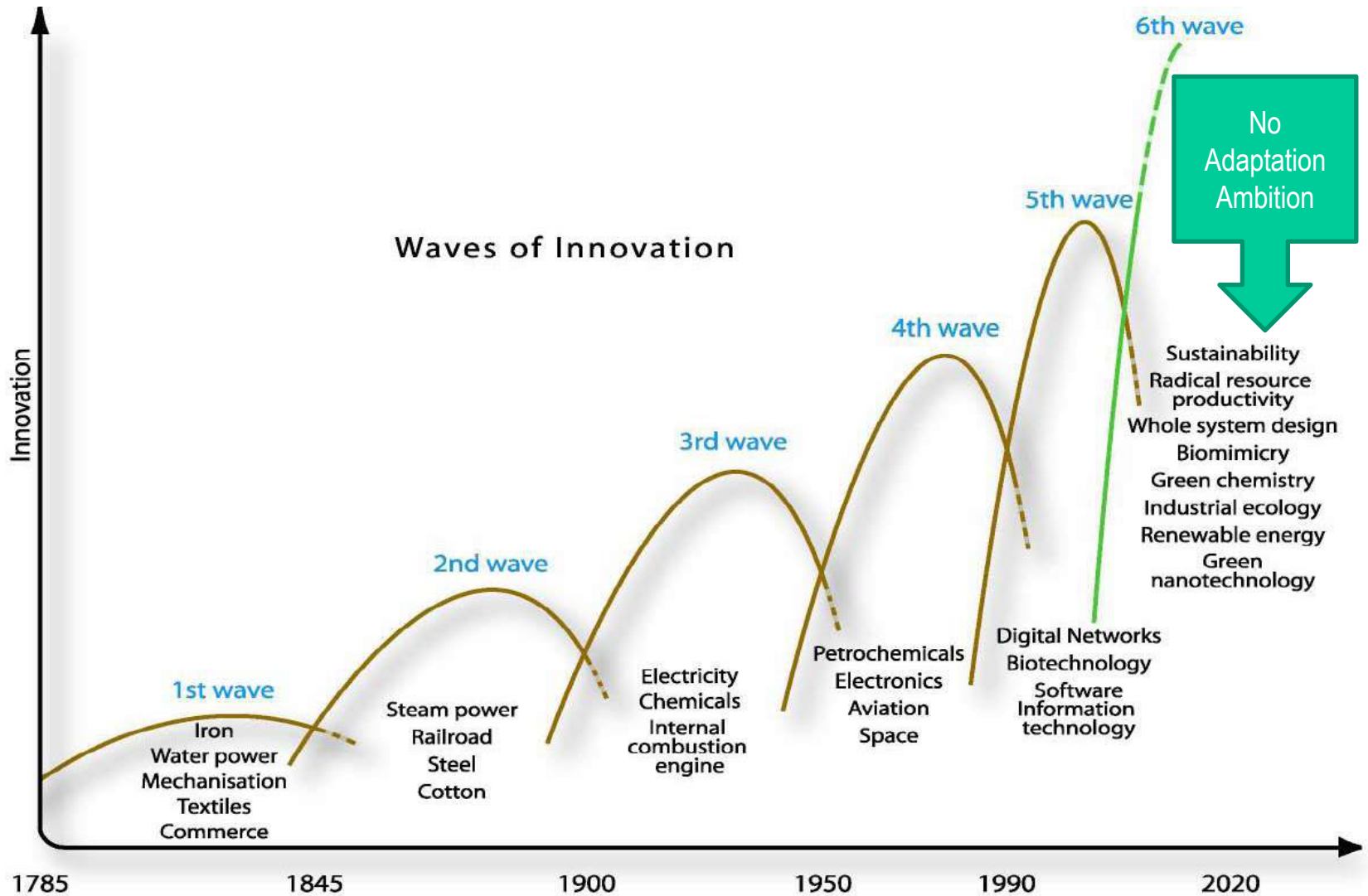
SECTION 1: Introduction and Background

Locating CC in the 2030 Agenda and the SDGs



Source: The Guardian

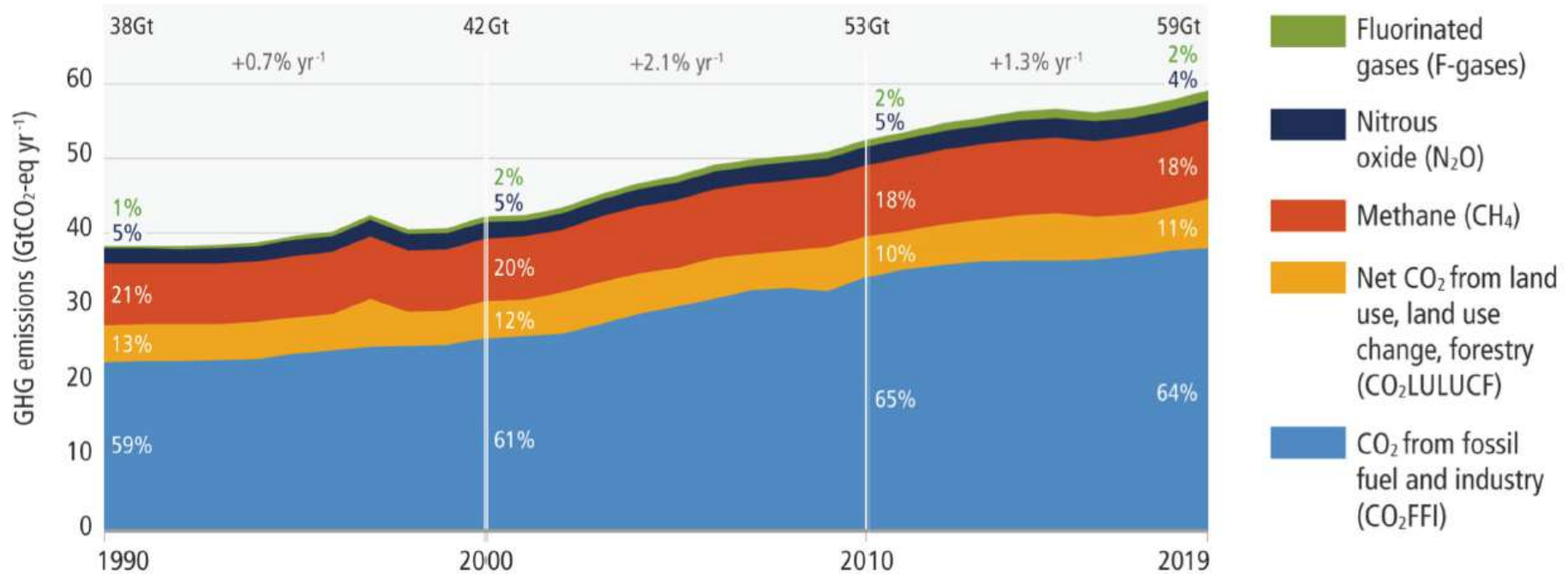
The challenge: A mitigation-heavy global society



Source: Lovins (2009: 25)

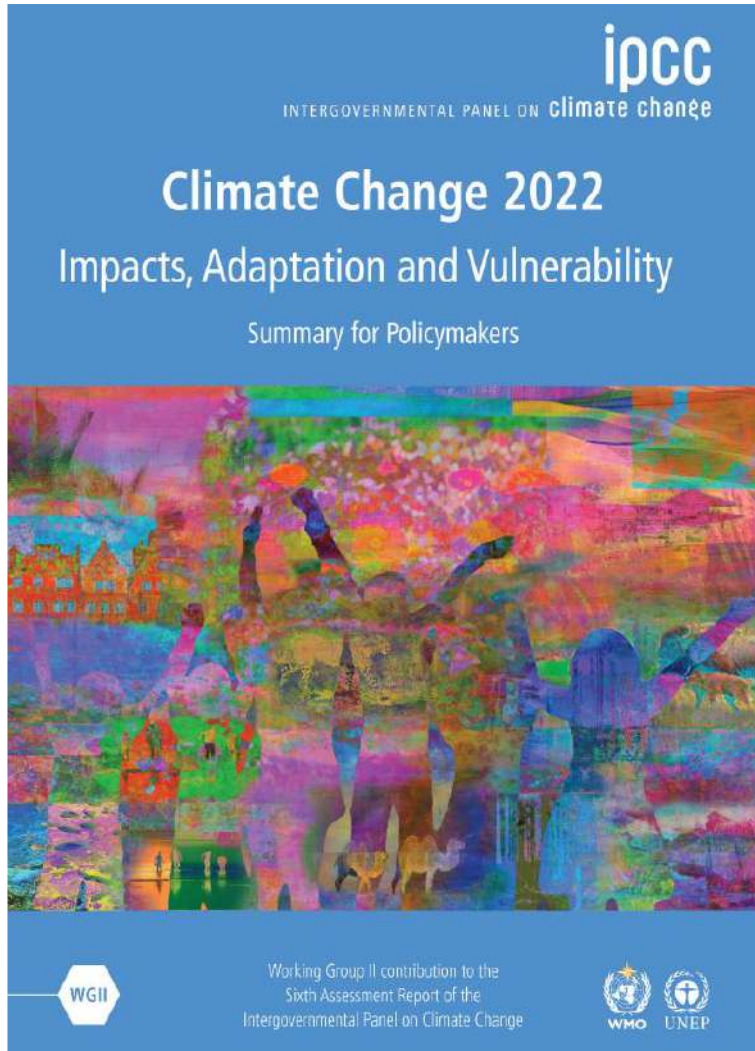
Summary on Key issues from the IPCC AR6 Reports

We are not on track to limit warming to 1.5 °C.



