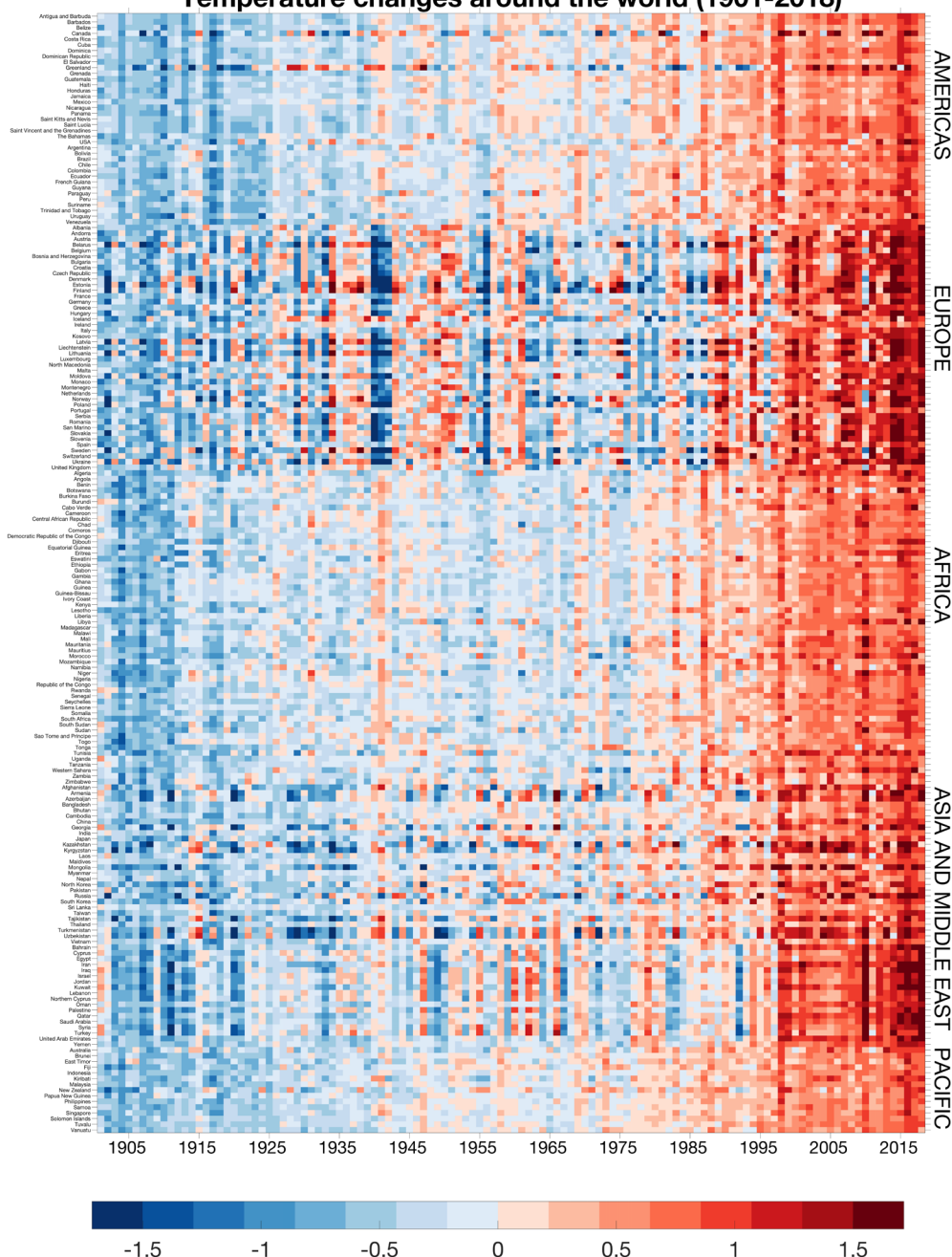


Weak Policies & Conflicting Visions: Drought, Water Shortages and Climate Change in Namibia

Temperature changes around the world (1901-2018)





WEAK POLICIES & CONFLICTING VISIONS: Drought, Water Shortages and Climate Change in Namibia

There is widespread scientific consensus that the southern African region will be severely affected over upcoming decades by human-induced climate change. It is already argued that the detrimental effects of global warming on the region can be linked to recent extreme weather events such as Namibia's multi-year droughts and floods in Zimbabwe, Malawi and Mozambique.¹ This paper will address three complex and linked themes: drought, water security and climate change.

Drought

According to a Food and Agriculture Organisation (FAO) factsheet, a drought is generally understood as a consistent period in which the actual rainfall deviates negatively from the average expected precipitation for a given region. Such periods can last from a single season to a number of years and result in water shortages that can have severe consequences for various activities, groups and environments. However, there are many other definitions for drought used worldwide which respective use is context and situation dependent.² FAO as well as other sources have classified drought into four distinct categories which are all associated with but not necessary due to a persistent and significant lack of rainfall. These categories are:

1. Meteorological drought – prolonged period of rainfall absence and dry weather; there is an increase in temperature, decrease in humidity resulting in increased evaporation rates.
2. Agricultural drought – associated with a significant decrease in soil moisture leading to the wilting and death of plants; this drought type particularly harms the agricultural sector resulting in poor crop yields. It typically follows a meteorological drought.
3. Hydrological drought – occurs when water levels in aquifers, lakes and streams fall below a specific threshold; such droughts are slow moving processes which are not immediately apparent as water reserves are slowly being depleted without replenishment. This type can severely affect water supplies.
4. Socio-economic drought – associated with wide and negative impacts on human economic and social activities and hence brings together elements of all previous drought types. Extreme droughts of this type can lead to famine and starvation.³

Droughts are primarily defined as natural phenomena although various scientists increasingly point towards human activities which can be linked to drought occurrence and severity. While some sources refer to 'human-induced' drought explicitly, the literature sourced for this paper only links such a cause indirectly to people as a result of climate change brought about by human activities.⁴ What is made clear, however, is the fact that specific human activities can exacerbate drought conditions.

These human activities include deforestation, excessive groundwater abstraction and agricultural practices that degrade land (such as overgrazing and monoculture). For example, poor land management by farmers has been associated with the devastating 'dust bowl' drought in the US during the 1930s.⁵

Namibia's own 'National Drought Policy & Strategy' from 1997 states that droughts are a phenomenon that occur due to extremely low rainfall and which are "to be expected and managed," particularly given the predominant arid nature of the country.⁶ The document goes on to note that the state will consider applying drought mitigation measures only when a respective drought exceeds a pre-determined level of severity and becomes a "disaster drought."

1 Reliefweb. "Joint Call for Action to Address the Impacts of Climate Change and a Deepening Humanitarian Crisis in Southern Africa." November 14, 2019. <https://reliefweb.int/report/zimbabwe/joint-call-action-address-impacts-climate-change-and-deepening-humanitarian-crisis>

2 FAO. Drought Factsheet. n.p. n.d. <http://www.fao.org/3/aq191e/aq191e.pdf>

3 List of drought types adapted from: UNCCD. Strategic Framework for Drought Risk Management and Enhancing Resilience in Africa: White Paper. 2018. 18-9. And Nhamo, L. Mabhaudhi, T. and Modi, AT. Preparedness or repeated short-term relief aid? Building drought resilience through early warning in southern Africa. In Water SA Vol. 45 No. 1 January 2019. 76. <https://doi.org/10.4314/wsa.v45i1.09>

4 Lott, Fraser C. Christidis, Nikolaos, and Stott, Peter A. Can the 2011 East African drought be attributed to human-induced climate change? In Geophysical Research Letters, Vol. 40, 2013.

5 Cook, Benjamin I. Miller, Ron L. and Seage, Richard. Amplification of the North American "Dust Bowl" drought through human-induced land degradation. In PNAS, Vol. 106, No. 13, March 31, 2009. 4997.

6 GRN. National Drought Policy & Strategy. 1997. n. p.

The policy states that:

“A disaster drought refers to drought conditions so intense or protracted that they are beyond what can reasonably be dealt with in terms of normal risk management practices, and which justify State intervention.”⁷

It should be noted that in the scientific community the definition, characterisation and analysis of drought remains oftentimes contested. For example, drought is temporary and differs from overall aridity, which is a permanent climatic feature and also differs from a dry season/spell. However, the exact difference between these aspects continues to cause much confusion among scientists and policy makers.⁸ Furthermore, the drought phenomenon is related to a range of other natural, social and economic factors that can bring about, exacerbate or are caused by drought conditions. A recent discussion note by Roger Few and Mark Tebbotha, observes that wider “environmental and societal dynamics” that interact with drought and shape its overall impacts and responses to it remain underappreciated by the scientific community.⁹ Consequently, predicting drought occurrences, magnitudes and impacts remains a worldwide challenge.

