

CLIMATE GOVERNANCE & DEVELOPMENT CASE STUDY



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Acronyms

AAP NAM	Africa Adaptation Programme – Namibia Project
CBA	Community-based Adaptation
CCA	Climate Change Adaptation
COP	Conference of Parties
DNA	Designated National Authority
DRM	Disaster Risk Management
GDP	Gross Domestic Product
I&FF	Investment and Financial Flows
INC	Initial National Communication
IPCC	International Panel for Climate Change
KRA	Key Result Area
MDGs	Millennium Development Goals
MET	Ministry of Environment and Tourism
MTEF	Medium-term Expenditure Frameworks
NAPAs	National Adaptation Programmes of Action
NCCC	National Climate Change Committee
NDP	National Development Plan
NGOs	Non-governmental Organizations
OPM	Office of the Prime Minister
PPAs	Participatory Poverty Assessments
RCCC	Regional Climate Change Committees
SNC	<i>Second National Communication</i>
TNC	Third National Communication
TOTs	Training-of-Trainers
UNFCCC	United Nations Framework Convention on Climate Change

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Introduction



The magnificent red dunes of Sossusvlei Namibia. Photographer Michael Van Rooyen

1.1 OVERALL CONTEXT OF THE STUDY

Climate change is increasingly recognized as a developmental challenge and an impediment to achieving the Millennium Development Goals (MDGs) in Africa. Africa is particularly vulnerable to the impacts of climate change and is likely to suffer the most because of its geographical location and weak institutional, human, economic and financial capacity to cope with the multiple impacts of climate change. Vulnerability to climate change on the continent is compounded by the dependence of economies on climate sensitive sectors, particularly agriculture.

In order to deal with these impacts, African states are required to develop climate change response strategies, plans and policies such as National Adaptation Programmes of Action (NAPAs). Such plans articulate the countries' vulnerabilities and impacts to climate change and provide the basis on which African countries respond to these impacts. Most African countries have taken steps to develop such strategies and plans. However, a key challenge in this regard is that for various reasons most of these plans remain largely unimplemented. Moreover, in many African countries climate change planning remains a stand-alone activity that is not integrated with development planning processes.

The need to integrate climate change adaptation into development planning and decision-making processes has become increasingly apparent with the general recognition of the multiple linkages between development and climate change adaptation. Increasing knowledge on how climate change impacts may jeopardise the results and impacts of many development efforts and further compromise the achievement of key development goals, including the MDGs, presents a clear case for integration. Further, concern that some development activities may inadvertently lead to an increase in exposure and/or vulnerability to climate change necessitates an improved understanding of the synergies between development and adaptation, and how integration can be exploited to address the root causes of vulnerability.

African states are required to develop climate change response strategies, plans and policies such as National Adaptation Programmes of Action (NAPAs).

There currently exists no real link at a high political level between climate change impacts and sustainable development in Africa. Although the responsibility for climate change adaptation often lies with the Ministry of Environment, it is critical to have the issue recognised as an economy-wide concern. If not, the ability to effectively address climate change within the broader objective of poverty reduction is severely weakened.

Country-specific evidence of the potential economic costs of climate change impacts and the benefits of investing in adaptation is key for the integration of climate change responses into central development planning processes. It is important for convincing decision makers at various levels that climate change has economic implications that will make the achievement of development objectives more difficult, thus paving the way for its inclusion in the matrix of factors influencing decision-making processes. Country-specific evidence of economic impacts will also help to ensure the allocation of sufficient financial resources for policy measures in support of climate change adaptation, whether such measures entail revising existing development plans or implementing new measures specifically targeted at climate change adaptation.

The Heinrich Boell Foundation (HBF) has commissioned two country case studies to analyse in some depth climate change governance practices and options in southern Africa. Tanzania and Namibia have made significant progress in addressing climate change over the past few years. The two countries' experiences offer a wealth of interesting insights relevant to many other countries world-wide and help identify specific entry points for improved national climate change governance.

1.2 WHY NAMIBIA AS A CASE STUDY

Over the past 20 years climate change has found increasing attention in Namibia. Whilst Namibia's Green Plan shared at the United Nations Conference for Environment and Development (UNCED) in 1992 only just included some first notions of the climate challenge, the ratification of the UNFCCC and the Kyoto Protocol by Namibia set into motion a more comprehensive policy and governance response.

Today Namibia is one of Africa's most active climate change actors. The country has realized through a series of studies, e.g. conducted as part of the First and Second National Communications under the UNFCCC or specific support programmes and projects, that Namibia is not only vulnerable to climate change but has to take proactive steps to address future challenges. Namibia, a country normally exposed to high climate variability, has had to deal with a number of floods and droughts over the past decades. Although such variability is known to be natural, there are notions that Namibia is already and will be further affected by global climate change – and that the country must get ready to address the situation.

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Although undoubtedly climate change adaptation is at the heart of Namibia's climate change thinking, mitigation options and a transition to a low-carbon economy are also on the country agenda. With the impending energy crises in southern Africa as well as the global 'Green Economy' trend, there are incentives for a perceived low-emission nation to continue addressing green house gas emissions and climate change mitigation. Continued efforts to achieve sustainable land management throughout Namibia will also render mitigation gains. However, despite the mitigation possibilities, this paper overall focuses on the adaptation element of climate change responses.

Namibia is realizing that climate change is a cross-sectoral issue that requires a multi-stakeholder response. Linkages to formal development planning have been made and are being continuously strengthened. There are some interesting lessons learnt and progress steps to report from Namibia.

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Climate change and development – national context



Rain falls on the distant horizon. Photographer Michael Van Rooyen

2.1 CLIMATE CHANGE CONTEXT

NATURAL ENVIRONMENT AND SOCIO-ECONOMIC CONTEXT

Namibia, located in south-western Africa, is known to be the most arid country south of the Sahara. Frequent dry-spells and droughts are normal, while severe flooding is a sporadic occurrence in water basins such as the Cuvelai drainage, and the Zambezi, Cubango-Okavango, Kunene and Orange-Senqu rivers. These are all transboundary systems, and the latter four are the only perennial rivers in Namibia. The median annual rainfall ranges from less than 50 mm to 250 mm in Namibia's hyper-arid southwest, and peak at 350 to 550 mm in the sub-humid northeast. Overall about 22% of the country is classified as desert, hyper-arid, 70% as arid, and less than 8% as dry sub-humid (Mendelsohn et al., 2002).