NB: 2010-2019: Average annual greenhouse gas emissions at highest levels in human history.

Summary on Key issues from the IPCC AR6 Reports



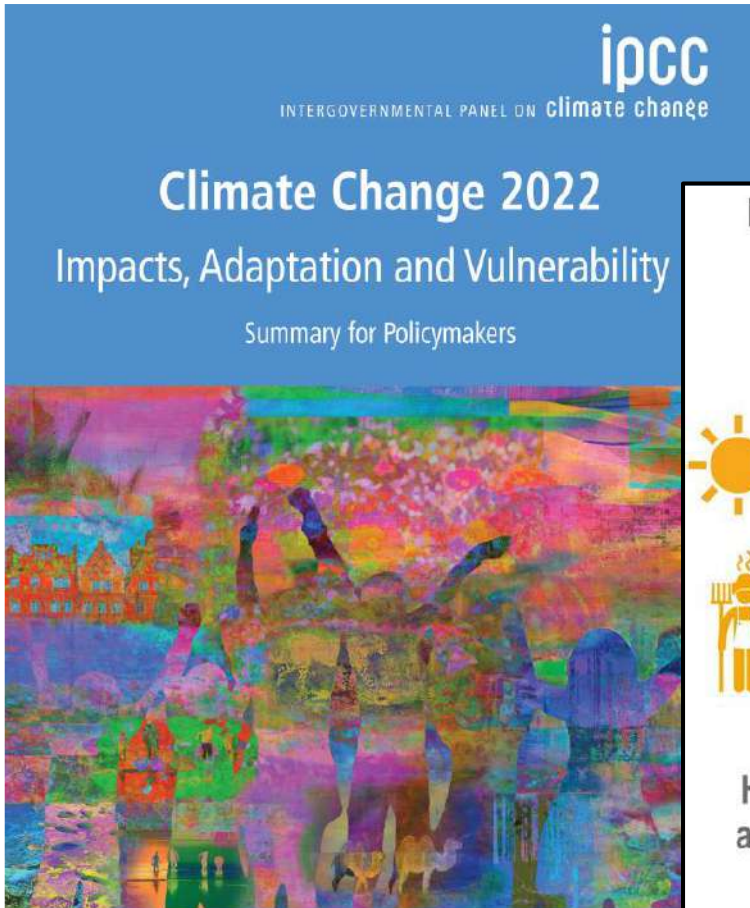
The scientific evidence is unequivocal that climate change is a threat to human wellbeing and the health of the planet.

Any further delay in concerted global action will miss the brief, rapidly closing window to secure a liveable future.

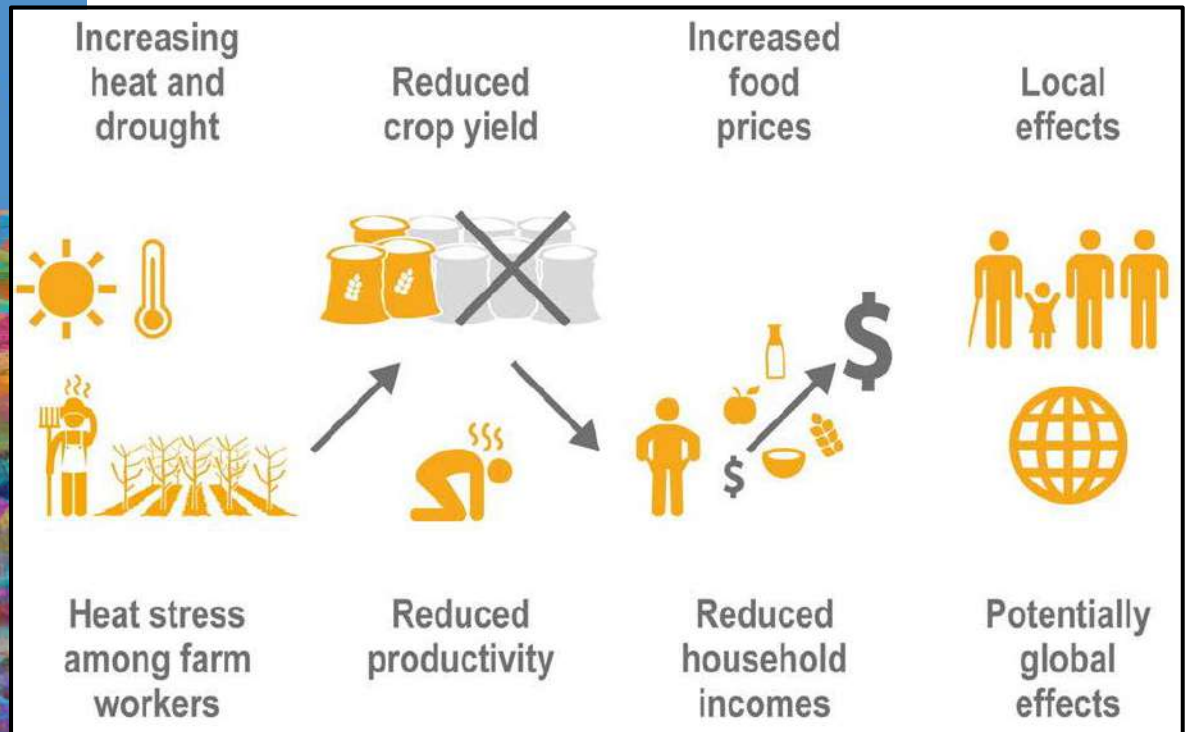
[T]herefore, ambitious adaptation solutions are urgent as CC continues to affect the lives of billions of people, despite efforts to adapt.

There is a call to zero-in on cities where over 50% of the global populations resides, with this figures expected to rise by the turn of the century.

Summary on Key issues from the IPCC AR6 Reports



Simultaneous extreme events compound risks



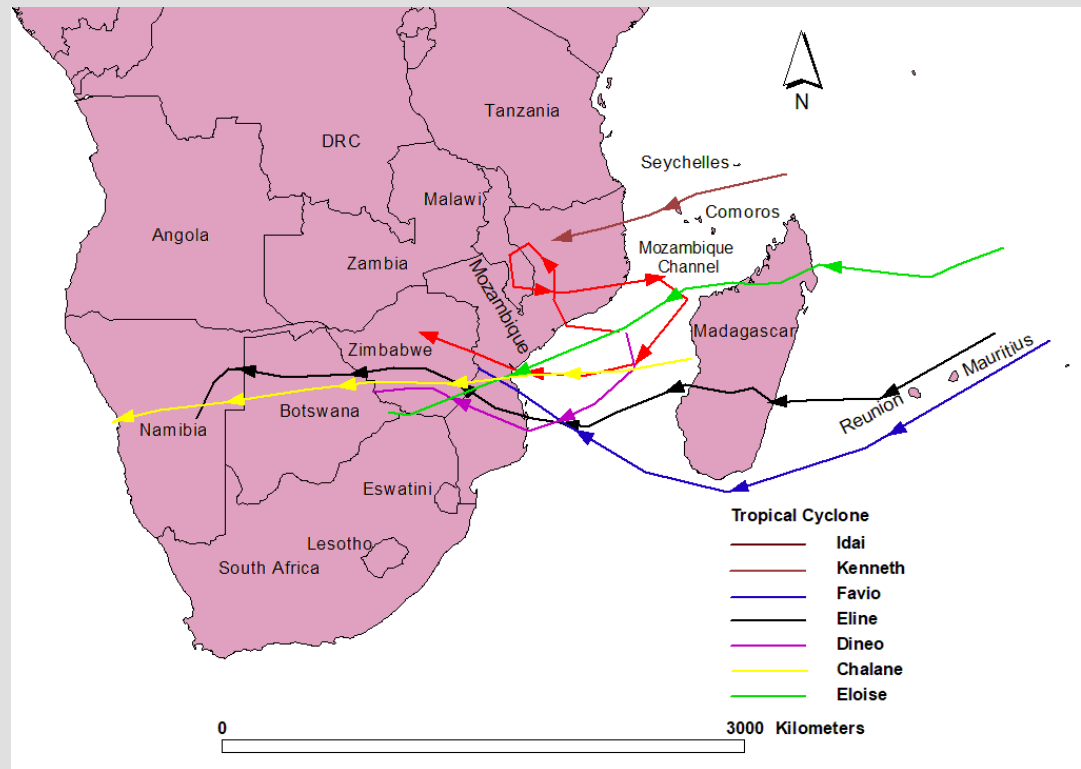
SECTION 2: Increasing risk of slow onset and extreme climate events in (Southern) Africa

How much water & damage did Tropical Cyclone **Idai** bring?