Water

As is often mentioned by scientists, environmentalists and water experts, Namibia counts among the driest countries in the world. Much of this is due to the nation’s landscape which is dominated by semi-arid and arid areas and the fact that annual rainfall is low and variable. The average annual rainfall figures differ considerably across the country ranging from 0 mm per annum in desert coastal areas to around 700 mm/a in the Zambezi Region. On average, annual rainfall for the whole of Namibia is around 250 mm/a. In addition, the country is exposed to very high rates of evaporation which far exceed average rainfall figures. Thus it is estimated that around 83 percent of precipitation is immediately lost through evaporation when it reaches the ground, just around 2 percent of rainfall ends up in rivers and surface water reservoirs while 1 percent feeds into underground aquifers. The remaining precipitation is taken up by vegetation through soil and transferred back to the atmosphere through transpiration referred to as evapotranspiration.¹⁰

According to the local water expert Piet Heyns, Namibia’s geography and climate severely limits the sustainable availability of freshwater for its populace and natural environment. It is estimated that the country can only sustain a freshwater supply of less than 500 cubic metres per person per annum. This can be compared to a world average of around 6,000 cubic metres per person per year.¹¹

High daily temperatures, high evaporation rates across most of the country and limited and highly variable, annual rainfall means that freshwater is a scarce and precious resource in Namibia. Given that water is vital for human survival as well as socio-economic activities, it is crucial that the country ensures that the limited water resources are managed in a most sensible, sustainable and thorough manner. Since independence the government of Namibia with the support of stakeholders have sought to achieve this goal. Among other activities, government has passed a number of Acts and developed various policies regarding the management, use and protection of freshwater resources.¹² The Namibian authorities have also moved to reform the institutions that manage water supply and sanitation services inherited from the apartheid regime in order to provide for an “equitable, efficient and sustainable” use of water resources for national wellbeing and development.¹³

7 GRN. National Drought Policy & Strategy. 1997. n. p.

8 Wilhite, Donald A. Sivakumar, Mannava, V.K. and Pulwarty, Roger. Managing drought risk in a changing climate: The role of national drought policy. In *Weather and Climate Extremes* 3, 2014. 5.

9 Few, Roger and Tebbotha, Mark. Recognising the dynamics that surround drought impacts. In *Journal of Arid Environments* 157, 2018. 113.

10 Garrard Svenja, Heyns Piet, Pfaffenthaler Michelle, and Schneider Gabi, *Environmental Awareness for Sustainable Development: a resource book for Namibia*, 2017. 42 – 3.

11 Heyns, Piet. “Water Management in a Water-Scarce Environment: The case for Namibia.” Public presentation, Namibia Scientific Society. August 6, 2019.

12 Remmert, Dietrich. *Water Governance in Namibia: A tale of delayed implementation, policy shortfalls, and miscommunication*. September 2016. 2 – 3.

13 Heyns, Piet. Water institutional reforms in Namibia. In *Water Policy* 7. 2005. 89 – 90.



WEAK POLICIES & CONFLICTING VISIONS: Drought, Water Shortages and Climate Change in Namibia

The key aims of the government with regards to water governance can be roughly summarised in three linked points:

1. Providing equitable supply and access of potable water to all citizens of the country
2. Managing water resources under a Water Demand Management (WDM) approach as opposed to one based on water supply
3. Ensuring that water resources are used in a sustainable and environmentally sound manner¹⁴

In addition to the efforts by state institutions in improving and strengthening water governance, stakeholders such as donors, IGOs, private sector and civil society have and continue to support government efforts. According to the most recent national statistics, the country has made significant progress in the provision of clean, safe freshwater to citizens. The 'Namibia Household Income and Expenditure Survey' of 2015/16 found that nearly 92 percent of surveyed households had access to safe drinking water including piped and water from boreholes and protected wells. However, in rural areas 15.6 percent of households did not have access to safe water relying instead on stagnant or flowing surface water.¹⁵ With regards to sanitation services Namibia presents a more sobering picture. In 2016 just over half, or 53.3 percent of households had access to safe sanitation such as a flush toilet or pit latrine. Rural areas remain greatly underserved with only 29.2 percent of households having access to safe sanitation. Of particular concern is a marked decrease of adequate sanitation services to urban households from 85.1 percent in 2010 to 72.7 percent in 2016, representing a drop of over 12 percent.¹⁶

Despite the country's progress and efforts over the past decades, water governance remains constrained and hampered by a range of key challenges including a lack of capacity and finance. The state's on-going reliance on old and increasing inadequate water and sanitation infrastructure, coupled with slow decision-making and implementation processes has compounded water security challenges over recent years.¹⁷

4

Climate Change

According to the US National Aeronautics and Space Administration (NASA) climate change is defined as "a long-term change in the average weather patterns that have come to define Earth's local, regional and global climates."¹⁸ Climate change is often used interchangeably with global warming - however, the former refers to both natural and human activities.

"Changes observed in Earth's climate since the early 20th century are primarily driven by human activities, particularly fossil fuel burning, which increases heat-trapping greenhouse gas levels in Earth's atmosphere, raising Earth's average surface temperature. These human-produced temperature increases are commonly referred to as global warming."¹⁹

According to a significant majority of the scientific community, the current warming of the earth's climate system is associated with human activity since the 1950s.²⁰ This increase is usually expressed in the average rise of the Earth's global surface temperature. Thus, climate scientists estimate that human activities are already responsible for approximately one degree Celsius rise in global temperature above pre-industrial levels.²¹ Scientific evidence for the occurrence of global warming and humanity's role slowly accumulated through the second half of the 20th century. For example, the US Presidential Science Advisory Committee alerted policymakers

¹⁴ Remmert, September 2016. 3.

¹⁵ NSA. Namibia Household Income and Expenditure Survey (NHIES) 2015/2016 Report. n. d. 55 – 57.

¹⁶ NSA. Sustainable Development Goals Baseline Report 2019. n. d. 125.

¹⁷ See: Remmert, Dietrich. Water Governance in Namibia: A tale of delayed implementation, policy shortfalls, and miscommunication. September 2016.

¹⁸ <https://climate.nasa.gov/resources/global-warming-vs-climate-change/>

¹⁹ Ibid.

²⁰ Ibid.

²¹ IPCC. Summary for Policymakers. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. 2018. 4.

of likely climate change impacts due to rising carbon dioxide (CO₂) levels for the first time in 1965²²; although much uncertainty remained regarding long-term changes of climatic conditions, weather patterns and the role of human activities in these shifts.

The complex nature of climate change and the greenhouse effects meant that solid and verifiable knowledge only accumulated slowly. Natural phenomenon, such as volcano eruptions producing surface cooling effects (via released particles or “aerosols” floating in the air reflecting sunlight and shading the ground), making it hard to determine overall climate changes and disaggregating natural from human produced global warming and cooling effects. Doubts about the severity and the human factor towards global warming were liberally voiced by proponents and beneficiaries of the fossil-fuel lobby among others.²³

Nevertheless, sufficient climate data and evidence had been collated by 1992 for politicians to agree on and sign off the United Nations (UN) Framework Convention on Climate Change (UNFCCC) a landmark international environmental treaty. The treaty’s objective is to “stabilize greenhouse gas concentrations in the atmosphere” in such a manner to avoid negative human-induced warming effects on the climate. It is notable that the UNFCCC has been signed by all UN member states²⁴ including Namibia which ratified the convention in 1995.²⁵

Extensive scientific enquiry over the past decades has produced increasingly overwhelming evidence for global warming, and has given climate researchers an ever-expanding and increasingly sophisticated ‘tool-box’ in terms of assessing climate changes and modelling possible future climate scenarios and their effects on the environment and societies. A case in point is the southern African region, where significant progress has been in both “projecting and understanding climate change” over the past couple of years.²⁶

As a result of these scientific advances around climate and global warming the Intergovernmental Panel on Climate Change (IPCC) has published a number of comprehensive reports summarising the most recent findings on the subject. These include special reports released last year on oceans and the cryosphere (areas of the earth where water is frozen such as glaciers and ice caps) and land, focusing on issues such as desertification and food security. The findings of these reports have raised global concerns with regards to tangible, negative impacts of global warming on the environment and humans. For example, the special report on oceans states that evidence indicates that the warming of the earth’s oceans has already led to declines in fish and shellfish stocks and concurrently a decrease in maximum potential catch levels in many regions.²⁷

Recognising earlier scientific evidence of global warming, the international community came together under the UNFCCC framework at the end of 2015 and drafted a new comprehensive agreement, termed the Paris Agreement. Almost all nations on earth have ratified the Paris Agreement, committing to keep the long-term average global temperature increase to well below 2 degrees Celsius as well as undertaking efforts to limit the rise to 1.5 degrees Celsius. The agreement commits signatories to determine ambitious contribution targets to limit their country’s respective CO₂ emissions and to regularly report on these efforts.²⁸

However, the IPCC report that sparked renewed, worldwide interest in the climate change discourse and arguably a new wave of environmental activism as epitomised by the ‘Fridays for Future’ school strike movement;²⁹ focused on the differences of global warming impacts of an average global temperature rise by 2100 of 1.5 and 2 degrees Celsius. In a nutshell the report summary, released in October 2018, highlighted recent scientific findings that illustrated extensive negative consequences for the earth’s environment and inhabitants of the earth’s temperature was allowed to reach 2 degrees Celsius by the end of the century. While an increase of

²² The Economist, “Briefing Climate Change: What goes up.” September 21st – 27th, 2019. 22.

²³ Ibid., 23.

²⁴ https://en.wikipedia.org/wiki/United_Nations_Framework_Convention_on_Climate_Change

²⁵ GRN. National Climate Change Strategy and Action Plan 2013 – 2020. 16.

²⁶ Davis-Reddy, Claire, L. and Vincent, Katharine. Climate Risk and Vulnerability: A Handbook for Southern Africa. 2nd edition. 2017. 2 & 4.

²⁷ IPCC. Summary for Policymakers. In: IPCC Special Report on the Ocean and Cryosphere in a Changing Climate. 2019. 13.