Closely related to the comparatively low productivity expected in drylands, Namibia—although covering a vast land area of 823 290 km² (Office of the President, 2004)—only has a population of about 2.3 million (World Bank, 2010). Being the 15th largest country in Africa in terms of land area, Namibia is home to only about 0.21% of the continent's population. Within the country population density is following the aridity gradient, with the majority of people living in the more humid areas of northern Namibia. Notably, water scarcity is expected in Namibia within the coming 10 years under current demand scenarios without taking expected climate change impacts into consideration.

The national population growth rate is 1.8% per annum (World Bank, 2010). This has increased from a much lower rate at the beginning of the last decade, when the high mortality rate linked to the devastating impacts of HIV and AIDS had significantly lowered growth rates. Life expectancy is now estimated at 51.9 years for females and 52.5 years for males (CIA World Factbook, 2011). Other socio-economic and development indicators such as child mortality and literacy measure positive trends in Namibia, and several of the MDGs are expected to be achieved by 2015.

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9 Calculated based on the figures from [U.S. Census Bureau, International Data Base](#), 2011 and World Bank, 2010.

Namibia is now classified as an upper middle-income country (Sherbourne, 2009) with GDP growth of 4.1 % (1994–2000) and a GDP per capita of US\$4,267 (World Bank, 2010). The main economic sectors are mining, agriculture and forestry, fisheries, manufacturing and tourism. All these sectors are highly dependent on natural resources, renewable and non-renewable.

There is a highly skewed income distribution in Namibia and unemployment rates are estimated to be between 35 % to over 50 % of the available labour force. Inequality in the distribution of income and assets is among the highest anywhere in the World with a Gini coefficient¹⁰ of 0,74 % (2008)¹¹, ranging just behind countries such as Brazil and South Africa. Approximately 30-40 % of Namibians still depend fully on subsistence farming for their livelihoods (CIA World Factbook, 2011) and live on state-owned communal land that makes up approximately 26.5 % Namibia’s total land area (LAC, 2005). On the other hand, less than 1 % of the population owns 44 % of the land and use it for commercial farming.

This context indicates that Namibia, although a relatively “small” country in terms of population, faces a complex set of challenges when considering climate change vulnerabilities.

2.2 CLIMATE CHANGE RISK

WHAT ARE THE CLIMATE CHANGE PROJECTIONS FOR NAMIBIA?

In preparation of Namibia’s Second National Communication (SNC) to the United Nations Framework Convention on Climate Change (UNFCCC), a first national set of data was used in a suite of regional climate change models. Some interesting projections are available (Dirkx et al, 2008) (Figure 1) further detailing the findings of the International Panel for Climate Change (IPCC) for the southern African sub-region.

Climatic variability is already a common phenomenon in Namibia, with persistent droughts and unpredictable and variable rainfall and temperatures the norm (Mfune & Ndombo, 2005; Dirkx et al., 2008). The IPCC Third Assessment Report suggests that by 2050, temperatures and rainfall over southern Africa will be 2–4°C higher and rainfall 10–20 % less compared to the 1961-90 baselines, respectively. Generally, an increasing trend in temperature is expected in the periods 2046–2065, with average temperature rising between 1°C and 3,5°C in summer and 1°C to 4°C in winter. Maximum temperatures have already been getting hotter over the past 40 years in Namibia, as observed in the frequency of days exceeding 35°C (Dirkx et al, 2008). Summers are expected to be hotter and winters will have fewer cold days (Dirkx et al, 2008). Warming is likely to be less along the coast than along the escarpment and inland regions.

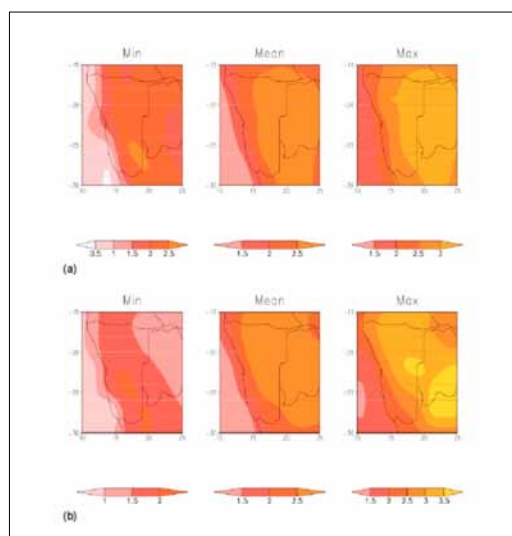


FIGURE 1:

Minimum (left), mean (middle) and maximum (right) projected change in surface air temperatures (°C) derived from 13 General Circulation Models (GCMs) used for climate change modelling. Line (a) January to March, line (b) July to September. All scenarios indicate warming of at least 1°C up to 3.5°C in certain areas. Source: Dirkx et al., 2008.

Changes in rainfall are more difficult to model compared to those in temperature, especially in highly variable arid climates such as Namibia.

10 The Gini-coefficient measures the degree of income inequality and ranges from 0 (perfect equality) to 1 (total inequality).

11 Figure obtained from UNDP. Gini coefficient was 0.71 in 2003 showing that inequality has risen.

However the Global Circulation Models (GCMs) indicate that Namibia will become drier with increased variability in rainfall trends (Reid et al, 2007). Regional differences are expected, and certain areas in Namibia could potentially benefit from more humid conditions (Dirkx et al, 2008; MET, 2011a) (Figure 2).

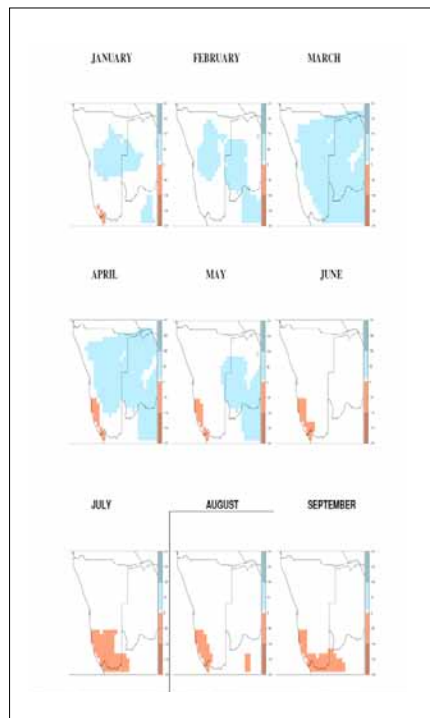


FIGURE 2:

Median change in total monthly rainfall (mm/month) from the 6 statistically downscaled GCM rainfall projections. Regions where 3 models indicate drying/wetting, as well as experiencing increases of less than 10mm/month (less than increases in potential evapotranspiration) are left blank. Source: Dirkx et al., 2008.