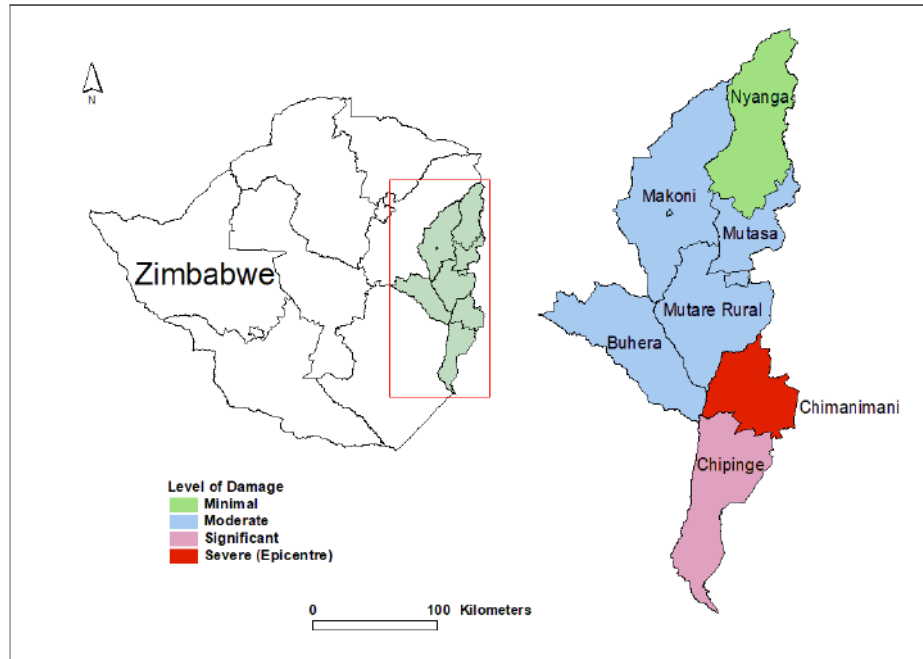
Climate-related extremes: Increasing Risk of Tornadoes

Source: Nhamo
& Chikodzi, 2021



NB: TC Idai cost the region more than US\$ 1 billion

Results of Climate Change: Extremely Damaging Cyclones/Hurricanes /typhoons



Rathmore Farm before (13 March 2014)
and after (25 March 2019)

Climate-related extremes:
Settlements at Kopa before
(29 July 2016) & after (25
March 2019) Cyclone Idai
(Chimanimani, Zimbabwe)

Source: Nhamo & Chikodzi, 2021



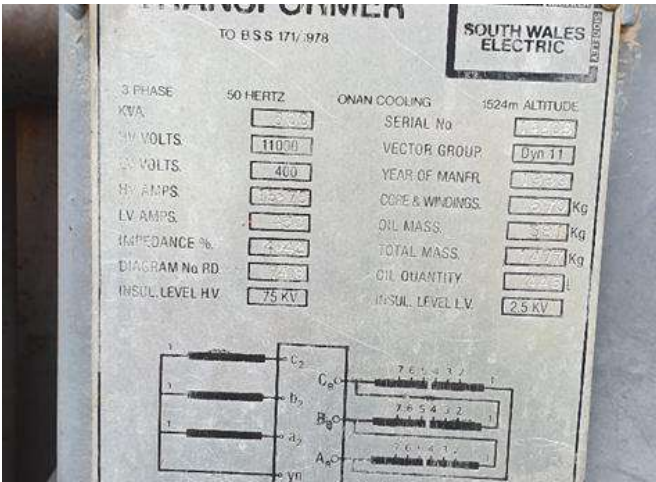
Impact on Mountain Slope Stability in Ngangu, Chimanimani (Zimbabwe) 2019

Before TC Idai



After TC Idai

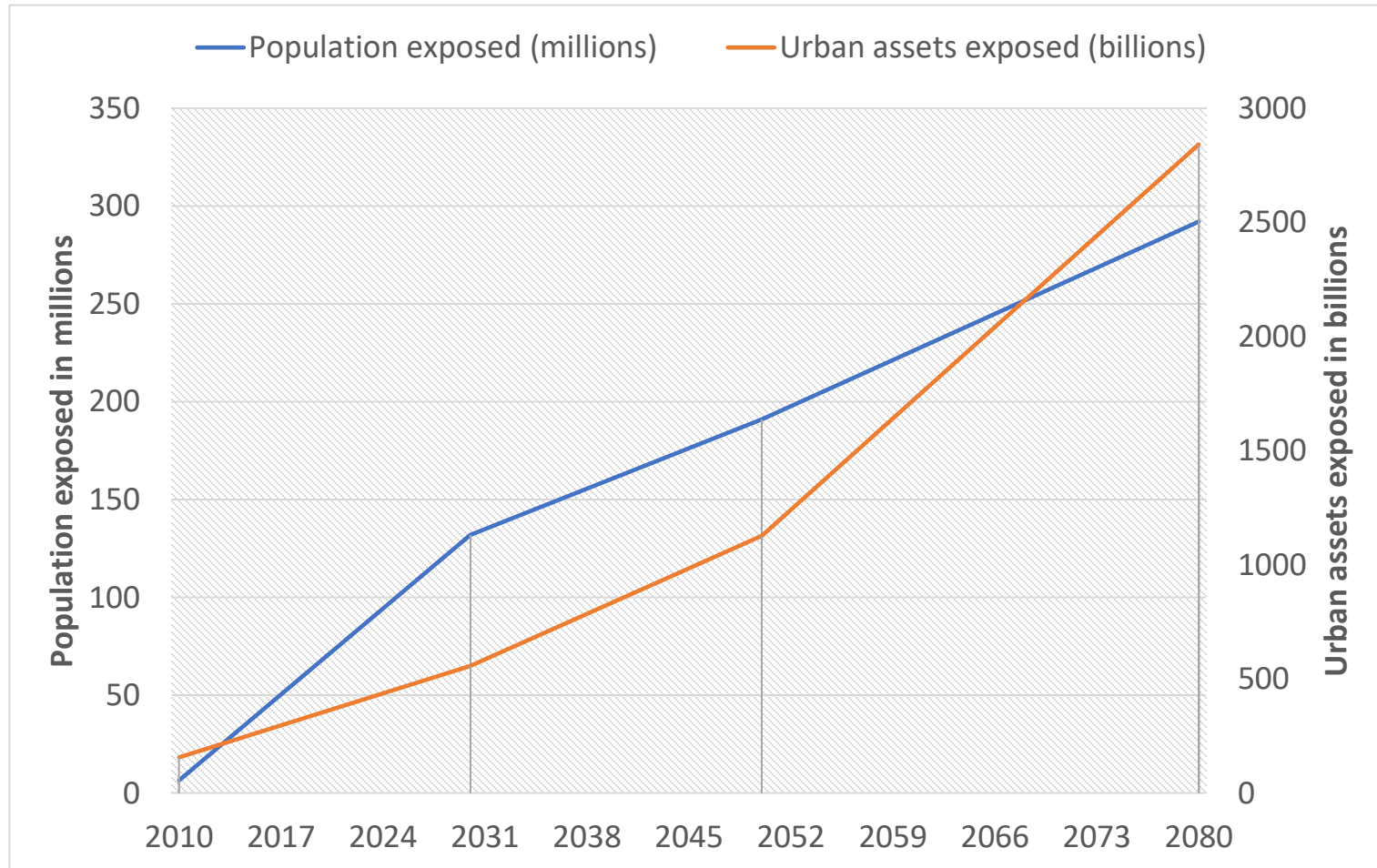




Climate-related extremes: Damaged Transformers, Wires etc. after Cyclone Idai in Chimanimani, Zimbabwe

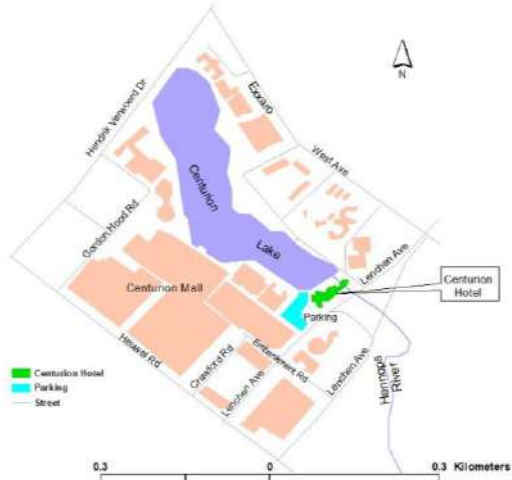
Source: Nhamo and Chikodzi, 2021

Expected global annual damage from riverine flooding



Source: Dube & Nhamo, 2021 - Data from World Resources Institute 2021

Flooding of The Centurion Hotel 2019 (Now Closed)