²⁸ https://en.wikipedia.org/wiki/Paris_Agreement

²⁹ Taylor, Matthew, Watts, Jonathan and Bartlett John. “Climate crisis: 6 million people join latest wave of global protests.” The Guardian. September 27, 2019.



WEAK POLICIES & CONFLICTING VISIONS: Drought, Water Shortages and Climate Change in Namibia

1.5 Degrees Celsius or less would also result in many climatic disruptions these would be far less extensive. However, the document also noted that humankind was running out of time to limit greenhouse gas emissions to ensure a more manageable 1.5 degrees Celsius scenario. Indeed, if actions remained limited in scope and number global temperatures could rise irrevocably by 2030.³⁰ While there are a host of scenarios mapping out different global temperature increases on a century-long timescale, keeping to an increase of less than 2 degree Celsius by 2100 will require “zero emissions” by roughly 2050. This is a daunting challenge given that modern human existence is predicated on a fossil fuel and CO2 dependent and emitting economy.³¹

The 2018 IPCC report observes among others that the 2 degrees Celsius scenario will most likely result in “an increase in intensity or frequency of droughts” as well as an increase in “heavy precipitation events” over more regions of the earth increasing the risk of floods.³² Impacts on the earth’s ecosystems and biodiversity would also be more severe and thus the higher temperature projection would cause the loss of half the climatic habitat for 18 percent of insects and 16 percent for plants compared to 6 percent and 4 percent respectively³³ for a 1.5 degree Celsius scenario by 2100.³⁴ Besides these alarming projections, it has become apparent that the international responses to curb global warming by cutting greenhouse gas emissions will not be enough to ensure only a moderate temperature rise (less than 2 degree Celsius) by the end of the century. To achieve this target would require the halving of current global emissions by 2030. Yet, a recent edition of *The Economist* dedicated to the subject observed that:

“No nation is on course to do that. The national pledges made at the time of the Paris Agreement would, if met, see global emissions in 2030 roughly equivalent to today’s. Even if emissions declined thereafter, that suggests a good chance of reaching 3 C.”³⁵

6

Note on methodology

This study’s scope is limited to three core themes: drought, water security; and climate change. These themes are briefly defined while the discussion is focused on recent events, policies, plans and activities with some limited examples. In turn, the analysis endeavours to critically reflect on the preceding description and discussion in order to highlight identifiable policy directions and activity by government and stakeholders with regards to the three core themes. The study is based primarily on a literature review favouring current and recent sources including summary documents for policymakers, resources from international government organisations (IGOs), and non-technical and media articles. Efforts were made to source documents that address cross-cutting themes such as drought impacts on water security. Finally, within the frame of the study interviews were also conducted with five key informants including a water expert, a climate scientist, and an agriculture economist. This was done to ensure the inclusion of expert information and appraisal of local conditions and challenges relating to the themes under discussion.

Southern Africa, Namibia and Climate Change

The recent scientific findings reviewed and summarised by the IPCC paint a particularly dire picture for Africa as a whole. Negative impacts that can be attributed to existing levels of global warming have already been observed on the continent. While only a few years ago, future climatic projections for southern Africa remained highly uncertain due to a lack of scientific data

30 <https://www.theguardian.com/environment/2019/sep/27/climate-crisis-6-million-people-join-latest-wave-of-worldwide-protests>
McGrath, Matt. “Final call to save the world from ‘climate catastrophe.’” October 8, 2018.
<https://www.bbc.com/news/science-environment-45775309>

31 *The Economist*, 24.

32 IPCC, 2018. 7.

33 Based on 105,000 of insect, plant and vertebra species studied.

34 IPCC, 2018. 8.

35 *The Economist*, 24.

and research, the impact of global temperature changes are observable. For example, agriculture and fisheries outputs in the Great Lakes region have been greatly hampered.³⁶

This lack of data and research is being addressed by the work of the Southern African Science Service Centre for Climate Change and Adaptive Land Management (SASSCAL), an initiative set up by six nations including Angola, Botswana, Namibia, South Africa, Zambia, and Germany.³⁷ SASSCAL aims to advance scientific knowledge in the region and develop capacity to address climate change and to “provide products, services and information for decision-making.”³⁸

As a result of Africa being the hottest continent, having a predominantly arid climate, and low levels of development in many nations, it is exceedingly vulnerable to the consequences of global warming. Being home to many poor and vulnerable populations living in some of the harshest climates and oftentimes governed by weak states with limited human and financial capacity, the continent is poorly prepared for increased natural disasters and stress on water and food availability. While instability and armed conflicts in some regions (such as the Sahel) will only compound challenging climatic conditions.³⁹

The earth has gone through a number of warming and cooling cycles linked to the amount of CO₂ in the atmosphere. Between ice ages and warm ‘interglacial’ periods, these natural climate cycles last hundreds of millennia. Humans, however, have only added significant greenhouse emissions since around 1850 with the dawn of the industrial revolution. Since then, emissions produced by human activities have accelerated and grown exponentially.⁴⁰ It is important to note that global warming caused by human activities has taken place over several decades and is not a only recent occurrence. Therefore, researchers have utilised historical precipitation records to determine the average annual rainfall for each SADC country using data from 908 stations over a span of decades. They concluded that between 1960 and 2007 precipitation decreased by just under 26 percent in the region.⁴¹

For the southern African region, existing high climatic variability underlines both the regions’ vulnerability as well as the challenge of accurately predicting long-term climate changes. Notwithstanding these difficulties, a recent publication compendium of SASSCAL’s research portfolio states that the region is projected to become warmer and “generally drier.” Indeed, data shows that average temperatures for the region have already rapidly increased at roughly twice the rate of the global temperature increase over the past 50 years. For Namibia (among other states) this warming and drying will lead to a range of impacts including reduced agricultural production, loss of livestock, and adverse effects on human health. Overall drier and warmer conditions of the subcontinent will also lead to a higher frequency of the occurrence of adverse weather events including dry spells, heat waves and floods.⁴²

The projections for Botswana and Namibia are particularly worrisome especially if global efforts to reduce greenhouse gases continue to fall short. In an online article in The Conversation Mark New from the University of Cape Town observes:

“For climate change “hotspots” – hot, dry and water-stressed countries like Botswana and Namibia in southern Africa – local warming and drying will be greater than the global average ... Global warming of 1.5°C would lead to an average temperature rise above the pre-industrial baseline in Botswana of 2.2°C and Namibia 2.0°C. At 2.0°C global warming, Botswana would experience warming of 2.8°C. Namibia would warm by 2.7°C.”⁴³

36 Welborn, Lily, Africa and climate change: Projecting vulnerability and adaptive capacity. November 2018. 7.

37 Interview with Prof Helmschrot, Jörg, SASSCAL, Windhoek. October 22, 2019.

38 <http://www.sasscal.org/mission/>

39 Welborn, 3-4 & 7.

40 The Economist, 22-3.

41 Nhamo, L. et. al. 78-9.

42 Archer, Emma, Engelbrecht, Francois, Hänsler, Landman, Willem, Tadrosse, Mark and Helmschrot, Jörg. Seasonal predictions and regional climate change projections for southern Africa. In Revermann, Rasmus, Krewenka, Kristin, M. Schmiedel, Ute, Olwoch, Jane, M. Helmschrot, Jörg and Jürgens, Norbert. Climate change and adaptive land management in southern Africa: Assessments, changes, challenges, and solutions. Biodiversity & Ecology 6. SASSCAL. 2018. 14 – 5.

43 New, Mark. “What latest assessment on global warming means for southern Africa.” In The Conversation. October 9, 2018. <https://theconversation.com/what-latest-assessment-on-global-warming-means-for-southern-africa-104644>



WEAK POLICIES & CONFLICTING VISIONS: Drought, Water Shortages and Climate Change in Namibia

It must be acknowledged that the seasonal rainfall patterns and amounts for Namibia remain exceedingly difficult to predict and the occurrence of drought is tied to a number of factors – one season with poor precipitation does not constitute a drought. Thus drought conditions are also dependent on the health and extent of vegetation coverage, soil moisture content and average daily temperatures.⁴⁴ Global warming will and is already affecting all of these conditions, for example, soil moisture – or the amount of water that soil can hold at a given time – will decrease due to rising, overall temperatures. In turn, plant growth will be curtailed and available vegetation cover over a given area will shrink. Moreover, less vegetation cover is associated with reduced groundwater recharge rates as precipitation isn't adequately retained to be taken up by the soil.

