



Adaptation in South Africa

The consequences of unmitigated climate change for Africa and South Africa could be catastrophic. Adaptation even in the best-case scenarios requires careful and collaborative planning.

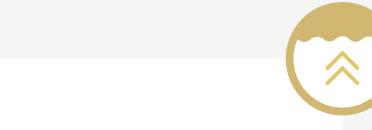
In 2013 the South African government published the long-term adaptation scenarios which concluded that multi-sectoral collaboration is needed to deal with a range of scenarios dominated by hotter drier conditions.

The potential impacts of climate on South Africa are numerous:

Source: Department of Environmental Affairs Long Term Adaptation Scenarios (2013) and NBI A New Climate of Risk (2017)

Public health problems

- Insect-borne diseases such as malaria, dengue fever and water-borne diseases such as schistosomiasis are shifting geographically with rising temperatures and dispersed flooding
- Flooding also greatly increases the risk of diarrheal diseases such as cholera and dysentery due to poor sanitation
- Health impacts in South Africa from extreme weather events could range from immediate, direct consequences such as injury or death to long-term, indirect consequences such as those linked to disease vector abundance and the destruction of certain infrastructure



Sea level rise

- Submergence, coastal flooding and coastal erosion
- Decrease in water quality due to saltwater intrusion

Rising food insecurity

multilateral food assistance to Africa is due to natural disasters'

livestock

- Spatial shifts in the optimum growing regions for key food crops such as wheat and maize are likely to occur, making reductions in crop yields more prevalent
- The IPCC projects that all aspects of food security are potentially affected by climate change, including food access,
- utilization, and price stability Additional dimensions to this crisis include the impact on food production of the increasing desertification of the
- world's arable land and the salinization of arable land by rising sea levels • According to African Risk Capacity, a specialised agency of the African Union, 'nearly 50 percent of all emergency
- Climate change induced plant and animal diseases will also negatively affect crop and livestock health and production in South Africa, including increased or changing vector patterns adversely affecting both crops and



Water shortages and drought

- - Reduce agricultural and livestock productivity
- Reduced economic activity Negative impact on human health
 Water conflict



Increased frequency and severity of floods

• Areas with a higher risk of extreme runoff related events include KwaZulu-Natal, parts of southern Mpumalanga and the Eastern Cape • Flooding can cause severe economic damage, erodes human and natural constructed storm barriers and can result in the loss of life • Decrease in water quality due to run-off and erosion



Increased frequency of extreme weather events

• Increased number of tropical cyclones and typhoons, increasingly severe rain events, hail and snow storms as well as earlier or more extreme frost episodes and extended or unexpected cold snaps or heat waves



Unprecedented damage to infrastructure

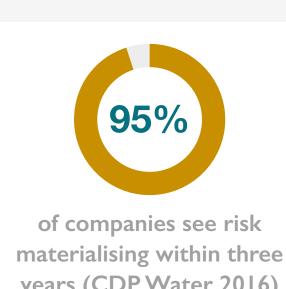
- The financial sector is increasingly seeing climate change risks adversely affecting their client base, which in turn poses a direct risk to their businesses. Increasing operational costs directly impact the cash flows of financial institution and their clients, as well as the ability to
- Insurers have noticed an increase in fire, flood and hail claims caused by extreme weather events, as well as the increased potential of clients defaulting due to the impact of climate change on operations
- Critical infrastructure loss leading to crippling financial losses and making parts of the world uninsurable, adversely affecting the territorial integrity of countries

Damage to ecosystems

- Climate change affects ecosystems in a variety of ways, including range shifts, threshold effects, food web disruptions, increased parasites and disease, risk of extinction and changes in timing of seasonal life-cycle events
- All of these changes have adverse effects for ecosystems and the ecosystem services and resources they provide
- Accelerated climate change in South Africa will exacerbate any current ecosystem pressure, threatening vulnerable biomes such as the grassland and the Indian Ocean

Coastal Belt in particular, while straining the ecosystem health of other biomes

• Including marine life extinction, which could have severe implications for both fisheries and the livelihoods they sustain



years (CDP Water 2016)



of companies see risk directly impacting business (CDP Climate Change 2016)





costs













disruption

In 2017 companies report that changes in precipitation extremes and droughts could cost them R4 billion

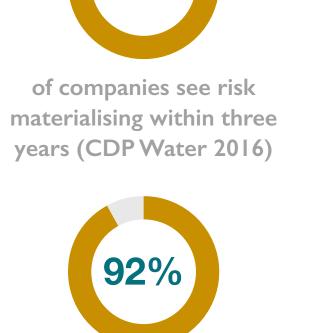
In 2016 these impacts cost South African companies

from water alone

Companies are mostly impacted by higher operating costs and plant/production disruption leading to reduced output

These climate impacts are already reflected in CDP climate and CDP water data

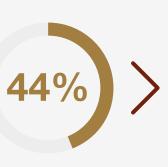
Illustrates percentage of South African companies responding to CDP in 2016



CDP Change

CDP

Water







costs







disruption leading

to reduced output





South African companies cite specific examples of where they have to adapt to climate change. Examples span availability of raw materials, risks to infrastructure and physical assets, interruption of operations and health and safety of employees and communities.



Eskom

Transnet is looking at the impact of wind speed on sloshing in harbour mouths - increased sloshing in port exits and entrances results in loading and unloading backlogs and thus longer port entry queues



For mining companies, such as Exxaro and Anglo American Platinum, notably drier conditions and changing wind patterns are leading to increased dust generation, aggravating the risk of employee respiratory problems



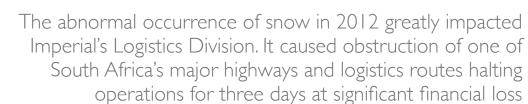
Woolworths explains how decreased soil moisture days undermine food production causing potential disruption to the food supply chain and particularly the supply of staples and fresh fruit/vegetables



FirstRand indicated that severe hail storms in 2012 resulted in summer FIRSTRAND fruit crop losses of 90% of the farms in the Ceres and Witzenberg area in the Western Cape

(warm and cold water reefs) as a result of climate change





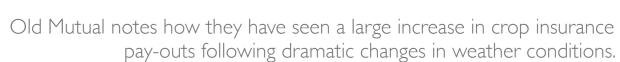


Insurers, including Santam, have noticed an increase in fire and flood claims caused by extreme weather events. Absa acknowledges the increased potential of clients defaulting due to the impact of climate change on operations



For Sappi, a changing climate exacerbates threats such as pest outbreaks, fires and drought which will greatly impact the continuity of their supply chain and thus the cost of their product in the market









Oceana notes they can face potentially depleted fish stocks due to the loss of key biodiversity areas