Floods at Tandale Mtogole (Tanzania), 2011



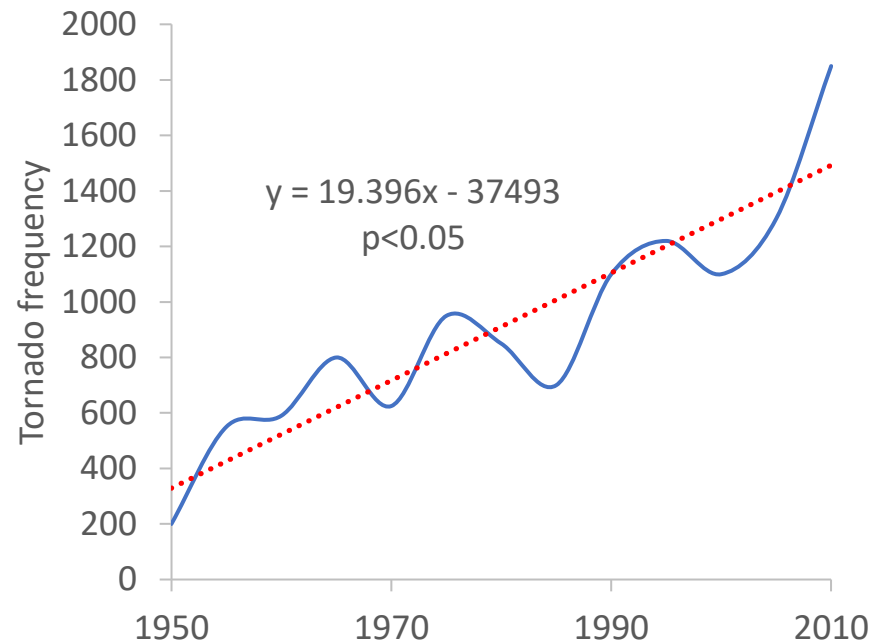
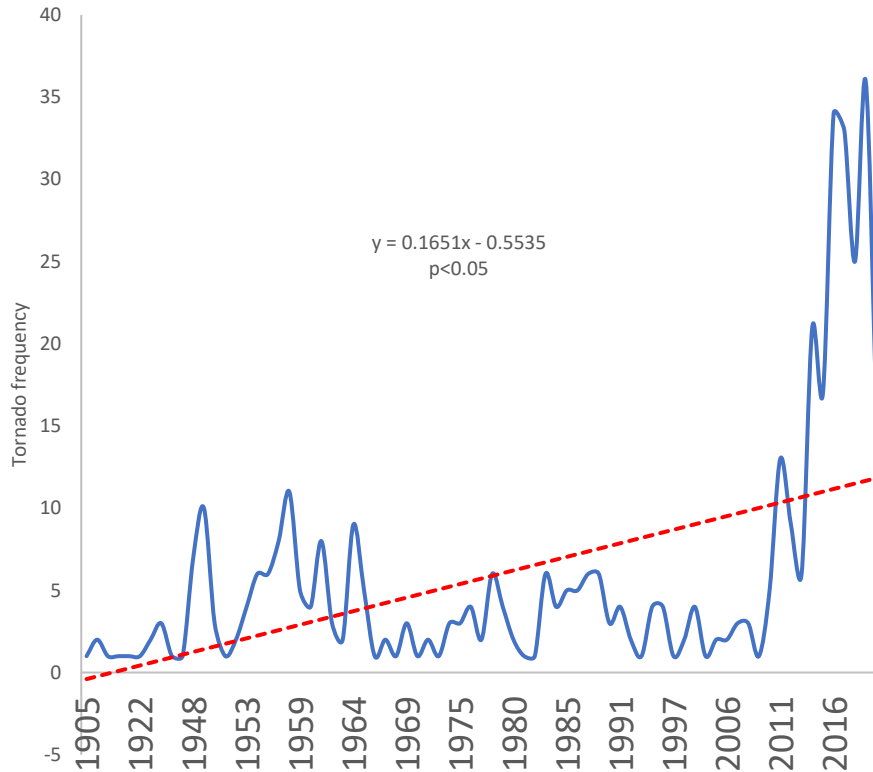
Source: NCCS 2012: 42

Floods in Rwanda 2007



EAC CC Strategy 2011:22

Tornado frequency (left) in South Africa between 1905 and 2020 (right) in the US between 1950 and 2010