The projected temperature increases will lead to increased evaporation and evapotranspiration rates in the range of 5-15% throughout the country, with a profound impact on water availability (MET, 2011a), including ground water.

Sea level rise is a climate change related risk, which is generally identified to be moderate along Namibia's coast with the exception of low-lying Walvis Bay, which may be at a higher risk (MET, 2002).

2.3 CLIMATE CHANGE VULNERABILITY

NAMIBIA'S VULNERABILITY TO CLIMATE CHANGE IMPACTS UNPACKED

Vulnerability to climate change in Namibia can be unpacked from two perspectives. Firstly by looking at the economic sectors that are vulnerable to expected impacts and secondly by considering the social structures that will find it particularly difficult to react as they already have low resilience to shocks.

It should be said that Namibia can be regarded as highly adaptive, as socio-, cultural-, economic and industrial development in the country has evolved in tune with the already highly arid and variable conditions. Many of Namibia's sectoral and development policies already address these natural circumstances, even though certain policy and cultural barriers may have led to the entrenchment of inappropriate production and land use systems e.g. during apartheid. For example, marginally productive desert margin farms were proclaimed after good rainfall years and supported by the authorities through subsidies, ensuring that white settlers would occupy even land of very limited productivity. Traditionally, communities and land management systems throughout the country have co-evolved with the climatic and natural resource realities, and policy shifts since independence in the wildlife management, conservation and tourism sectors have promoted more flexible and adaptive land uses.

Global climate change is expected to pose significant new threats in Namibia. Consequently adaptation action, innovation and resilience building are considered highly important to safeguard vulnerable people and development sectors from future shocks.

Namibia's Initial National Communication (INC) of 2002 already classified Namibia as being highly vulnerable to the impacts of climate change. Namibia's vulnerability and adaptation assessment of 2008 indicates that the country's poor and rural populations are the most vulnerable to climate change because they are extremely reliant on natural resources (Dirkx et al, 2008; MET, 2011a). In a marginal environment such as Namibia's,

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farming and other land-based livelihoods are heavily dependent on the climate. Predicted higher temperatures, along with more variability in the rainfall, suggest severe strains on rural livelihoods throughout Namibia, particularly in the north and the south of the country. The pastoralists and people living on drylands are at risk, especially women, as the impacts of climate change on household food security in the subsistence farming regions could be more severe, leading to chronic hunger and malnutrition. Major changes in vegetation structure and biodiversity are foreseen (Midgley et al, 2005), with endemic species changing their distribution. By 2050 up to 47% of species could be vulnerable (Thuiller et al, 2006) with potential effects on ecosystem performance and tourism. Moreover, the inhabitants of low-income rural households have the scarcest resources and the least capacity to cope with adverse effects of climate change (Dirkx et al, 2008). This is exacerbated by poverty, lack of income, high unemployment, the HIV pandemic and other health constraints.

The direct effects of climate change will be felt especially in natural resource related development and economic sectors such as water resources, agriculture, fisheries, biodiversity, ecosystems and tourism, coastal zone management, health, infrastructure and energy, as well as industry and trade.

Considering the above outlined climate change projections, all production sectors will be affected by such changes. Probable impacts on agricultural production include drier climates, more variable seasons, more frequent and prolonged dry spells and droughts. Water availability will be affected by negative recharge rates of groundwater and seasonally increased run-off from areas expected to receive more rainfall, like Angola's central highlands, which would cause higher peak flows in the Okavango for example. Health will be impacted by heat, water stress and spread of certain diseases such as malaria, while infrastructure damage, for instance through flooding, is to be expected.



Women wading through flood water. Photographer Adrian Sanchez ©

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It has to be stressed that the country is already heading towards a situation of absolute water scarcity by 2020, even assuming no climate change (GRN, 2002). Consequently any development in Namibia must factor in this reality and cater for solutions. Coastal zone development will be largely limited by water availability, as will be industrial developments such as large-scale mining activities, other high water consumption industries, and even tourism if alternative water sources are not developed.

03

Climate change and the economy



Handmade boats. Photographer Adrian Sanchez ©

3.1 SECTOR IMPACTS AND ECONOMICS

IMPLICATIONS FOR THE WATER AND ENERGY SECTORS

Water is an extremely scarce resource in Namibia, and even in the absence of climate change the country faces absolute water scarcity (<500m³ per person per year) by 2020 (Dahlberg & Wingqvist, 2008). The exacerbation of water scarcity by climate change will have a significant impact on the economy. Water shortages can also be expected to bring about increased conflict within and between communities, and between Namibia and its neighbours (MET, 2011a).

Changes in rainfall are likely to bring reductions in flows of Namibia's perennial rivers in the order of 25%, affecting surface water supply from these rivers. Reductions in river flow will also lead to a decrease in the floodplain areas inundated each year. These floodplains support important agricultural and fishery activities integral to peoples' livelihoods in northern Namibia, as well as providing important ecosystem services such as water quality amelioration and flood protection, and being important for tourism. Impacts on wetlands such as the Etosha Pan may have a large effect on tourism.

It has also been estimated that groundwater recharge in south-western Africa may suffer a reduction of 30-60% (Kundzewicz et al., 2007, in MET 2011a). This will lead to increased drilling and pumping costs and reduced potential for boreholes, in turn affecting livestock production and supply of water to towns.

With reductions in rainfall, increasing demand for water will be accelerated by a greater need for irrigation, if this is technically possible, or a need for a more sophisticated food policy and trade strategy. Shortages in water will become a significant hindrance to growth in certain sectors, particularly mining. Namibia is already exploring some

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costly options such as desalination and artificial recharge or underground storage as a potentially viable solution to meeting water demands. Climate change will speed up the need for these more expensive technologies.

In the north, reduced river flows could also have a significant effect on the output of the Ruacana hydropower plant, which supplies most of Namibia's domestically-produced energy and about half of the country's electricity supply. This is particularly concerning in light of the fact that Namibia's energy demands are increasing at about 3% a year, and South Africa's capacity to supply the shortfall is diminishing (MET 2011a).