In southern Africa, the long-term changes in average temperature and increased drought periods will lead to physical adjustments of rangelands such as changes of the types of plants making up many savannah and grassland systems – crucial regions for agricultural production. It is a given that many of these rangeland changes will have far-reaching, negative consequences on “crop yield, livestock production and human health.” One estimate states that these climatic changes will lead to the expansion of semi-arid and arid areas in the region by between five and eight percent. While this may not sound like much, it must be seen within the context of already limited arable land in southern Africa.⁴⁵

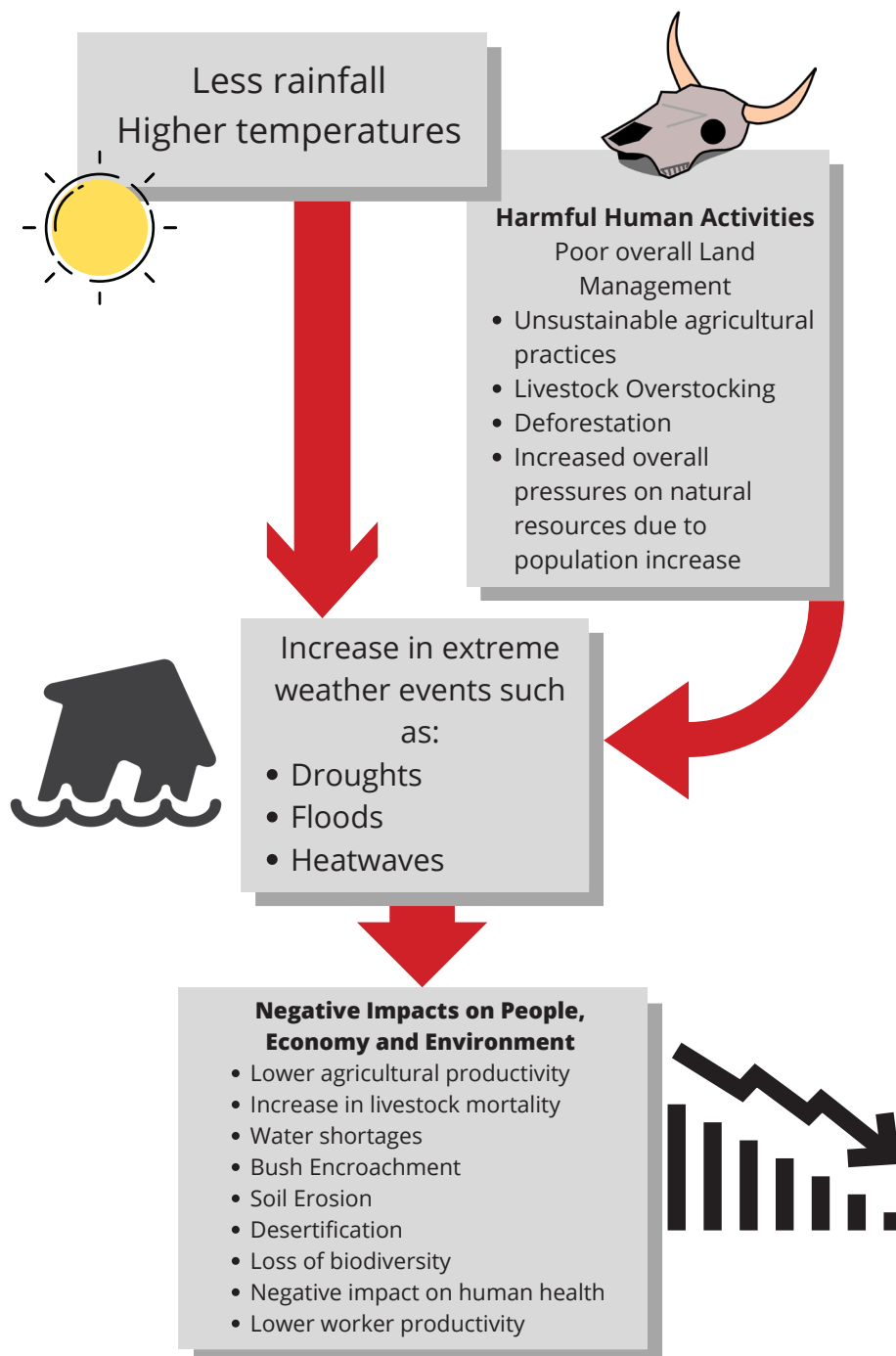
The description above is a simplified example of just some of the impacts on the natural environment by changes in temperature and precipitation that has been ascertained. Given the complex interactions of natural and human-induced processes occurring as part of on-going global warming – climate-scientists in Africa and worldwide struggle to provide accurate and quantifiable impacts on the social-economic sector and the natural environment overall. Thus, some researchers propose that the increased level of CO₂ in the atmosphere will “strongly favour trees over grasses in the savannahs.” Large swathes of rangeland in southern Africa could therefore see substantial bush encroachment and tree growth. Conversely, other data suggests that an increase in veld-fires and decreases in rainfall coupled with existing poor land management practices such as overgrazing, will lead to less tree cover. Determining more precise climate change impacts for southern Africa's diverse landscapes and complex ecosystems will require further and intensive research.⁴⁶ Figure 1 provides a simplified visual representation of the various impacts of climate change and associated feedback loops – factors that ‘feedback’ into and amplify – climate change related processes.

⁴⁴ Sartorius von Bach, Helmke. “Erratic local rainfall patterns make reliable predictions very complicated.” Namibia Economist. July 25, 2019. <https://economist.com.na/45969/weather/erratic-local-rainfall-patterns-make-reliable-predictions-very-difficult/>

⁴⁵ Archer, et. al. 16-7.

⁴⁶ Ibid.

Figure 1: Simplified Climate Change Impacts on Namibia





WEAK POLICIES & CONFLICTING VISIONS: Drought, Water Shortages and Climate Change in Namibia

Regardless of the exact changes that will befall southern Africa, it is clear that rangelands in the region will undergo moderate to profound changes in the coming decades. It is inevitable therefore, that crop yields and livestock productivity will decline. Also negatively affected will be wildlife and the availability of surface and ground water. It can therefore be argued that severe and prolonged drought conditions that have afflicted parts or the whole of Namibia in this decade are a harbinger for the not-too-distant future of the country.

Info Box 1: Climate Change Adaption & Mitigation

Activities and measures that can be undertaken to address climate change are generally classified into two categories, namely adaption and mitigation. Both approaches are crucial when it comes to tackling global warming. Furthermore they are not mutually exclusive, some activities can count as both mitigation and adaption. Their utility however, is limited and it is best that both adaption and mitigation measures are implemented concurrently for maximum effect. The IPCC has stated that responses need to be tailored towards local realities and towards respecting human rights as well as various cultural and ethical backgrounds. They also note that responses should promote the participation of women, young people and the poor. Within the context of Africa it is positive to point out that progress towards human development such as improving healthcare and access to potable water already contributes to building resilience of communities to climate change.⁴⁷

It can be argued that adaption activities are most important for Africa given its overall limited contribution to global greenhouse emissions. Nevertheless, mitigation measures are also valuable and necessary.

Adaption: Refers to adjustments undertaken to meet "actual or expected climate and its effects." For example the adoption of certain agricultural practices and methods can ensure weather events associated with global warming, take less of a toll on agricultural production. For example the cultivation of drought-resistant crops and adopting watering techniques which minimise evaporation such as drip-irrigation.⁴⁸

Mitigation: These measures are aimed at reducing "the emission of greenhouse gases" and to improve carbon sinks which capture and retain CO₂ from the atmosphere and hence limit warming. The promotion and use of renewable energy sources such as solar plants is such a measure as well as reforestation, since trees take up and store CO₂.⁴⁹

Brief Policy Review & Discussion

It is positive to note that in recent years, Namibia has drafted and passed a number of laws, policies and strategies that seek to address drought incidents, water governance and climate change. Many of the aspects that the three themes (drought, water security and climate change) touch upon are cross-cutting – meaning that they are highly relevant for other sectors such as agriculture, environmental protection, and industrial development and healthcare. This factor significantly complicates the design as well as implantation of legal frameworks and policies as a whole set of cross-cutting issues need to be considered and catered for. There are means to address cross-cutting challenges at the institutional level. Certain responses or considerations are made mandatory or 'mainstreamed' in planning processes for ministries and other state agencies and IGOs regardless of the sector. For example bilateral donors are increasingly mainstreaming climate change into their existing development activities.⁵⁰

⁴⁷ Welborn, 8 & 9.

⁴⁸ Davis-Reddy, and Vincent, 189.

⁴⁹ Ibid., 190.

⁵⁰ Davis-Reddy and Vincent, 156.

A further response has been the creation of dedicated 'integrated' policies or strategies. This essentially entails the development of an approach that is broad and holistic and takes into account a range of cross-sectoral aspects. Namibia's own 'Integrated Water Resource Management' (IWRM) Plan of 2010 is an attempt to establish such an integrated approach locally as a response to significant water governance challenges. Hence the IWRM:

"...means that all the different uses of water resources are considered together. Water allocations and management decisions consider the effects of each use on the others. They take account of overall social and economic goals, including the achievement of sustainable development."⁵¹

On a practical level an integration approach requires the active participation of various stakeholders and their coordination through a dedicated forum. In addition, such a policy approach oftentimes also requires participation from local communities and authorities, promotion of self-regulation and decentralisation.⁵²

A number of relevant policies, plans and laws relevant to the three themes of this paper are listed below. Namibia's National Drought Policy and Strategy (NDPS) has already been briefly outlined at the start of this paper.