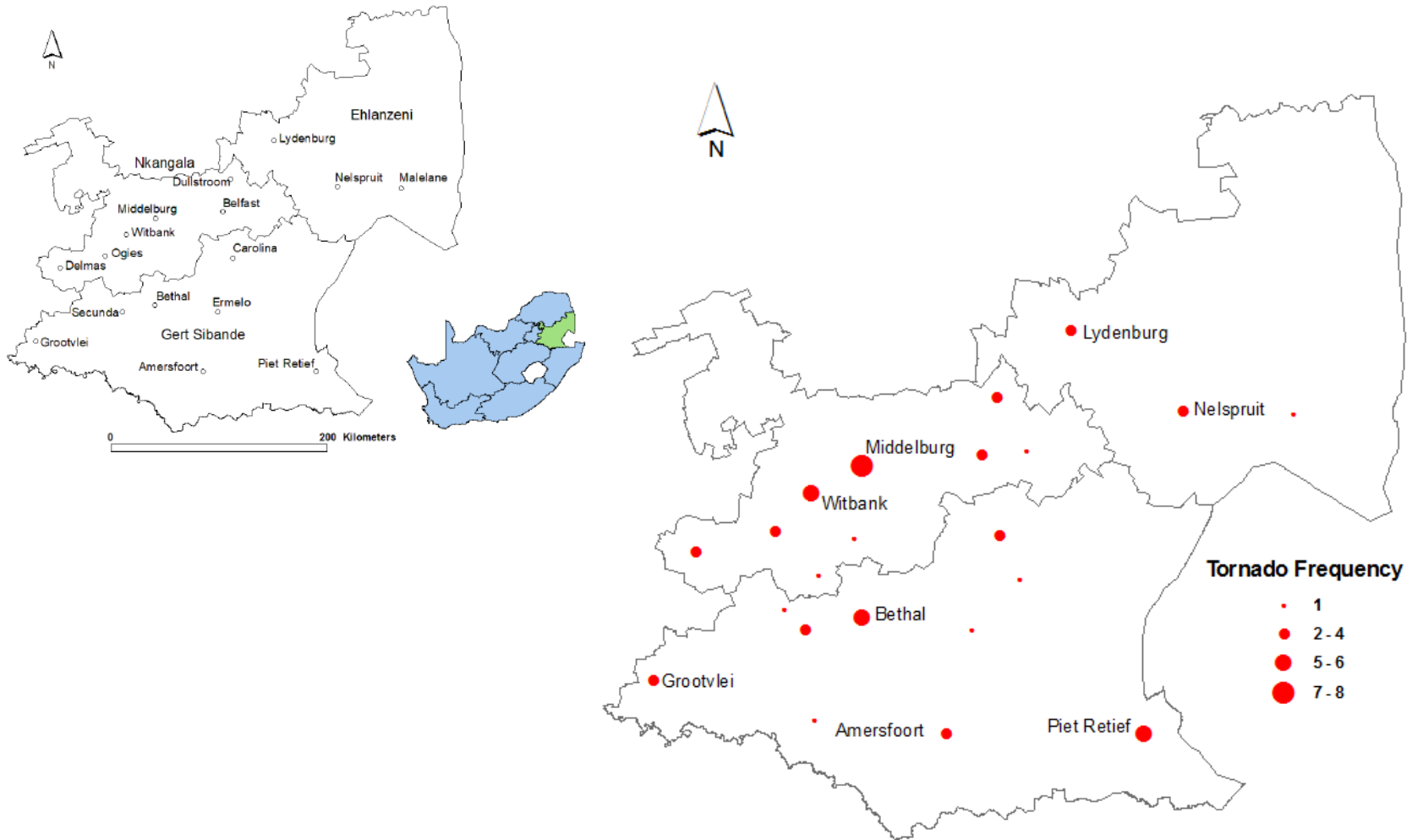


Source: Dube & Nhamo, 2021 - Data from SAWS

Tornado Impact in Zomba in Malawi 2017

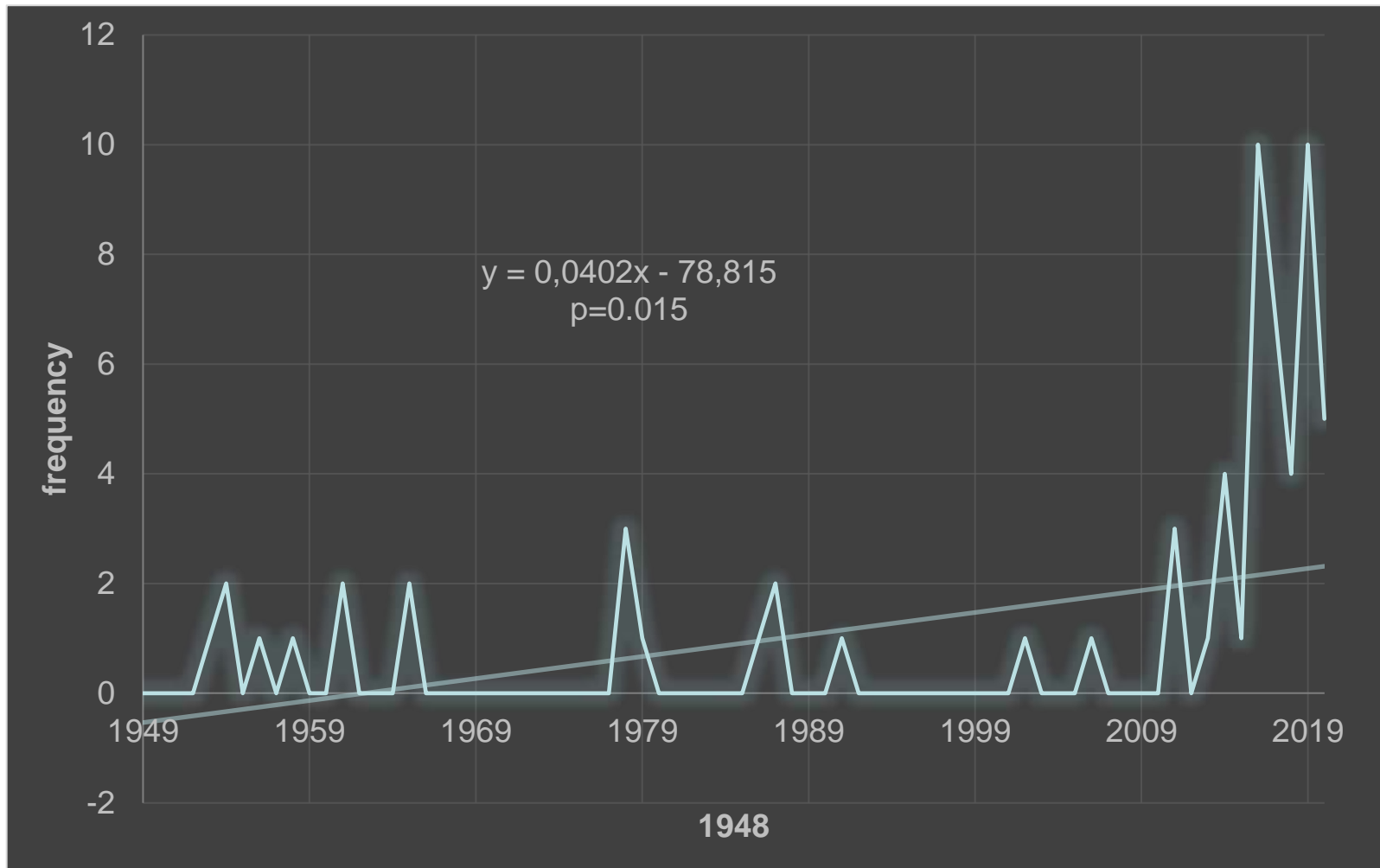


Tornados in Mpumalanga, South Africa- (1905-2020)



Source: Dube & Chikodzi 2021

Trends in tornados in Mpumalanga, South Africa 1905-2020 (n = 65)

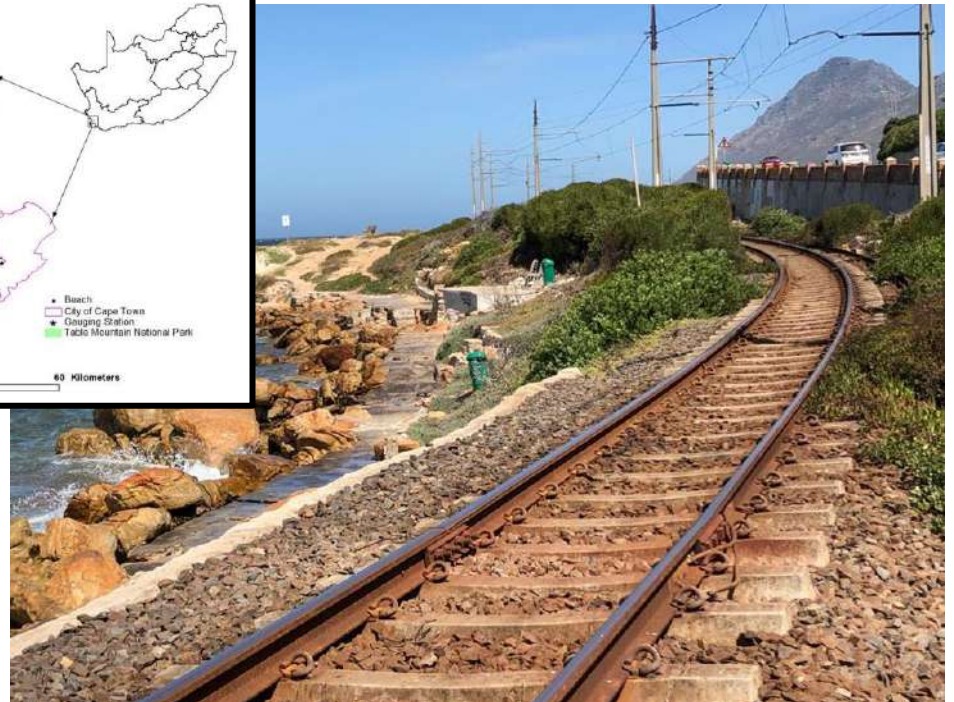
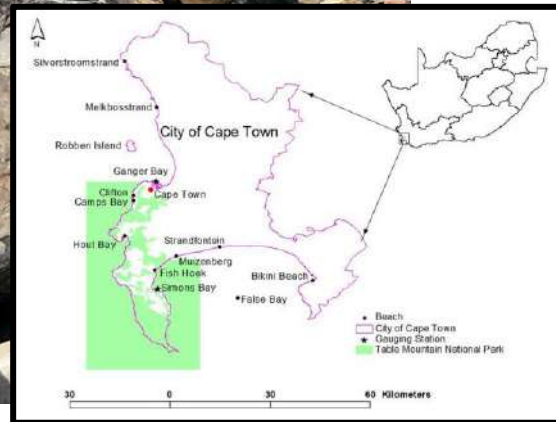


Source: Dube & Chikodzi 2021

Impact of an EF3 tornado that affected an area between Ermelo and Piet Retief in the Mpumalanga province 2020



Results of Climate Change: Advancing and rising sea level in Cape Town and elsewhere



Impact of CC on water supply: Day Zero in CT



Using 50 litres of water per day per person 'wisely'

Source: City of Cape Town 2018

Extremely Damaging Droughts & other Extremes



Water shortage in Katavi River in Tanzania 2009



Kenya Drought 2009, EAC CC Strategy 2011: 21

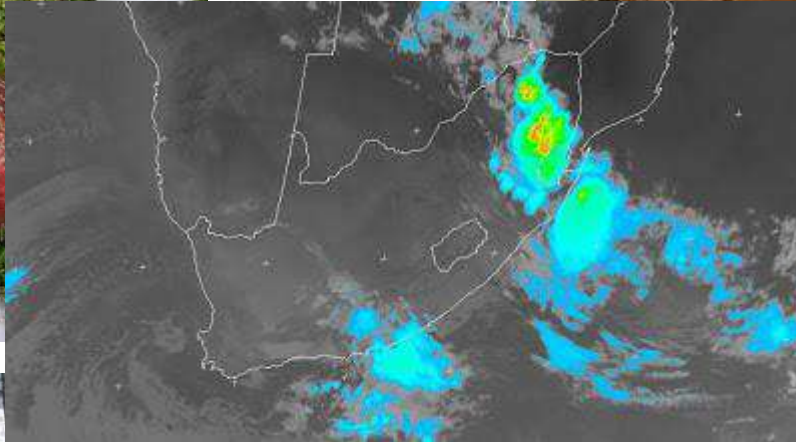


Drought in Rwanda



Very bad dust storms

Hail storms in South Africa



Shongwe Hospital,
Nkomazi, Mpumalanga



Hail in JHB 21 September 2014; 28 November 2013; 20 Oct 2012; 3 Dec 2010.

Hail storm in Uganda: Matters of L&D



Kashaka, Kashari, Mbarara District in Uganda 2007, EAC CC Strategy 2011:23

The true realities in L&D

SOLD AT FIVE US DOLLAR (\$5) IN MANYARA REGION (2009)