IMPACTS ON AGRICULTURE AND NATURAL RESOURCES

Most of Namibia is extremely arid and agriculture is dominated by livestock production, often in fairly marginal conditions. Crops are mainly rain-fed, and irrigation agriculture is very limited. Most of the contribution to national income from agriculture (74% of crops and 79% of livestock production) comes from commercial land, which employs a small percentage of the population. Over two thirds of Namibians carry out subsistence agriculture in communal land areas, 75% of which is used for grazing. Crops and livestock densities follow patterns in productivity, increasing from very low levels in the south west to high densities in the north east, but this pattern is intensified by the relatively high densities of people in the communal land areas which are concentrated in the north.

Expected reductions in rainfall will have a significant impact on these systems, especially through impacts on land productivity and carrying capacity. It is estimated that carrying capacity for livestock will be reduced throughout Namibia. In southern Namibia, it has been estimated that this could drop by 15%, which would mean that farming would no longer be viable in some parts. In the drier areas of Namibia, it is likely that crop farming will cease altogether. While this could be offset to some degree by irrigation, in fact irrigation potential will also be reduced due to reductions in water availability, land degradation as well as changed growing conditions (Reid et al. 2008). Because of their dependence on dryland cropping, the traditional sector is likely to be the most negatively affected by climate change. Overall, agricultural output has been predicted to decrease by 40–80% as a result of climate change (Reid et al. 2008) over a fifty-year time horizon.

Aridification will also be expected to reduce the biomass of natural resources that are used by subsistence households and that form the basis for the wildlife tourism industry (discussed below). Within the communal land areas, there is a high reliance on natural resources for construction materials, fuel, food and medicines, with many households also deriving some level of cash income from these resources. Reduced availability of these resources will almost certainly undermine the resilience of these households even further, making them more vulnerable to the overall impacts of climate change.

By 2080, economic losses could be expected to be in the order of N\$2,035 million (US\$255 million) in the livestock sector, and N\$137 million (US\$17 million) in the crop production sector (2009 values; Turpie et al. 2010). Losses of income from natural resources use are expected to be in the order of N\$327 million.

IMPACTS ON FISHERIES

Namibia has an important offshore marine fisheries sector that benefits from the high productivity of the Benguela current upwelling system, and targets mainly hake, horse mackerel and pilchard. The value of these fisheries has been strongly influenced by management, with Namibia having learned some hard lessons in the past. The concern now, however, is that even with very good management, climate change will have a negative impact on fish stocks and productivity, and that they may collapse entirely (Reid et al. 2008). There is a high degree of uncertainty at this stage as to exactly how climate change will impact marine fisheries, but Reid et al. (2008) suggest that a 50% reduction in output is a feasible estimate over the coming fifty years.

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Namibia's inshore and inland fisheries are much smaller, but feature prominently in certain areas as valuable recreational fisheries or in local livelihoods. For example, fisheries associated with the floodplain systems of the Zambezi and Chobe Rivers contribute a significant proportion of household income in the eastern Caprivi (Turpie et al. 1999). Disruption of flooding regimes and reductions in river flow will impact negatively on inland fisheries. Small-scale fisheries are important both as a risk-spreading strategy for farmer-fishing households who have to hedge against climate vagaries and as a fall-back option or safety net for households that have suffered shocks leading to a loss of income or food security. Thus a reduction in output of these fisheries, while not amounting to much in terms of aggregate national income, would probably lead to an increase in the number of households falling below the poverty line and depending on assistance in times of food shortages.

IMPACTS ON TOURISM

Tourism is a rapidly growing sector in Namibia, with leisure tourism accounting for about 40% of total tourism value. Leisure tourism is dominated by nature-based tourism, with scenery and wildlife being Namibia's main attractions. Nature-based tourism accounts for some N\$2.45 billion in expenditure annually, leading to an estimated direct contribution of N\$1,113 million (US\$139 million) or 2.1% of GNP, of which about N\$433 million (US\$54 million) is spent in state protected areas (Turpie et al. 2010).

Since climate change will impact on biodiversity, both in terms of abundance and distribution of species, it follows that this could have an impact on the tourism sector. In fact, because of the overwhelming importance of landscapes in the tourism experience, and the fact that landscapes will be much less affected than biodiversity, nature-based tourism in Namibia could be expected to be fairly resilient to climate change. However, the unusual wildlife is integrally part of the desert experience in Namibia, and it has been estimated that, all else being equal, predicted changes in biodiversity due to climate change could reduce nature-based tourism demand by up to 15% (Turpie et al. 2010). This is a worst-case scenario in that tourism marketing strategies could adapt to the new situation fairly quickly. Nevertheless, negative impacts could also be exacerbated by changes in vegetation cover, coastal erosion, changes in tourism carrying capacity as a result of water shortages and increased probability of contracting malaria. Global demand for tourism may also decrease as a result of economic downturns and the increased costs of travelling associated with the impacts and mitigation of climate change. On the positive side, declining agricultural productivity may to some extent lead to an increase in indigenous biodiversity production systems that would help to mitigate the above trends. Indeed, expansion of the conservancy programme is seen as an important measure in Namibia (Turpie et al. 2010, GEF/UNDP 2011).

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IMPACTS ON COASTAL INFRASTRUCTURE

Namibia's 1,500km coastline is vulnerable to the effects of sea level rise through coastline erosion, flooding, saltwater intrusion into estuaries and coastal aquifers, as well as raised water tables which will increase the risk of sewage contamination and flooding (CSA et al. 2009). However, since most of the coastline is undeveloped and remote, these impacts will mainly be felt in a few developed nodes, notably in and around Walvis Bay. Much of Walvis Bay is below 2m, making it vulnerable to infrastructure damage. Changes to coastal ecosystems, such as the near shore marine systems, and coastal lagoons, such as Walvis Bay and Sandwich Harbour, will affect their value in terms of fisheries, recreation and tourism, atmospheric carbon sinks, flood attenuation, filtering of run-off and air pollution and oxygen production (CSA et al. 2009). Adaptation to rising sea level will require a combination of engineering responses (such as sea-walls, dolosses and raising the level of harbours), ecosystem management and socio-institutional responses such as enforced coastal buffer zones, early warning, insurance market and planned relocations (CSA et al. 2009). No estimates have been made of the potential damage costs or the cost of the adaptation measures required.

IMPACTS ON HUMAN HEALTH

Namibia's public health sector is already stretched to capacity (van Oertsen, undated). It is one of the five most severely affected countries in the world in terms of HIV/AIDS, with life expectancy having fallen to 49 years (Dahlberg & Wingqvist 2008). The impact of HIV/AIDS has been to aggravate poverty, unemployment and inequality in Namibia, as well as to put further pressure on the natural resource base. HIV/AIDS, diarrhoea, tuberculosis, pneumonia and malaria are the five leading causes of death in Namibia. Climate change will put further pressure on health resources.