- National Policy on Climate Change for Namibia 2011
- National Climate Change Strategy and Action Plan 2013 – 2020
- Integrated Water Resource Management Plan for Namibia of 2010
- Water Resource Management Act No. 11 of 2013
- Namibia Agriculture Policy 2015
- National Drought Policy and Strategy 1997
- Namibia's 5th National Development Plan 2017/18 – 2021/22

First and foremost, it must be acknowledged that government has managed to develop a set of fairly comprehensive policy mechanisms and legal framework addressing water security, drought and climate change. Particularly with regards to the latter, the country has acted swiftly and decisively in acknowledging the broad scientific consensus of its existence and has actively committed itself to addressing the issue. The National Policy on Climate Change aims to "outline a coherent, transparent and inclusive framework" to manage the subject matter while adhering and supporting the nation's long-term sustainable development goals. This will be achieved by pursuing a number of objectives: the development and implementation of adaption and mitigation strategies and activities; the integration of climate change into all relevant policies; sectoral planning and operation activities; building "capacities and synergies" at all levels and within society; and securing adequate financial resources.⁵³

Namibia's National Climate Change Strategy and Action Plan (NCCSAP) is a clear effort to operationalize the objectives of the above policy into tangible strategies and activities. Thus the strategy document identifies a list of 14 themes, which are divided among adaption, mitigation and cross-cutting issues. The themes are seen as critical for the country and therefore require urgent action. Adaption responses include food security, a sustainable water resource base and infrastructure development, while mitigation efforts prioritise sustainable energy and transport. The themes under cross-cutting issues are broad and include capacity building and training, public awareness and participation, and resource mobilisation as well as research and legislative development. The wide scope and number of themes listed as key areas requiring responses underlines the pervasiveness of the impact of global warming on most socio-economic spheres.⁵⁴ Finally the NCCSAP contains a lengthy log frame that sets out numerous specific activities under each theme. Furthermore, a budget, implementation, supporting agencies and timeframes are listed for each respective activity.⁵⁵

51 GRN. Integrated Water Resource Management Plan for Namibia. August 2010. 1.

52 Ibid., 1-2.

53 Ruppel Oliver C., Environmental law in Namibia: an overview, in Environmental Law and Policy in Namibia. Ruppel Oliver C., and Ruppel-Schlichting Katharina (Eds). Third edition 2016. 40 – 1.

54 GRN. National Climate Change Strategy and Action Plan 2013 – 2020. n. d. 21 – 2.

55 Ibid., 36 – 50.



WEAK POLICIES & CONFLICTING VISIONS: Drought, Water Shortages and Climate Change in Namibia

The IWRM Plan comprises in a nutshell a comprehensive stock-take of the country's water supply, security and overall governance context. Besides listing achievements and challenges the plan also provides future water demand projections by economic sectors and opportunities to utilise further water resources. The document concludes with a detailed list of recommended actions to implement and realise IWRM as well as broad cost estimations.⁵⁶

The document is nearly 10 years old, however, it is highly likely that much of the information and recommendations remain relevant in the slow moving water governance realm. The Water Resource Management Act (WRMA) of 2013 can be seen as an attempt to put into practice the recommendations contained in the IWRM. Thus, the Act provides for a legal framework for a holistic and integrated utilisation of the country's water resources. Core principals include equitable access to safe, potable water and the sustainable use and development of water resources among others.⁵⁷

Crucially, the WRMA mandates the creation and sets out the make-up, functions and powers of four governing mechanisms to manage and govern water resources effectively "within and across" a number of institutions. The four mechanisms are: the Water Advisory Council; Water Regulator; Water Tribunal; and Basin Management Committees.⁵⁸ The latter are intended to manage individual water basins which are defined hydrological on respective watershed system limits.⁵⁹

The IWRM plan, WRMA and earlier policy and legal documents, are also indications of government's efforts to reform water governance in order to become more inclusive, integrated and efficient. This can be clearly observed in decentralisation by delegating powers to regional and local authorities; the spreading of decisions-making and activities responsibilities across various institutional mechanisms involving multiple stakeholders; and the establishment of participatory forums at community level. These reforms attempt to dovetail with Namibia's efforts to design appropriate 'integrated' policy responses to climate change.

The sector in sub-Saharan Africa that will be most impacted by global warming is agriculture, which will see "heightened food insecurity" in the region driven specifically by aridity and drought.⁶⁰ It is estimated that a 1.5°C rise in global temperature will result in the loss of between 40 and 80 percent of cropland for maize and millet by the 2030s and 2040s. Consequently, it is crucial that Namibia considers climate change predictions when formulating agricultural policies and legislation. The country's latest National Agricultural Policy (NAP) stems from 2015. The policy references the negative impacts including drought, flood and erratic rainfall attributable to climate change as challenges to the country's agricultural productivity. The document states that the policy:

"...will be implemented under the full realization that climate change will impact negatively on agricultural production and productivity. The Agriculture Policy will, therefore, take cognizance of national and international protocols and conventions dealing with climate change and adaptation and will promote measures that ensure that agricultural production adapts to a changing environment."⁶¹

The NAP sets out eight key policy objectives which include, among others, the creation of a conducive environment for sustainable agricultural production and a framework that will both inform all stakeholders of government's vision of the sector and streamline all efforts towards the sector's common development goals, but also serve as a basis for further legislation. Overall, it can be observed that the NAP places significant emphasis on increasing the country's agricultural "production and productivity."⁶² Finally, it is appropriate to briefly look at the country's fifth and latest National Development Plan (NDP5) which constitutes a blueprint

⁵⁶ See: GRN. Integrated Water Resource Management Plan for Namibia. August 2010.

⁵⁷ Ruppel, 45.

⁵⁸ Remmert, 9.

⁵⁹ GRN. Gazette: No. 11 Water Resource Management Act 2013, No. 5367. December 19, 2013. 7.

⁶⁰ Welborn, 8.

⁶¹ GRN. Namibia Agriculture Policy. December 2015. 28.

⁶² Ibid., 6.

for national development and meeting the long-term goals for Namibia's social and economic progression as outlined in Vision 2030 strategy. NDP5 rests on four pillars namely economic progression, social transformation, environmental sustainability and good governance.⁶³

Water supply, security and sanitation and agricultural development are included under the economic progression while climate change is dealt with under environmental sustainability. Drought is primarily mentioned in NDP5 as a challenge specifically with regards to agriculture and food security, located under the economic progression pillar.⁶⁴ NDP5 provides for a wide range of strategies and desired outcomes many of which are tied to measurable indicators.

Policy Constraints and Concerns

While the compendium of policies, legislation and plans are impressive, there are a number of shortfalls and concerns. Some of these are fundamental, casting significant doubt on the effectiveness, efficiency and objectives of the overall regulatory framework over the long-term – particularly with regards to climate change. This section will briefly highlight examples of identified, general observations and concerns. The following subsections will delve into more specific challenges around the three themes of drought, water security and climate change.

Foremost, it must be observed that many of the regulatory documents outlined above as well as others which are not discussed here, do not necessarily speak to each other. Naturally, different ministries and agencies will place emphasis on different aspects of a cross-cutting issue, say water supply. This does not necessarily pose a problem, however, if regulations and policy diverge significantly this could lead to various impediments such as the allocation of limited resources for too many objectives, and mixed or contradictory messages to citizens, stakeholders and investors. In fact, it is noticeable that a number of provisions and objectives put forth in various policies and plans are opposed to each other. For example, NDP5 hardly mentions renewable energy as a concrete measure to pursue energy security for the country.⁶⁵ Conversely, the NCCSAP explicitly proposes the development and promotion of renewable energy as a critical “strategic aim” under Namibia's mitigation measures to reduce greenhouse gas emissions.⁶⁶

The inadequacies of the country's legislative framework with regards to climate change have also been observed in regional literature. A review of barriers to climate change adaption measures in Namibia conducted by the Adaption at Scale in Semi-Arid Regions (ASSAR) project notes:

“Most sectoral policies do not explicitly address climate change and in fact there is a limited understanding of climate-related issues in most sectors. Namibia's National Climate Change Policy thus conflicts with existing sectoral policy instruments and national development goals.”⁶⁷

⁶³ GRN. Namibia's 5th National Development Plan. n. d. xiii.

⁶⁴ Ibid., 20.

⁶⁵ Ibid., 34 – 5.

⁶⁶ GRN. National Climate Change Strategy and Action Plan 2013 – 2020. 30.

⁶⁷ Davies, Julia. Barriers and Enablers to Climate Change Adaptation in North-Central Namibia. September 2017. n. p.



WEAK POLICIES & CONFLICTING VISIONS: Drought, Water Shortages and Climate Change in Namibia

Water: Responses with Limited Focus

A review of the current water governance situation in the country suggests that overall little has changed in this sector over the past years. With regards to legislation it is worrisome to observe that it appears that the WRMA of 2013 is still not in force as neither its regulations nor the date of its enforcement could be identified. Two recent academic theses of students from the University of Namibia (UNAM) attest that, to their respective authors' knowledge, the WRMA remains non-functional.⁶⁸ Thus, for all intents and purposes, Namibia's de-facto legal framework pertaining to water governance is the highly outdated, pre-independence Water Act No. 54 of 1956. Notwithstanding the unclear legal status of the WRMA, government has begun instituting various key governing institutions as outlined in the Act such as the Water Advisory Council.⁶⁹ While it is positive that the state is making progress with regulatory implementation regarding water security it is highly questionable if such institutes can fulfil their duties in a legal grey area and lacking appropriate and legislated regulations. Even more unclear is the status of the extensive and detailed IWRM plan of 2010. Indeed, it appears that government has mostly and quietly abandoned the national plan. For example, the document cannot be located on the website of the Ministry of Agriculture, Water and Forestry (MAWF), the key public institution tasked with water governance. The plan is not mentioned in the Ministry's recent and publicly available annual reports nor its strategic plans. However, elements of IWRM can be found in some program activities for example regarding the management of the Orange-Senqu River basin.⁷⁰

Finally, IWRM is a sizable programme component in the strategic planning matrix contained in the MAWF latest 'Strategic Plan 2017/18 – 2021/22'. The IWRM section includes three project areas namely sustainable water harvesting and irrigation, water infrastructure development and water resource monitoring.⁷¹ Based on this very limited information it is unclear how much government remains committed to IWRM principals and objectives outlined in the original plan which emphasize stakeholder engagement, coordination as well as shared decision-making and mutual responsibility to ensure sustainable use and management of water resources.⁷²