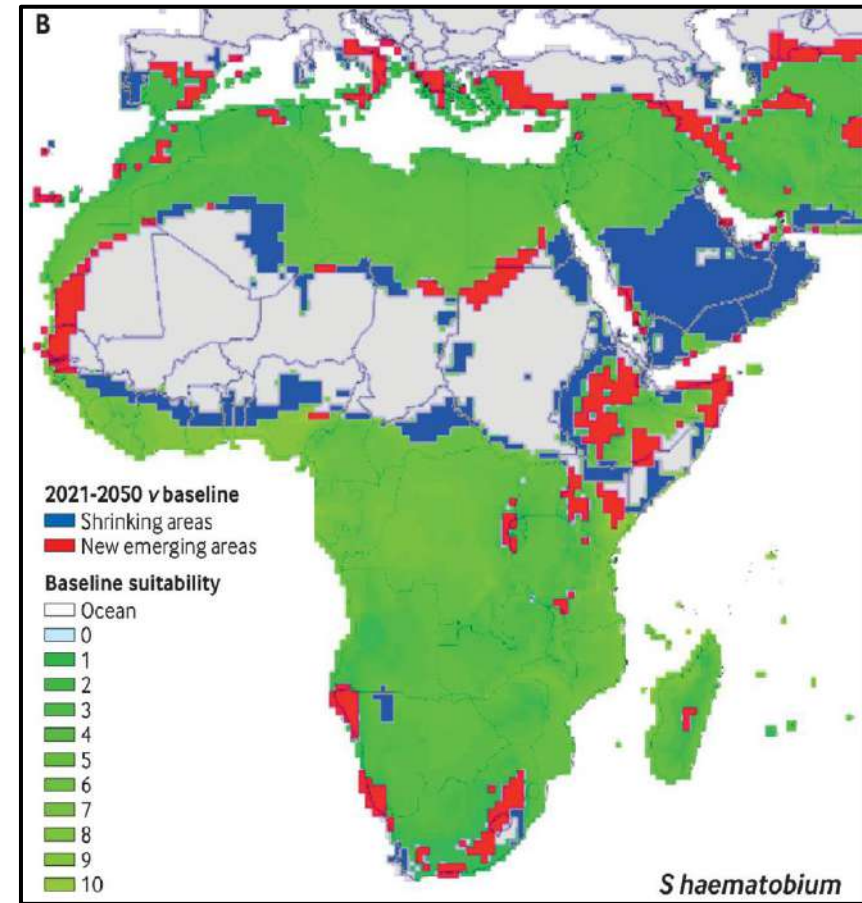
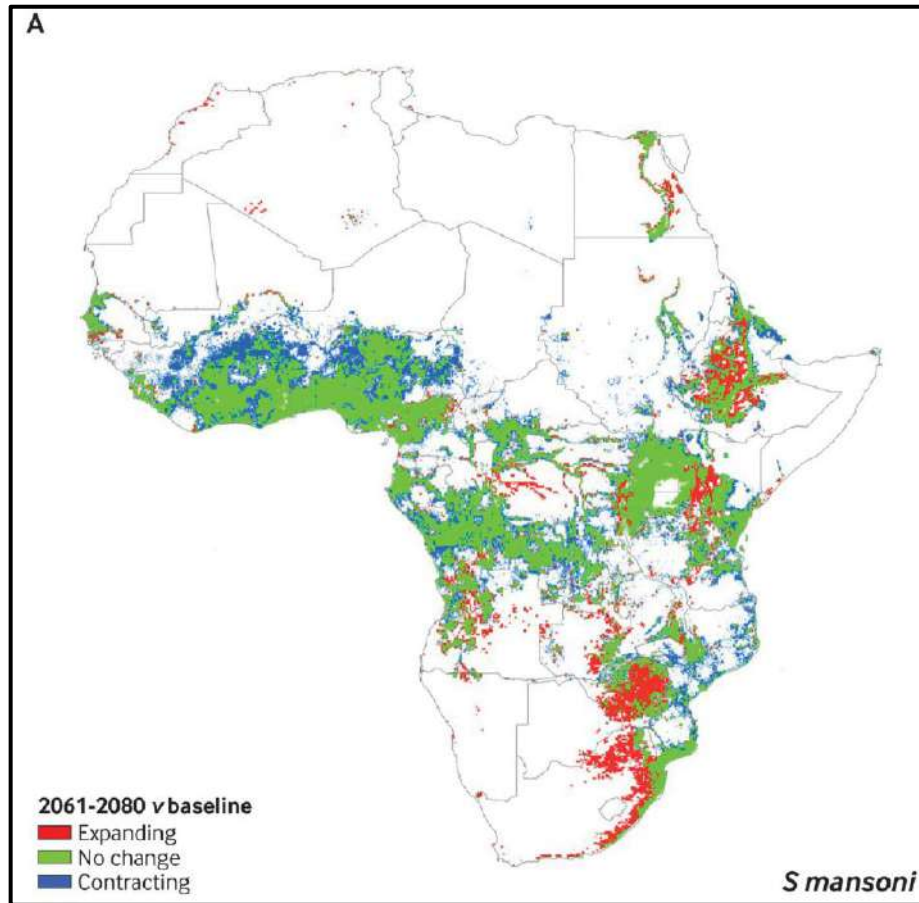


CC and major vector-borne diseases

Disease	Pathogen	Primary vector(s)
Malaria	<i>Plasmodium</i> parasite	<i>Anopheles</i> mosquito
Dengue*	Flavivirus	<i>Aedes aegypti</i> and <i>Aedes albopictus</i> mosquitoes
Yellow fever	Flavivirus	<i>A. aegypti</i> and <i>A. albopictus</i> mosquitoes
Zika	Flavivirus	<i>A. aegypti</i> and <i>A. albopictus</i> mosquitoes
Chikungunya*	Alphavirus	<i>A. aegypti</i> and <i>A. albopictus</i> mosquitoes
Lymphatic filariasis*	Various filarial nematodes	A variety of mosquito genera
Schistosomiasis*	<i>Schistosoma</i> trematode	Snail
Onchocerciasis*	<i>Onchocerca volvulus</i> nematode	<i>Simulium</i> (black fly)
Chagas disease*	<i>Trypanosoma cruzi</i> parasite	Triatomine bug
Leishmaniasis*	<i>Leishmania</i> parasite	Sand fly
Japanese encephalitis	Flavivirus	<i>Culex</i> mosquitoes
African trypanosomiasis*	<i>Trypanosoma brucei</i> parasite	<i>Glossina</i> (tsetse fly)
Lyme disease	<i>Borrelia</i> spirochete	<i>Ixodes</i> ticks
Tick-borne encephalitis	Flavivirus	<i>Ixodes</i> ticks
West Nile fever	Flavivirus	<i>Culex</i> mosquitoes

Source: Rocklöv and Dubrow 2020

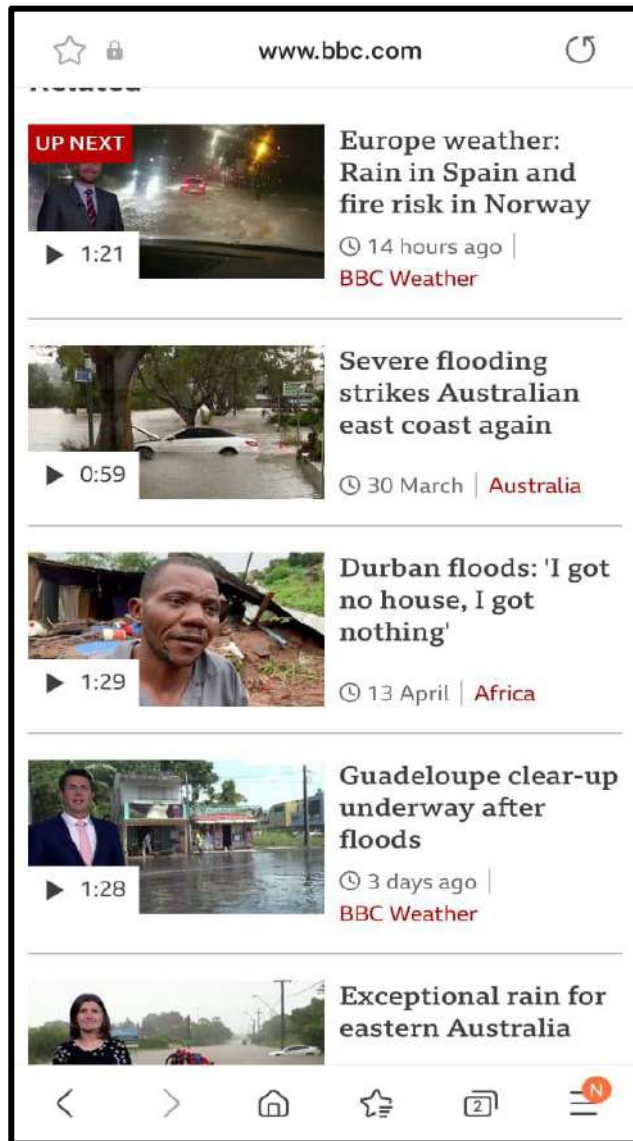
Modelling CC and schistosomiasis distribution (2021-2080)



- Predicted changes in the risk area for **intestinal schistosomiasis** transmission in 2061-2080 compared with present baseline in Africa (A).
- Predicted changes in risk area for **urogenital schistosomiasis** in 2021-2050 compared with present baseline in Africa and Middle East (B). Suitability ranges from zero (not suitable conditions) to 10 (most suitable).

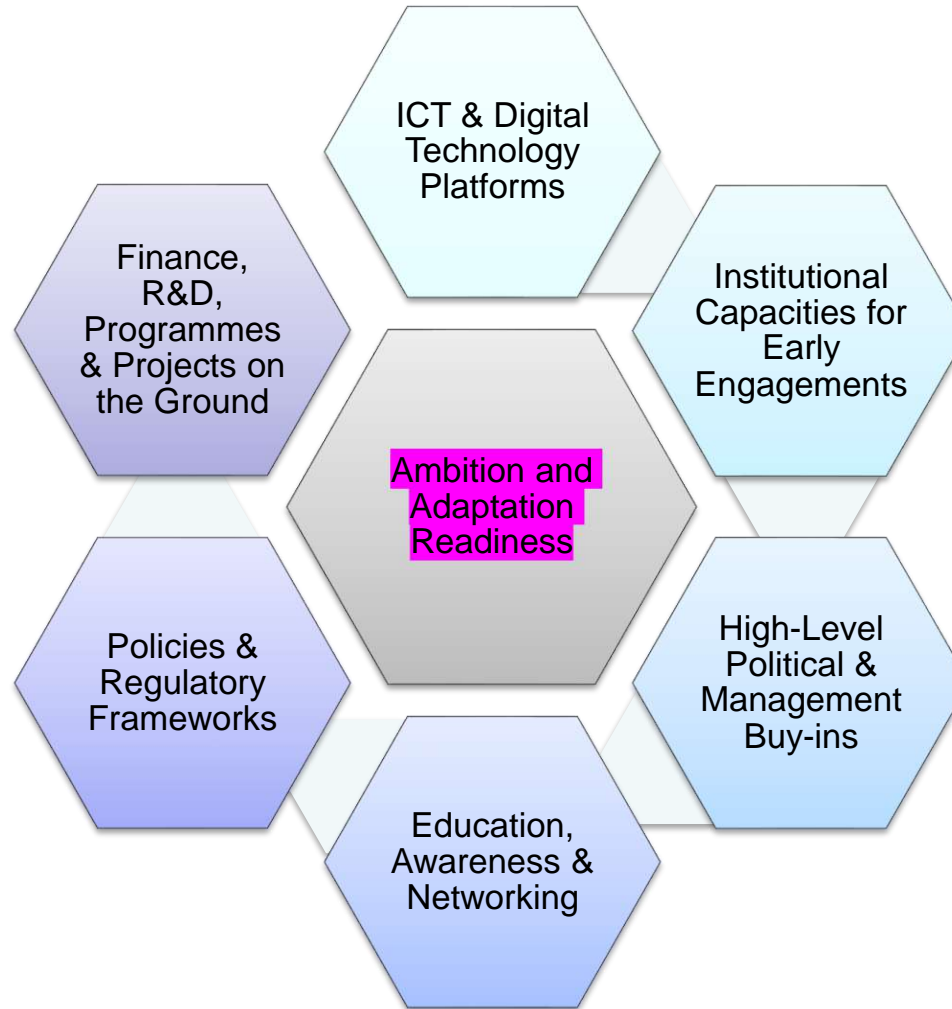
**SECTION 3: A Call for Adaptation
Ambition everywhere by
everyone**