Changes in temperature, precipitation and extreme weather events are expected to have both direct and indirect impacts on human health. Increases in temperature will lead to heat-related stress, particularly affecting the young, old and sick. Access to clean water will become compromised as a result of reduction in river flows and groundwater, and by increased cases of contamination and cholera as a result of floods, especially in urban and peri-urban areas. Health problems will also result from lower air quality in urban settings as a result of increased temperatures (Von Oertsen, undated; Jacob & Winner 2009). In some areas, conditions are likely to favour an increase in water-borne diseases such as malaria. Reduction in agricultural outputs will undermine household food security and will lead to more malnutrition. Thus the effects of climate change, and particularly climatic variability, are likely to lead to an increase in the overall disease burden in most communities in Namibia (Von Oertsen, undated). To date, no studies have estimated the impact of this on the economy.

Access to clean water will become compromised as a result of reduction in river flows and groundwater, and by increased cases of contamination and cholera as a result of floods, especially in urban and peri-urban areas.

OVERALL IMPACTS ON ECONOMIC OUTPUT

Namibia's economy is not very diversified and relies mainly on agriculture, fisheries, mining and tourism, without much secondary processing. As such, the economy is sensitive to climate through its effects on water supply, agricultural production and fisheries in particular (Table 1)

TABLE 1: Summary of expected climate change impacts.

	POTENTIAL IMPACTS OF CLIMATE CHANGE WITHOUT ADAPTATION
Water	Significant losses in surface and groundwater flows, leading to increased cost of water supply
Energy	Significant loss of output from Ruacana hydropower plant
Agriculture and natural resources	Reduced productivity leading to losses in the order of US\$255 million in the livestock sector, US\$17 million in the crop production sector and US\$41 million in natural resource values, plus up to 50% reduction in fishery value
Biodiversity	Up to 15% loss of tourism
Coastal infrastructure	Localised losses
Human health	Increases in malnutrition, heat stress, malaria, urban pollution

Reid et al. (2008) analysed the general equilibrium effects of climate change on the economy by studying a range of scenarios involving the best- and worst-case predictions for agriculture and fishing. Taking into account the planned expansion of irrigated high-value crop agriculture, their results indicated that GDP would decrease by between 1.0% and 4.8%. The large losses of output in the agricultural and fishing sectors translate to substantially smaller losses in overall GDP because these sectors can compensate for reduced productivity of the resource base to some extent by using labour and capital more intensively. More importantly, because displaced workers seek employment elsewhere, this pushes down unskilled/semi-skilled wages in other sectors, allowing those sectors to expand to some extent. For example the service sector, which accounts for more than half of national income, would be expected to grow.

The above impacts on GDP do not include the loss of output from the Ruacana Hydropower plant (which supplies a high proportion of the country's electricity), damages to Walvis Bay as a result of sea level rise, losses of natural resources and tourism impacts, which suggests that the overall impact on Namibia's economy will be significant. Such changes would, of course, occur gradually, and it is possible that the economy would change in structure before the impacts are fully realized. Existing models do not take into account the adaptation effects that may arise from technological change or other dynamic effects.

It is also important to note that the economic impacts of climate change will not be felt evenly—the poorest households will lose out more than wealthier ones. Thus climate change could exacerbate the problem of inequality in Namibia (Reid et al. 2008).

3.2 OUTLOOK: IMPACT ON NATIONAL DEVELOPMENT

Considering the vulnerability of all the above indicated sectors it is clear that all development performance areas are at risk. The following indicates a possible chain of events and linkages that illustrate how sector impacts of climate change would potentially affect national development.

If the key economic sectors such as mining, industrial development as well as basic settlements and service provision, e.g. expansions in the coastal zone, are challenged by water scarcity already, it is clear that the projected climate change impacts will have major repercussions for the nation. A sector such as agriculture will continue to be important, and with current and future food shortages around the world food security gains a new level of interest and importance. This is especially so in a dryland country such as Namibia, which is already importing a majority of its commodities from abroad.



Daily Life. Photographer Adrian Sanchez ©

The expected impacts on the various sectors may bring along development challenges such as higher job insecurity and potentially worsening unemployment rates, directly related to increasing poverty levels.

The expected impacts on the various sectors may bring along development challenges such as higher job insecurity and potentially worsening unemployment rates, directly related to increasing poverty levels. Food insecurity and lower production rates (potentially both in agriculture and fisheries) triggered by more difficult climatic circumstances can also lead to worsening health conditions perpetuated by a poorer nutritional status, linked to increased poverty rates. Costs to deal with emergencies caused by natural disasters such as extreme floods and droughts, infrastructure recovery costs and new investment needs may burden already constrained national budgets and may lead to a worsening of existing social services and achievements.

This is the description of a worst-case scenario, a doom-laden picture of potential negative impacts on development. On the other hand the current drive to act on climate change risks

and to invest in resilience building in an accelerated manner can bring with it a lot of positive development impacts. Resilience building – investing in people, institutions, economies and governments that are able to deal with all kinds of shocks, of which climate change is only one, is a strong development ingredient.

Climate change has the potential to reverse the hard-earned development gains of the past many years, and hinder the progress toward achieving national development (aspirations such as Vision 2030, NDPs and international goals including the MDGs. But it can also be a development opportunity through successful adaptation measures. The following are some of the opportunities brought by climate change (International Bank for Reconstruction and Development /The World Bank, 2008):

1. New opportunities for business enterprises in response to new markets and economic diversification
2. Better forest and land management practices that also benefit local communities
Increased sustainability of rural livelihoods due to better management of climate change risks
3. Higher-quality infrastructure resilient to climate-related disasters International action to support implementation of adaptation actions and activities