In terms of physical infrastructure, various government strategies, policies and plans over the last couple of years have outlined a range of capital projects to assure the country's water supply. The much vaunted Harambee Prosperity Plan (HPP) launched by the first administration under President Hage Geingob in 2016 included, for example, commitments to develop Windhoek's aquifer for recharge and abstraction, complete construction of the Neckartal dam and construct a coastal desalination plant by the start of 2019.⁷³ NDP5 is far less detailed than the HPP and simply states that "new bulk water supply infrastructure" will be constructed including a desalination plant, an augmentation link from the Kavango River to the central area and the development of various aquifers. The document does not state which project has priority and outcomes just refer to an increase in access to safe drinking water by citizens as opposed to completed capital projects.⁷⁴

Unfortunately, very few infrastructure plans have actually been completed or even initiated, and no desalination plant or similar large-scale construction project has been undertaken. Since independence, only a handful of major bulk water infrastructure construction projects have materialised, most of which have arguably focused on maintaining and rehabilitating existing structures.⁷⁵ To some extent this is understandable – Namibia remains a developing country with limited public finances and a host of socio-economic challenges which complicate prioritisation and planning by decision makers. However, government has also regularly deferred crucial investment decisions of bulk water infrastructure plans, instead choosing to fund projects that have at best a marginal positive impact on the country's development, such as government office buildings (an issue that has been repeatedly raised by various water experts and economists over the years).⁷⁶

68 Pazvakawambwa, Godfrey, T. Water Resource Governance in the upper Swakop basin. PHD Dissertation, UNAM. March 2018. 10 & 82. And Nuunyango, Ester. The Influence of Groundwater Management strategies on Groundwater levels of Namibian Savannah Aquifers. MA thesis, UNAM. April 2019. 14. 69 Smit, Ellanie. "Water advisory council floundering." Namibian Sun. September 21, 2016. <https://www.namibiansun.com/news/water-advisory-council-floundering>

70 GRN. Annual Report 2015/ 2016. MAWF. n. d. 52.

71 GRN. Strategic Plan 2017/18 – 2021/22. MAWF. January 2018. 16.

72 GRN. Integrated Water Resource Management Plan for Namibia. MAWF. August 2010. 5-6.

73 Remmert, September 2016. 10-1.

74 GRN. Namibia's 5th National Development Plan. 36-7.

75 Remmert, September 2016. 13.

76 See for example: Brown, Roland. The National Budget 2017-18: Prioritising Personnel. IPPR, Special Briefing Report No.19. May 2017. 5-6.

Thus, it must be observed that within the water governance sector an outdated and semi-functional regulatory framework is paired with inadequate finance and funding mechanisms.

We must note, however, that government has over the past years started to finance and put into place measures to address some water infrastructure deficits in the country. The fact that these activities are being undertaken in the currently difficult economic situation and amid growing state indebtedness is remarkable. It can also be argued that Windhoek's water shortages and restrictions in 2016 coupled with a national drought⁷⁷ created enough public and institutional momentum to stop government ignoring a deteriorating situation. In July 2016, Namibia's president appointed members to a newly formed cabinet committee on water supply security with the task to urgently address the then central area water crisis.⁷⁸

According to the local water expert Pedro Maritz, the committee was further tasked with reviewing the overall water situation in the country, identifying pressing needs and coming up with appropriate solutions. Maritz, who sits on the technical committee that advises the cabinet committee on water supply security, notes that depending on the urgency of individual issues – short, medium and long term – the committee developed a number of responses divided into three separate phases. The first phase addressed crucial infrastructure needs to secure water supply for the central areas. This work has already been carried out and included the rehabilitation of the Von Bach dam and the expansion of water supply from the Windhoek and the Karst aquifers at a cost of around N\$500 million. In addition, the committee has identified the most urgent priorities in four areas of the country characterised by large populations and high consumption.

These are the central area of Namibia, central coast, wider area around the town of Rundu, and northern regions of the country. Maritz stated that government had agreed to provide funding for these urgent water infrastructure priorities at a cost of roughly N\$3billion while a further one billion would be sourced from the national bulk water supplier NamWater and local authorities.⁷⁹ The implementation of the priority projects is planned to take place over the next five years.⁸⁰

Drought: An On-going Crisis

Even though Namibia's drought policy is over 20 years old, it offers a critical and thorough analysis of past, ineffective and wasteful drought relief measures. It goes on to decisively outline guidelines on how government responses to drought should be structured to address drought risks in a more holistic, effective and on-going manner. In a nutshell, the policy seeks to improve the overall resilience of the agricultural sector by eliminating traditional aid such as fodder for livestock, encouraging better rangeland and livestock management practices and invest into improving overall development of communities such as health-care and water supply. The policy therefore advocates for a deliberate long-term approach to minimise drought impact and risk and empower farmers and local communities.⁸¹

Local agriculture expert Piers Vigne notes that initially the planned elimination of fodder and supplementary feeds from drought relief aid was a breakthrough. It was seen as an important measure to ensure that farmers would manage risk better, farm more economically, conserve natural resources and target relief better by prioritising vulnerable citizens. He did acknowledge, however, that a number of measures outlined in the policy never materialised. This probably happened due to much fewer drought years following the policy launch as well as institutional disinterest.⁸²

77 Kahiurika, Ndanki. "President declares drought an emergency." *The Namibian*. June 30, 2016. <https://www.namibian.com.na/152587/archive-read/President-declares-drought-an-emergency>

78 Remmert, September 2016. 11.

79 Interview with Mr Pedro, Maritz, Windhoek, October 11, 2019.

80 Smith, Jana-Mari. "N\$3bn for water security." *Namibian Sun*. May 27, 2019.

81 GRN. *National Drought Policy & Strategy*. 1997. n. p.

82 Interview with Mr Piers, Vigne, Windhoek, October 11, 2019.

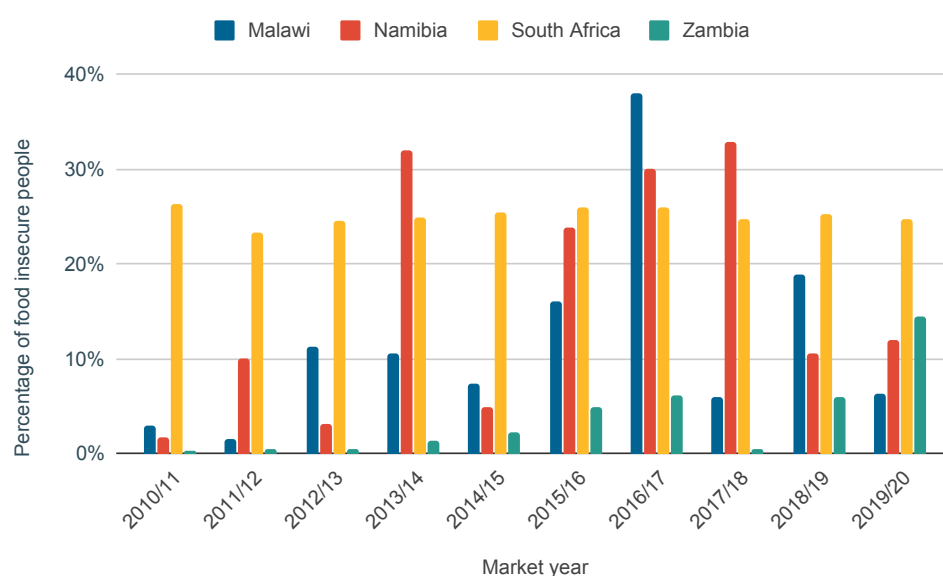


WEAK POLICIES & CONFLICTING VISIONS: Drought, Water Shortages and Climate Change in Namibia

Professor Helmke Sartorius von Bach, farmer and UNAM academic, in part echoed Vigne's assessment, stating that in his view the drought policy and strategy were never properly implemented. Consequently, he noted that Namibia appeared unprepared for drought events and the overall drought management response from government was often slow, haphazard and ineffective.⁸³ Both Von Bach and Vigne noted that government regularly declares drought emergencies too late. Given the slow response time of the bureaucracy in general, many relief measures arrive too late to significantly assist farmers.

Droughts as well as floods have caused significant human suffering and economic losses in Southern Africa over the past decade. This is clearly evident in the large population of food insecure people across the region on an annual basis (see figure 2). Food insecurity among people can roughly be defined as inadequate or uncertain access to affordable, nutritious foodstuffs.⁸⁴ Food insecurity is not necessarily always linked to extreme weather events such as droughts, since many subsistence farmers already face numerous challenges in terms of food production. Nevertheless, the figure gives a good indication of how many people in the region including Namibia, live under increasing challenging environment conditions with regards to meeting their food needs.

Figure 2: Percentage of Food Insecure People with regards to respective country population



Climate Change & Agriculture: Dire Climatic Outlook Versus Ambitious Expectations

The severe drought events in the last decade as well as the scientific medium and long-term prognosis of climatic changes impacts in Namibia stand in stark contrast to numerous public plans, strategies and visions from decision makers. For example, climate change considerations barely feature in the NAP and neither does the policy spell out any details on adaption or mitigation measures. Namibia's NDP5 does include a short section on climate change which primarily mentions environmental management measures such as the adherence to environmental management plans and reduction of emissions.⁸⁵ No mention is made of adaption and mitigation measures or actively building the resilience of local communities to deal with climate

⁸³ Interview with Prof. Helmke, Sartorius, von Bach, Windhoek, November 31, 2019

⁸⁴ https://en.wikipedia.org/wiki/Food_security

⁸⁵ GRN. Namibia's 5th National Development Plan. n. d. 85.

change effects. Public measures to address climate change are evident in Namibia's regulatory framework as is demonstrated for example through the country's development of NCCSAP and tangible efforts such as the promotion of conservation agriculture. However, it can be argued that the systematic inclusion of climate change considerations particularly in vulnerable sectors such as water supply and agriculture is marginal at best.