Ambition in adaptation

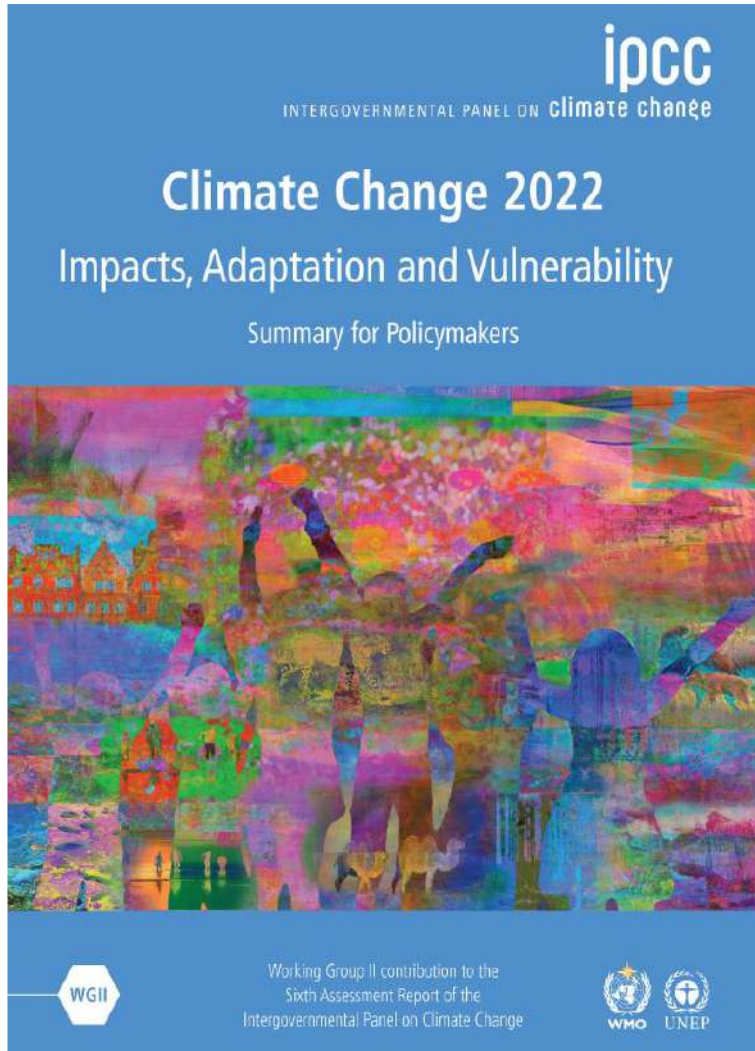


The headlines say it all

The Starting Point: **Let's Talk** Adaptation Ambition Readiness Pillars



Ambition in adaptation



To avoid mounting losses, urgent action is required to adapt to climate change.

At the same time, it is essential to make rapid, deep cuts in greenhouse gas emissions to keep the maximum number of adaptation options open.

Ambition in adaptation



We need to grow the business case for adaptation ambition.

It cannot be business-as-usual anymore

Extra-ordinary weather and climate extremes, demand extra-ordinary responses from everybody

L&D should be integral to the B4 Model

/LOCAL

Cyclone Idai victims exhumed in Moza

19 AUG, 2022 - 00:08

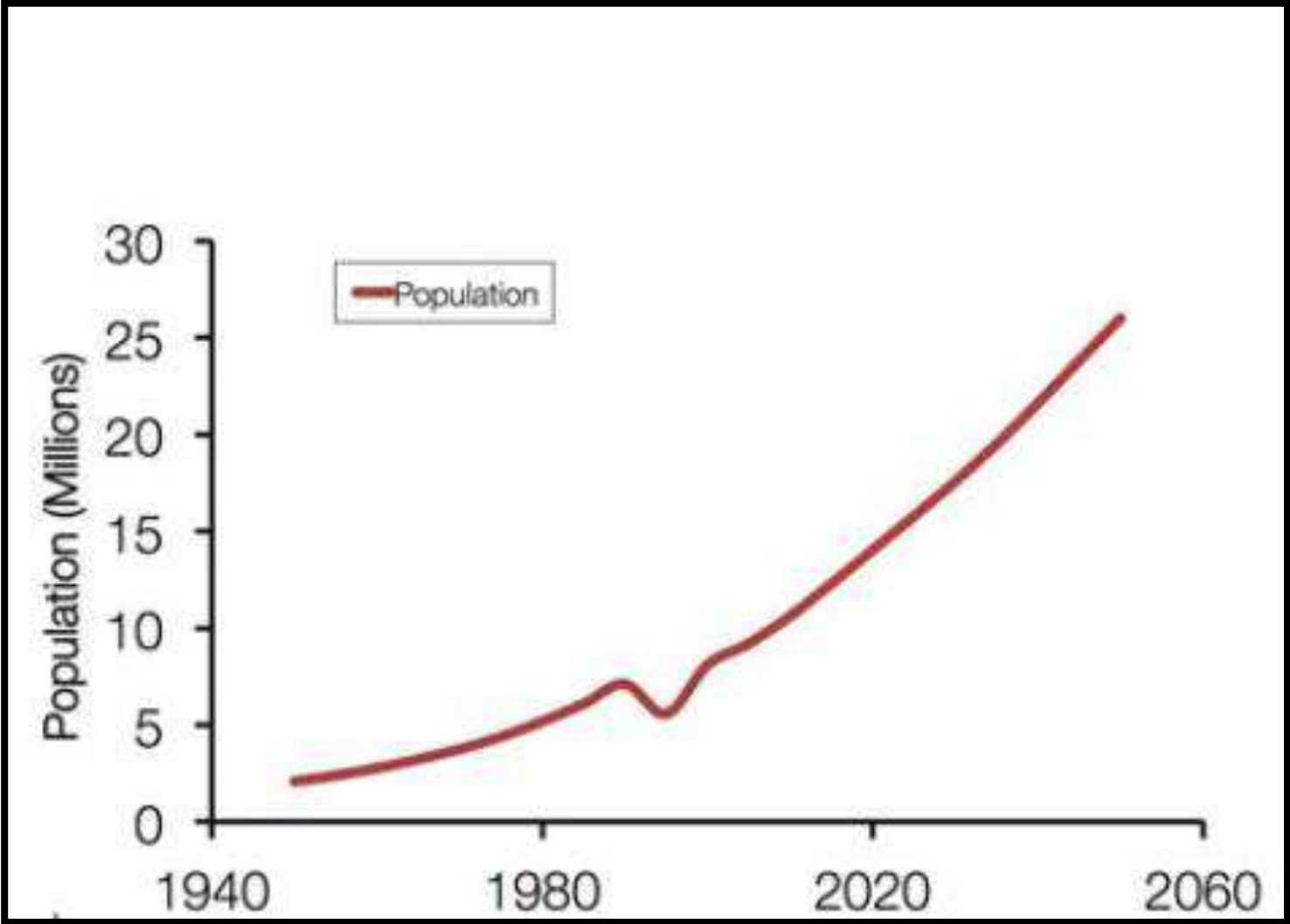
0 COMMENTS 1 IMAGES



The remains are currently at Chimoio Provincial Hospital awaiting DNA tests to be carried out by the National University of Science and Technology (NUST)'s Applied Genetic Testing Centre in collaboration with the AiBST Laboratory.