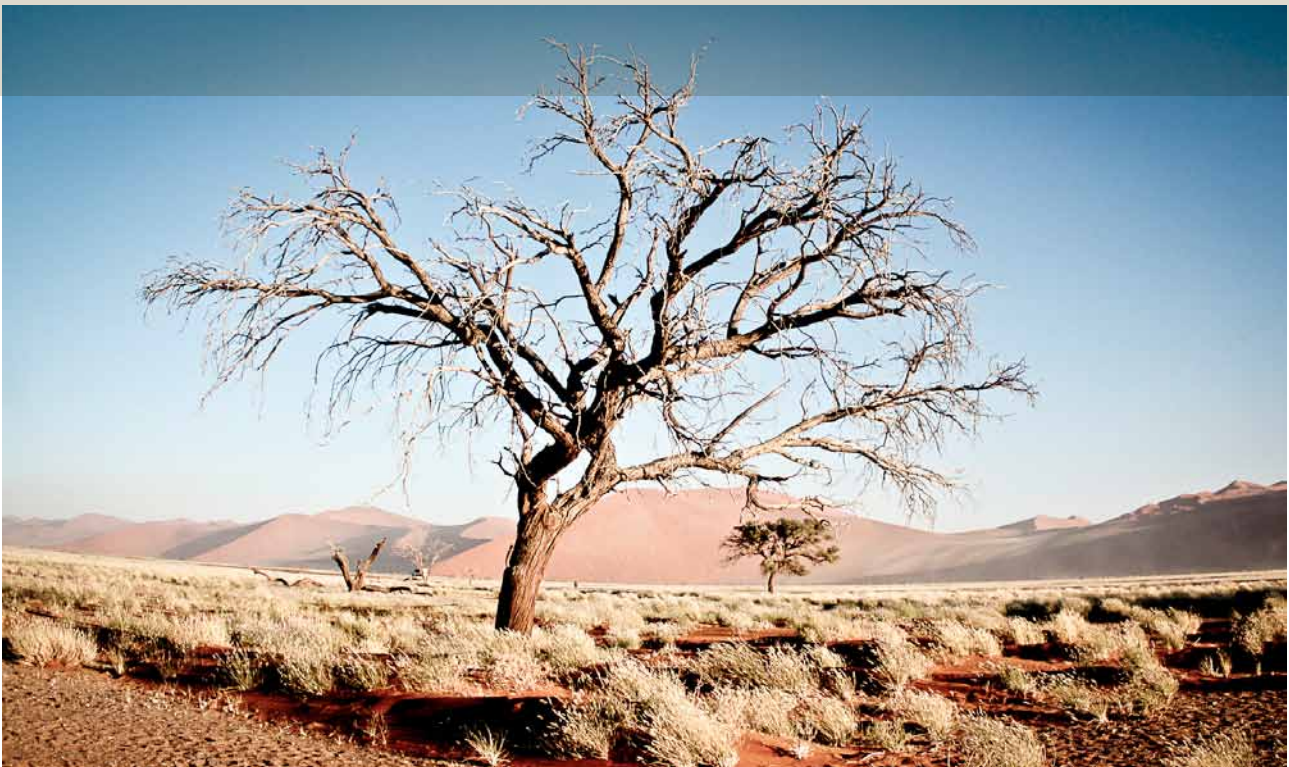


Man wading through flood waters. Photographer Adrian Sanchez ©

Opportunities in the Namibian context should be more specifically identified and built on in the future. For example climate change mitigation and adaptation strategies can be linked to a Green Economy approach in Namibia, and the changing climatic conditions can be used as an entry point to revise long-standing but no longer appropriate policy directives. An illustration here can be that for decades Namibia promoted food self-sufficiency as a development target, highlighting the benefits of being “independent” in terms of food supplies for the nation. In the context of the climate change risks new policy opportunities and priorities should be explored such as investing in good trade relations and soliciting the best imports, thus moving towards a food security strategy based on a mix of in-country production and international trade.

04

Gender aspects of climate change



Baron landscape. Photographer Adrian Sanchez ©

There are important gender perspectives in all aspects of climate change, and they need to be carefully analysed and addressed to ensure no further marginalisation takes place, potentially leading to maladaptive practices. Gender refers to the economic, social, and cultural attributes and opportunities associated with being male or female (Jolly & Esplen, 2006). Gender should not only be about women or men, but should embody concerns of youth, children, vulnerable and marginalised groups, among other, as climate change impacts on them may differ in magnitude and time. Consequently planned responses need to be specifically tailored to their needs. Climate change impacts are distributed differently between regions, age classes, income groups and occupations (Röhr, 2009; IPCC, 2001). Besides that, the impacts are also based on the cultural factors, norms, traditions and socio-economic status in the society.

Gender differentiated impacts of climate change are due to gender-based differences in issues such as property rights, ways of accessing information and access to information, cultural, social and economic roles.

Gender differentiated impacts of climate change are due to gender-based differences in issues such as property rights, ways of accessing information and access to information, cultural, social and economic roles¹². Women and men contribute differently to the causes of climate change, react differently to its impact, and favour different solutions to mitigate and deal with climate change (Röhr, 2009).

Women in southern Africa remain a vulnerable, marginalised group that is yet to enjoy equality in status and access to services and resources to their male counterparts (University of Namibia and SARDC-WIDSAA, 1997). Women are found at the “bottom rung of poverty, of illiteracy, of landlessness” and are concentrated in the rural areas where facilities and services are scarce. Women are the most affected by negative impacts of economic adjustment programmes (University of Namibia and SARDC-WIDSAA, 1997). Climate sensitive tasks are often gender specific. Most of the women in developing countries such as Namibia are responsible for securing food, water and household energy, while men are responsible for tasks such as livestock farming, land management and forestry (Angula, 2010). When building adaptive capacities these need to be tailored to these gender specific roles and

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Mainstreaming Gender into the Climate Change Regime, <http://generoyambiente.com/arcangel2/documentos/227.pdf>

tasks. According to Angula (2010) women are in the majority in rural areas, hence depend heavily on natural and rain-fed resources that are sensitive to climate change. This exposes them to risk from extreme weather. Most of the negative consequences of climate change are strongly connected to gender equality issues.

It is important to note that climate change effects on gender inequality are not limited to immediate impacts or changing behaviours, but need to focus on subsequent changes in gender relations. For example, during extreme events such as severe floods, women's mobility is often reduced, as they have to give care to elders or sick family members. As the main caregivers they may not be able to resettle to safer areas easily and often they feel socially responsible or are forced to stay behind with people that cannot easily be moved. Such women may become easy victims of floods, leading to illness, food shortages and even death through drowning, to name just some examples.

Social roles and responsibilities of women and men lead to different degrees of dependency on the natural environment (Roehr, 2007). Women's and men's lives, needs, experiences, issues and priorities differ, therefore it is critical to identify gender-sensitive strategies for responding to the risks posed by climate change.

ENGENDERED REVIEW OF CLIMATE CHANGE IMPACTS

It is important to understand how ordinary men and women in communities are affected by the impacts of climate change in different ways.

While at a national level more than half of the male-headed households in Namibia (53%) can rely on salaries and wages as their main source of income, this only applies to 36.6% of female-headed households. In comparison with male-headed households, more female-headed households depend primarily on subsistence farming as their main source of income (MET, 2009).