Unfortunately – and in spite of the widely publicised IPCC reports – Namibia's political leaders appear to be severely uninformed about the scientific prognosis and the likely consequences for the country's overall development. Thus, many political parties seem to attach overt importance to Namibia's agriculture sector in terms of delivering much needed economic growth and development. The Swapo Party, for example, states in its 2019 election manifesto its desire to expand agricultural production and accelerate agricultural land delivery to both emerging and communal farmers. In turn both the PDM and the LPM emphasise that the agriculture sector can be significant generators of jobs and the delivery of national food security.

It is positive to note that many parties acknowledge the existence of climate change and its likely negative impact on the country. Furthermore, some political parties also propose sensible measures to address these risks such as the promotion of appropriate agricultural methods.

Nevertheless, many proposals and assertions by the majority of parties are both contradictory and unrealistic, given looming climatic changes (See Info Box 3). For example, the PDM's suggestion regarding pumping desalinated water across the country to boost agricultural production ignores the prohibitive expense involved – such as the costs of augmenting central Namibia's water supply through coastal desalination or pumping water from the Kavango river. Such projects would likely fall in the price range of between N\$7 – 10 billion, or more.⁸⁶ Peculiar enough the government has recently started work on an extensive feasibility-study regarding the construction of a desalination plant to meet water demand at the coast and in the central areas.⁸⁷ However, an extensive study on the same topic as well as a possible link to the Okavango River was conducted a couple of years back on the behest of government. It is unclear what has happened to the study or why there is need for another extensive research process.

Similarly Swapo's stated aim to implement the Baynes hydropower scheme ignores regional experiences. For example a prolonged dry-period led to low water levels in the hydropower Kariba dam which consequently reduced power generation levels in late 2015 in Zambia. As a result, the Lusaka province and Zambia's Copper Belt were affected by "unprecedented daily load shedding" negatively impacting business operations and economic growth.⁸⁸ Given that the region is slated to become overall drier and warmer, large investments in hydropower schemes are highly questionable at best.

Finally, the LPM's drive for widespread, equitable access and ownership of land is understandable given the prevailing inequalities in Namibia particularly with regards to property ownership. However, as much as people might desire access to farmland the realities of building and maintaining a successful agriculture operation in a predominantly arid country might very well exceed many peoples' know-how and capital, especially with mounting challenges brought about by global warming.

Finally, public resources to fund meaningful agricultural, water supply and climate change adaption and mitigation remains constrained given a depressed national economy and public fiscal limitations. How parties will be able to finance extensive agricultural reforms given the many other pressing needs such as education and healthcare is unclear.

⁸⁶ Remmert, September 2016. 13-4.

⁸⁷ Erastus, Nghinomenwa. "Govt acts on coastal, central region water woes." *The Namibian*. January 31, 2020. <https://www.namibian.com.na/87615/read/Govt-acts-on-coastal-central-region-water-woes>

⁸⁸ Gannon, Kate, Elizabeth. et al. Business experience of floods and drought-related water and electricity supply disruption in three cities in sub-Saharan Africa during the 2015/2016 El Niño. In *Global Sustainability* 1, e14, 2018. 3.



WEAK POLICIES & CONFLICTING VISIONS: Drought, Water Shortages and Climate Change in Namibia

Info Box 2: Elections 2019

Climate Change: What do the Parties Say?

Given the clear evidence of global warming's severe impacts on Southern Africa in the coming decades it is only reasonable to assess Namibian political parties' take on this crucial theme. Here is a brief overview of political parties' stance on climate change and what should be done about it as well as how this topic relates to water security and agriculture. Not all parties are included, and some party manifestos do not mention climate change in any meaningful way or at all such as the UDF, NUDO and the independent presidential candidate Dr. Panduleni Itula. This brief was undertaken by utilising the latest respective party manifestos.

Swapo

- Climate change is mentioned five times in the Swapo manifesto within the context of agriculture and food security as well as water supply. Furthermore, the theme together with environmental sustainability is assigned a whole chapter in the party's 2020-2025 manifestos.
- The party acknowledges climate change and its negative impacts on the country's food production and link it directly to the recent, on-going drought; as well as increased risks from "desertification and flooding."
- The party asserts that under its stewardship government has introduced policies to curb emissions, taxes on carbon emissions and tyres, as well as having mobilised N\$2.1 billion for projects which address "critical environmental challenges."
- The party commits to strengthen Namibia's resilience to climate change, invest in "climate-smart agriculture" and strengthen disaster risk management system; commits to further promoting and expanding renewable energy projects and technologies including solar and wind energy. The party also commits to the protection of communal conservancies and forests by strengthening inspection services.
- The party sees the response to climate change primarily in boosting environmental management and sustainability as well as prioritising renewable energy; Notably a number of commitments with regards to agriculture, food and water security are either at odds or not necessarily compatible with projected global warming impacts on water supply and agricultural land such as the expansion of green schemes and irrigation measures and the implementation of the Baynes hydropower scheme.

Popular Democratic Movement

- Climate change is only mentioned once in the 2019 manifesto of Namibia's official opposition party PDM.
- It is noted that climate change will exacerbate the country's "various climatic challenges," specifically with regards to securing Namibia's water supply. The party argues that the country needs a "new way of thinking" to ensure a better future for coming generations. They also commit to planting "3 million trees in five years" to combat desertification and soil erosion.
- The party argues that water stress and food insecurity can be met by aggressively pursuing desalination plants of which the party will build "at least 3" to pump potable water to all of the country's regions to "stimulate agriculture and job creation." Concurrently, the party will invest in renewable energy and "made in Namibia" solar panels to provide "climate resilient power infrastructure."
- The party states that the modernisation of the agricultural sector is key for economic transformation to ensure sustainability, self-sufficiency, especially in rural areas. To promote agricultural exports, the party will invest four percent of GDP in the industry. The party commits itself to developing "thousands" of hectares into productive agricultural land by developing irrigation schemes, including micro-irrigation and extensive use of fertilisers.
- The PDM's manifesto does not necessarily address climate change outright. However, some of its proposals such as the promotion of renewable energy and micro-irrigation are climate-smart measures; the utility of pumping desalinated water across the country to boost agriculture is highly questionable given the high cost and extreme distances.

Landless Peoples' Movement

- The LPM party acknowledges climate change stating that it “poses a serious challenge to the food industry” and agricultural productivity; in addition the party links global warming to “desertification, land degradation and drought” but that these issues are not currently properly addressed.
- The party states that it will tackle negative, climatic impacts by initiating “climate change resilient budget” which appears to be primarily centred on creating a ministry for climate change and clean energy with an annual budget of N\$ 1 billion; party will better resource green funding mechanisms like the EIF to improve adaption and mitigation measures.
- The party commits to implementing a “radical agrarian reform” and boosting food security and production by instituting a range of measures including in agriculture technology and innovations, markets, and supporting smallholder farmers with seeds, fertiliser, water, finance and training; when in government party would allocated 10 percent of GDP to the agriculture sector.
- The party would also create agricultural enterprises through state funding to stimulate rural development as well as encourage “conservation agriculture in communal areas.” In addition the party will impose “a target on carbon emissions.”
- While the LPM manifesto mentions climate change nine times, specific commitments are oftentimes unclear and the information disjointed. Water supply and security as well as renewable energy do not feature. Besides mentioning conservation agriculture and agrarian technology promotion – adaption and mitigation measures are not detailed further. Primarily it appears that LPM is concerned with the equitable access and ownership of urban and rural land.

South West Africa National Union

- The SWANU party has included a short chapter on climate change in their recent manifesto in which the organisation states that the phenomenon will likely have a severe economic impact on developing nations, including Namibia.
- The party associates the recurring drought in the country with climate change resulting in negative impacts on agriculture production specifically livestock and game.
- In response, the party advocates for the use of renewable energy, planting trees to combat desertification, expanding green schemes and “strategies aimed at achieving food security.” Party also will invest in desalination plants to provide water throughout the country.
- SWANU overall provides few concrete points on its stance towards global warming and mistakenly states that the phenomenon will “mostly” affect poor and island states. Additionally, there is no meaningful information on agricultural aims and practises, water supply and infrastructure.

All Peoples' Party

- The APP states that climate change is a human-induced reality that poses a threat to nature and humans now and in the future. Like Swapo, the party sees climate change primarily as an issue that needs to be dealt with within an environmental conservation framework.
- The party blames climate change mainly on pollution as opposed to CO₂ emissions; in response the party proposes a number of general actions including legislation and measures to “control degradation of land, water, vegetation and air” and to promote “green energy” as well as to implement adaption and mitigation measures.
- Furthermore, the party states that agriculture constitutes a core economic sector of the country and will invest in it accordingly, including research and training as well as the drilling of boreholes, encourage crop diversification, abstraction from northern aquifers and the overall sustainable use of natural resources.
- The party addresses climate change, however, in a rather limited and general manner; many of the proposed agricultural activities do not necessarily take into account the potential effects of global warming. Concerns around water supply and security are not mentioned.⁸⁹

89. Sourced and compiled from the latest available, respective Namibian Party Manifestos.



WEAK POLICIES & CONFLICTING VISIONS: Drought, Water Shortages and Climate Change in Namibia

Discussion & Conclusion

This paper has sought to bring together crucial insights regarding Namibia's drought risk and management, water supply security status and the latest regional climate change projections. It must be acknowledged that this paper has not addressed many of the complexities around the three themes. Thus, most experts spoken to as part of the research for this paper observed that Namibia's agricultural sector was complex and beset by a host of challenges. Arguably, the same can be observed for the country's water security and supply context.