The pain of losing someone and not laying them to rest for close to 3 years is unbearable

Forgotten Debate: Rwanda population & forecast (1940-2060)



Source: National Strategy for Climate Change and Low Carbon Development (2011: 10)

The B4 Model: Lessons from Port St Johns (South Africa) and Chimanimani (Zimbabwe)



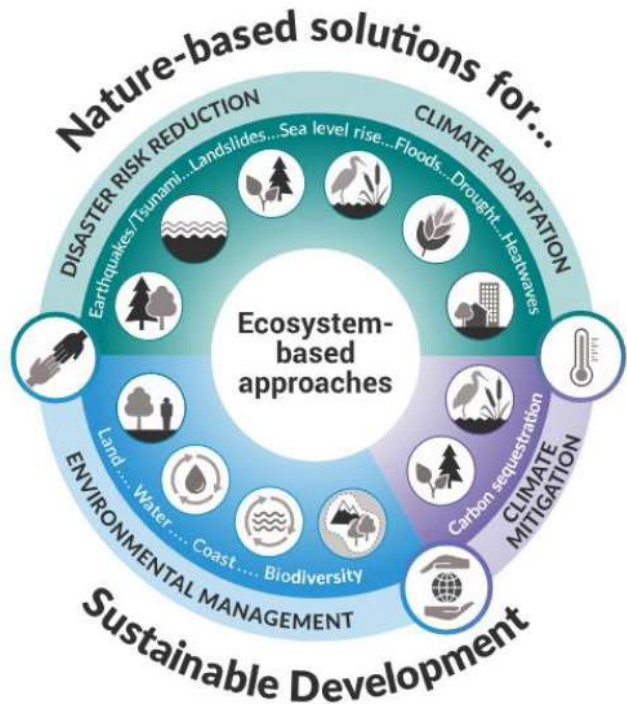
The B4 Model: Lessons from Chimanimani (Zimbabwe)



Repaired and BBB Weir
Supplying Chimanimani
Junior School



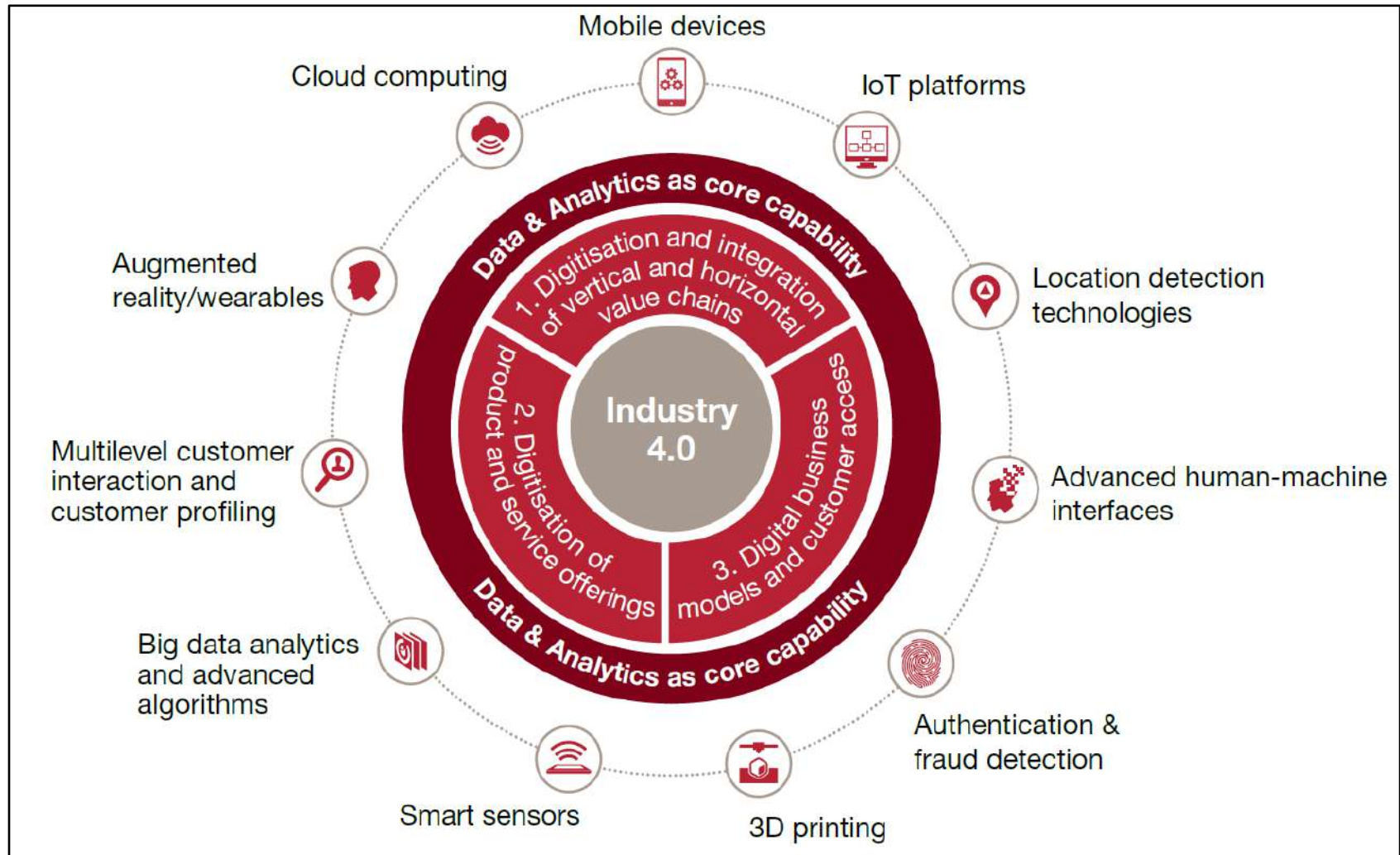
NBS : NATURE BASED SOLUTIONS



NBS measures:

- Restoration and planting of forests
- Restoration of wetlands
- Greening urban areas
- Climate-smart agriculture
- Blue infrastructure
- Green infrastructure
- Sustainable land management
- Integrated water resource management
- Integrated coastal zone management
- Protected areas

Taking advantage of Industry 4.0



Source: PWC 2016: 6

Industry 4.0: **House printing after disasters**

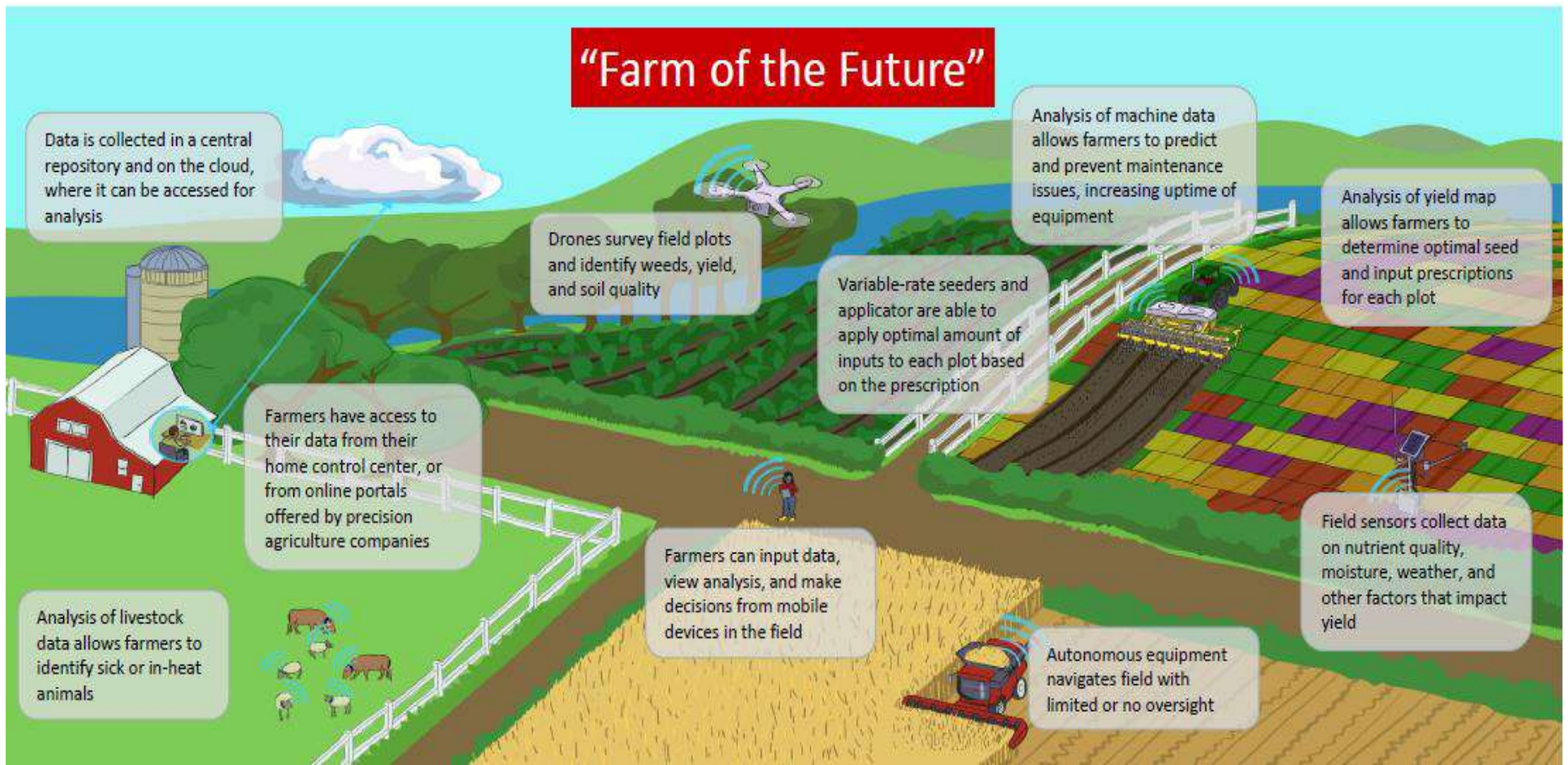


Hi-tech machines as laborers – Four roomed House in 24 hrs !!!

4IR: Drones, AI and Robots in DRR



The 4IR Smart Farm/Intelligent Farm



Source: Telkom 2019

SECTION 4: Conclusion

ultimately

- When considering the pathways to scaling-up adaptation ambition in (Southern) Africa, the bird remains in our hands.
- We have the power to release it **ALIVE** or **DEAD!!**



Thank you !