In the subsistence farming context, women are mainly responsible for preparing the fields. Therefore they are expected to cope and develop adaptation strategies to deal with reduction in land productivity. Also, women and young couples are forced to settle on marginal and fragile land that is prone to both floods and dry environmental conditions. The issue of settling in the Oshanas, which are regularly threatened by natural flooding, is a major concern, but many vulnerable people have no alternatives.

When economic conditions severely worsen, men migrate to nearby towns to look for employment. Some men migrate to other communal areas in search of better opportunities. This implies that women are left to manage households on their own and become de facto heads of household. For poorer households, particularly the elderly and widows and the unemployed, the only coping strategy available is to beg for food (Angula, 2010).

The study by Angula (2010) concluded that among societies that practice subsistence crop and livestock farming as their main source of livelihood, women have a stronger link to environment and climate related aspects. The activity profile assessment which was conducted during the study revealed that women in such rural settings interact with the environment more than their male counterparts. In times of need they collect veld fruits and find additional sources to complement their families' foods.

The study further concluded that women lack technical skills to participate in formal employment and are therefore engaging in informal economic activities. However, income generating capacities between men and women also differ, partially linked to the education background and cultural upbringings. In general it is asserted that men are better prepared for climatic events than women due to their more empowered socio-economic situations.

When economic conditions severely worsen, men migrate to nearby towns to look for employment... This implies that women are left to manage households on their own and become de facto heads of household.

According to the Namibian Climate Change Policy, women account for more than half of adults estimated to have HIV/AIDS. HIV/AIDS prevalence rates are highest amongst people aged between 25 and 29 years and for the young people aged 15 to 24 women are most affected (Republic of Namibia 2005). HIV/AIDS will adversely constrain agricultural productivity and food security since it will reduce the capacity of the infected to participate in productive activities and also limit their adaptive capacity. Climate change impacts will interact with these limitations among the infected and increase their vulnerability. In addition, climate change may also lead to poor sanitation and increase unhygienic conditions leading to diseases such as diarrhoea. Flooding and high rainfall is expected to increase incidences of malaria. All these will reduce the productivity and longevity of people living with HIV/AIDS (MET, 2009).

Tools for integrating gender into climate change policies and a broader climate change resilient development framework.

Gender analysis tools are used to determine potentially differentiated impacts of policy measures on women and men. They examine the underlying reasons for the disparities between men and women and inform decision makers and planners how they should be addressed. However, for all the tools to work, they require training on gender issues for all the staff involved in the process. These need to be taught to communicate in a gender sensitive way, consult women and gender experts and use participatory procedures in all processes (Röhr, 2009).

Systematic gender analysis is one important tool that supports the mainstreaming of gender perspectives into national climate change and development policies, action plans and tangible local level project interventions. Gender analysis focuses on understanding the relationship between men and women, gender household relations, empowerment, access and control and participation in decision-making at all levels (Angula, 2010). It can be applied even by people who have no formal gender background.



A herd of Nguni cattle in the Damaraland region of Namibia. Photographer Michael Van Rooyen

Gender mainstreaming should be seen as a way of adding a gender component/dimension to existing policies and practice, as well as to future measures, actions and programmes (Brody & Reeves, 2011). It can help to understand some of the questions like “who has control, who has access, who is benefiting, and who is disadvantaged most?” This will lead to an understanding of why a situation has developed and continues to be the way it is. Gender analysis aims to achieve the following (Muhato, 2003; Angula, 2010; GDRC¹³):

1. Examines the different roles of women and men, including those which lead to social and economic inequity for women, and applies this understanding to policy development and service delivery
2. Is concerned with the underlying causes of these inequities
3. Aims to achieve positive change for women
4. Illustrates the need, strategies and opportunities for change
5. Provides the reasons for these differences
6. Investigates the relationship and inequities between them
7. Provides recommendations for mainstreaming

Angula (2010) demonstrates that understanding how the different expectations, roles, status and economic power of men and women affect and are affected by climate change will improve interventions, in turn reducing vulnerability in the developing world in the longer-term and more sustainably. Gender-specific impacts of climate change should be assessed in a cross-cutting manner across numerous key areas and sectors that are of importance to livelihoods, particularly in agriculture and food security, water, energy and health. Additional specific tools include:

Gendered vulnerability assessment: These identify climate change related gender specific vulnerabilities as per gender groups, examine linkages and relationship chains of climate change risks and the larger livelihoods of gender groups.

The following questions would potentially be asked during a gendered vulnerability assessment:

- Is national government making climate change information available differentiating climate change vulnerabilities and needs of women and men's livelihoods? How is this information being disseminated? Is it equally accessible to both men and women?
- Do those responsible for climate change policies and programmes demonstrate understanding and awareness of the link between gender and vulnerability? Is this knowledge and recognition being translated into policy and implementation of programmes?
- Do policies and programmes support the empowerment of vulnerable groups? Are women and gender experts involved in planning for adaptation?

Gender impact assessment: This identifies the impact of climate change policies, programmes, projects and strategies on gender equality and aim to counter any unintended effects on women or on men. It allows decision makers to plan and implement measures in a more tailored and concrete way. It encourages gender equality in policy measures, improves the quality of the assessed policy as a whole and saves costs.

Usually carried out in three steps, the first step in a gender impact assessment is a relevance test to determine whether a measure should be subject to a more in-depth analysis. The second step is a detailed and differentiated analysis of the gender aspects of the measure. The third step is dedicated to weighing up environmental objectives and gender aspects, discussing alternative options and proposing a specific solution.

The following questions may guide gender impact assessments:

- Care economy (unpaid care-work for the family and community): Does the policy take into account the requirements of care-work adequately, which is mostly done by women (needs of time, transport, energy, etc)?

Gender-specific impacts of climate change should be assessed in a cross-cutting manner across numerous key areas and sectors that are of importance to livelihoods, particularly in agriculture and food security, water, energy and health.

- Resources: Do the financial resources and measures of a project benefit women to the same extent as men? Does the project lead to a more balanced distribution of public resources?
- Androcentrism (societal fixation on masculinity): Does the policy enforce the centrality of male lifestyles and ways of thinking while those of women are seen as “different”? Or does it help to revise the widespread generalization of the masculine experience and perspective?
- Women in decision-making: To what extent does the policy contribute to increasing women’s influence in policy design, planning and decision-making processes?
- Symbolic order (positive or negative connotations of female attributes): Does the policy or project contribute to changing gender-biased power relations and allocation of duties?
- Harassment: Does the policy contribute to reducing the harassment of women? Does it contribute to relieving women of threats, restrictions and sanctions?