The aim of this paper was to outline and bring together informed observations on three key domains/themes which are closely interlinked but unfortunately are seldom discussed across sectors – in particular the future impact of climate change in Namibia seems to be excluded from most discussions around water supply and agriculture. The paper does not claim to provide an exhaustive analysis of all themes but is intended to inform further dialogue and research.

With regards to global warming, the most recent international, scientific findings published by the IPCC outlines a dire prognosis of rising temperatures and lower precipitation for Southern Africa. Regardless of the eventual severity of average global temperature increases – the region and particularly Namibia are highly vulnerable to climatic changes, as a result of the country's arid make-up as well as limited resources, knowledge and capacity to adapt. Two important and interlinked socio-economic sectors will be especially affected by climate change: water supply security and agriculture.

As it stands, both sectors are already strained to meet Namibia's development needs. Despite climatic challenges such as the country's natural aridity and limited precipitation, both sectors have been neglected by government and stakeholders, suffering from underinvestment in the recent years. It is therefore perhaps understandable that most respective regulatory instruments including policies and strategies pertaining to the sectors have hardly been implemented.

Drought response (which can be characterised as a sub-issue) has attracted funds, but primarily only in emergency contexts. Yet, key guidelines in the drought policy and strategy remain unrealized – very much underlining the many systemic issues that the agricultural sector is facing. This begs the question: what use are policies, plans and legal regulations for the country's development if they are hardly implemented?

It is worrisome to note that only the 2016 water shortage crisis in Windhoek and its surroundings finally persuaded senior government officials and politicians to address Namibian water security in earnest and allocate substantial funds for solutions. Conversely, repeated warnings emanating from studies and water experts, as well as public officials regarding the deteriorating situation over the past decade or more have evidently not been persuasive enough for government leaders, demonstrating a lack of governmental interest and will. Arguably all major policy decisions that require significant budgetary allocations such as bulk infrastructure construction carry a political dimension. Nevertheless, if national politicians clearly display severe indecision toward a crucial sector such as water security and supply, then this invariably raises serious questions around the capacity for the decision making process of Namibia's government.

Climate change prognosis will increasingly place pressure on national water supply and agricultural productivity and thus amplify years of failed policy implementation, systematic planning and indecisiveness on the part of decision makers. Global warming will not mean the end of the country's agricultural sector. Many farmers, particularly owners of commercial operations, will be able to adapt as a result of access to capital and knowledge.

Some will invest, for example, in more drought resistant crops and hardy livestock breeds. Indeed, local farmers are no strangers to adaption measures as many have already responded to challenges to traditional agro-business activities by diversifying into games farming and tourism, for example.⁹⁰ Nevertheless, the sector will be hard-pressed over the next two decades or more to meet the overinflated expectations of political parties including the ruling party.

Moreover, the changing climate conditions will impact particularly communal and subsistence farming negatively. As international research confirms, poorer segments of society will be most impacted due to lack of resources, finance and know-how. Namibia's inadequate regulatory framework and implementation shortfalls will increasingly come under question as the inadequacy of ad-hoc drought relief measures will become ever more apparent. Livelihoods of poor subsistence farmers will become increasingly precarious. In turn, this will likely exasperate challenges in other sectors, as more rural people will flock to urban centres, placing strains on already inadequate municipal services and job markets in towns and cities. This prognosis exemplifies the cross-cutting nature of climate change and demonstrates both why it is such a challenging issue and the imperative to address it urgently.

Namibian policy-makers are increasingly confronted with limited resources and capacity while concurrently facing a wide array of socio-economic challenges. However, it can be argued that instead of prioritising specific sectors and activities, government has often engaged in a piecemeal approach, whereby limited funds are allocated to a large number of sectors and issues.

The advantage to this piecemeal approach is that government is able to provide some level of attention and services across many governance domains. However, as a result, public institutions have little leeway to concentrate on sectors in depth, with the outcome being that services are limited and many sector-specific issues cannot be addressed adequately. This problem is arguably an acute one for developing nations as a result of their limited financial and knowledge base.

Climate change consequences for the region could act as a catalyst for a systematic prioritisation approach to Namibia's development needs, much as a major public emergency forces responders to prioritise actions and resources to the most critical and affected areas. Perhaps this may force Namibian policy-makers to decide what the most adequate responses to the three cross-cutting issues of drought, water security and climate change are, in turn responding to the country's greater socio-economic challenges.

This would require leaders to extensively interrogate data and sector studies and ask difficult but necessary questions. This could, for example, entail significantly downscaling investment in agriculture and channelling funding into urban services such as housing, sanitation and the easing of urban land restrictions to encourage business and job creation in urban centres. Agriculture could be stimulated by encouraging foreign investors to finance large-scale, high-value crop production, utilising innovative methods such as drip irrigation and automation. Given the current national discourse around land, these considerations may not be politically palatable but such solutions might become increasingly imperative.

⁹⁰ Interview with Prof. Helmke, Sartorius, von Bach, Windhoek, November 31, 2019.



WEAK POLICIES & CONFLICTING VISIONS: Drought, Water Shortages and Climate Change in Namibia

Recommendations

- There is an urgent need for the enactment and of a legally binding water regulatory framework. Government should ensure that the Water Resource Management Act of 2013 is implemented and enforced forthwith.
- The most recent international and regional findings around climate change should be considered and incorporated into policies, and plans – in particular for Namibia's water and agriculture sector.
- All themes have major policy issues pertaining to implementation and, at best, only take limited cognisance of each other and often contain clashing objectives. Government and relevant stakeholders would need to engage in a comprehensive regulatory review which would need to include an earnest and informed dialogue between officials, experts, private sector and communities. Crucially, the review and dialogue should go beyond individual sectors and bring together a wide range of representatives, agendas and know-how.
- Government leaders should consider carefully that the prioritisation of challenges is already crucial in determining Namibia's socio-economic development trajectory. Furthermore, only the sensible allocation of resources and the demonstration of political will with regards to the implementation of identified policies will yield positive results.
- Government should refrain from ad-hoc policy responses or such measures that are overly dependent on international donors, without having a demonstrable understanding of the complexities involved, and which lack buy-in from local communities. Particularly with regards to climate change, adaption and mitigation measures tailored to local contexts will be more likely to succeed in the long-term.

Recommended further reading

- Angula, Margaret, Togarepi, Cecil, New, Mark, Spear, Dian, Davies, Julia, Hoffman, Tali, and Scodanibbio, Lucia. Putting People at the Centre to Enable Effective Climate Adaption in Semi-Arid Regions: Insights from Namibia. Adaption at Scale in Semi-Arid Regions. 2014-2018. n. d.
- Davies, Julia. Barriers and Enablers to Climate Change Adaptation in North-Central Namibia. Adaption at Scale in Semi-Arid Regions. September 2017.
- Davis-Reddy, Claire, L. and Vincent, Katharine. Climate Risk and Vulnerability: A Handbook for Southern Africa. 2nd edition. Council for Scientific and Industrial Research. 2017.
- Garrard Svenja, Heyns Piet, Pfaffenthaler Michelle, and Schneider Gabi. Environmental Awareness for Sustainable Development: a resource book for Namibia. Hanns Seidel Foundation , 2017.
- GRN. National Climate Change Strategy and Action Plan 2013 – 2020.
- IPCC. Summary for Policymakers. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. 2018.
- New, Mark. "What latest assessment on global warming means for southern Africa." In The Conversation. October 9, 2018. <https://theconversation.com/what-latest-assessment-on-global-warming-means-for-southern-africa-104644>
- Remmert, Dietrich. Water Governance in Namibia: A tale of delayed implementation, policy shortfalls, and miscommunication. September 2016.
- Revermann, Rasmus, Krewenka, Kristin, M. Schmiedel, Ute, Olwoch, Jane, M. Helmschrot, Jörg and Jürgens, Norbert. Climate change and adaptive land management in southern Africa: Assessments, changes, challenges, and solutions. Biodiversity & Ecology 6. SASSCAL. 2018.
- The Economist. The Climate Issue. September 21st – 27th, 2019.
- Welborn, Lily, Africa and climate change: Projecting vulnerability and adaptive capacity. Institute for Security Studies. November 2018.
- Wilhite, Donald A. Sivakumar, Mannava, V.K. and Pulwarty, Roger. Managing drought risk in a changing climate: The role of national drought policy. In Weather and Climate Extremes 3, 2014.



WATER & DROUGHT CHALLENGES

Namibia within context of Global CC

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Present in more than 60 countries world-wide, the Hanns Seidel Foundation Namibia (HSF) is a German non-profit organisation promoting democracy, good governance and the rule of law across the African continent. Cooperating with its Namibian partners, such as IPPR, HSF also seeks to contribute to sustainable development by strengthening peace, human security and environmental protection.

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