Gender budgeting: One powerful tool towards ensuring the integration of gender into climate policy is through gender budgeting. It is mainly important in making a connection between traditionally two separate areas, i.e. gender inequality, and public finances and programmes. It is also about recognizing that finances are not gender neutral. Gender budgeting does not entail developing two separate budgets for women or for men, but it is about analysing the government’s main budget according to its benefits to and impacts on women and men, and different groups of women and men. The idea is that financial flows to and from public coffers can put burdens, or allocate benefits, to women and men differently. Therefore all budget-related political decisions, public revenue and expenditures, regulations and measures pertaining to economic policy, as well as budgets and financial programmes themselves should be subject to gender analysis.

One powerful tool towards ensuring the integration of gender into climate policy is through gender budgeting.

In surveying initiatives around adaptation and mitigation, with respect to both national and international funding flows, it is important to detail how much of the money goes to men and how much to women. Tracking systems need to include indicators for gender equity, as well as marking what funding goes to gender equality work, to ensure that climate change governance does not have an adverse effect on already existing power imbalances.

There are three steps which should be taken to ensure gender budgeting:

- Analyzing the situation in terms the actual distribution of resources between women and men. What is their contribution to and benefits from public services/revenues? What are the reasons for unequal distribution?
- Assessing resource distribution with a view to gender equality: Should resources be distributed equally or differently between women and men so as to create equity? Have gender-differentiated needs been taken into account? What are the root causes for gender-related disparities? Which other objectives shall be pursued in order to reduce unequal distribution?
- Participation measures for gender equality in resource distribution: Whose interest will prevail in the existing budgetary procedure? How powerful are the different groups in achieving their interests? Who needs to be included in order to avoid gender-specific distortions?

Gender equality audit: A gender equality audit examines if and to what extent government is complying with its own or internationally adopted gender equality standards. Gender equality audits help to identify shortcomings and strategies to overcome them. They also help to motivate government to commit to a set of gender equality targets and build gender-related capacity among the staff.

They are also used to assess whether government's capacity, resources, strategies and rules for cooperation foster gender equality in a particular organisation and/or its partner organisations. Action plans are part of the audit and need to be developed in a participatory way. A side effect of this development is building gender capacity among the staff. In order to undertake gender equality audit the information must be provided by the government departments. Compiling the necessary information often serves as the first step in sensitizing staff to gender inequalities. Gender segregated data must also be collected regularly over time to monitor progress.



Himba children closing the gate of the kraal. Photographer Michael Van Rooyen

A gender equality audit considers whether internal practices and support systems for gender mainstreaming are effective and reinforce each other, and whether they are being followed. It also evaluates the relative progress made in gender equality and gender mainstreaming, establishes a baseline regarding gender equality in the audited organisation, identifies critical gaps and challenges, recommends ways of addressing gaps and suggests new and more effective strategies. Finally, it documents good practices to achieve gender equality.

05

Climate change and national governance frameworks



Namib Desert. Photographer Dietmar Temps ©

5.1 CLIMATE CHANGE GOVERNANCE IN NAMIBIA – AN OVERVIEW

Since independence in 1990, Namibia is a democratic republic with distinct executive, legislative and judicative. The Constitution sets out three independent spheres of government—national, regional and local. At a regional level, where development strategies are often focused, and from which level national level development planning is derived, 13 political regions are distinguished, comprising 102 constituencies. Local government or authorities are constituted by municipalities, towns and village councils. In Namibia there are long-established systems of traditional leadership, particularly in the so-called communal areas. Certain traditional leaders are recognized in terms of the Traditional Authorities Act (No 17 of 1995).

Several local-level natural resource governance systems have been established in the natural resources sector over the past two decades. Relevant policies have been transposed into law and water resource management committees, conservancy committees, communal forests management committees and various land allocation and management boards have been established, some of them interfacing local and regional governance structures.

The Prime Minister renewed the mandate of the Ministry of Environment and Tourism (MET) as the key responsible line ministry after UNFCCC COP 15 in Copenhagen. In 2001, MET led the establishment of the multi-stakeholder National Climate Change Committee (NCCC). The committee is chaired by MET and has representatives from various government ministries, parastatals, NGOs and other organizations. The designates on the committee are mostly technical experts and middle- to top management. The NCCC advises the MET on climate change policy and strategy issues, assists in reviewing and monitoring climate change projects. It also helps with projects of the Designated National Authority (DNA), housed in MET, through reviewing project applications among other activities. Regional Climate Change Committees (RCCCs) in each of Namibia's 13 regions are currently under establishment (MET, 2011b)¹⁴ in an effort to promote more decentralised climate change action.

Namibia has specific Disaster Risk Management (DRM) governance structures in place, both at the regional and national levels. DRM is currently directly housed within the Office of the Prime Minister (OPM), which is often seen to be strategic. At this point climate change management and DRM are not closely interlinked, but proposals have been made to bring these units closer together.

There are ongoing discussions on whether climate change is best housed within a sectoral ministry such as MET or rather in a strategic ministry such as Finance, the OPM together with the Disaster Risk Management Directorate or at the National Planning Commission in the Office of the President. At this time the leadership of MET is seen as strong and technically competent—an assessment reflected in high-level political decision making. However, considering that climate change is a cross-sectoral development issue that will require significant budget and investment planning and commitment, a new and responsive governance mechanism may need to develop over the coming years.

The technically oriented NCCC and planned RCCCs have been criticized for having limited political muscle. Learning from the DRM structures and processes, an additional and associated political structure may be needed to guide prioritized climate change actions in the future. This realization seems still to lag behind and may only be realized in the future when climate change becomes a more immediate pressing issue with impacts visibly affecting national development agendas.

5.2 NATIONAL POLICY FRAMEWORK FOR CLIMATE CHANGE

The process of developing Namibia's Second National Communication (SNC) resulted in a two-year climate change policy development process. The policy was launched in November 2011¹⁵, and has been approved by cabinet. Policy consultations were undertaken in all of Namibia's regions and a wide range of stakeholders had the opportunity to provide strategic inputs and review comments on the climate change governance tool. The policy sets out the priorities in terms of climate change adaptation and mitigation for Namibia (Box 1), linked to national planning priorities.



Couple wading through flood waters. Photographer Adrian Sanchez ©

The process of developing Namibia's Second National Communication (SNC) resulted in a two-year climate change policy development process.

BOX 1: NATIONAL POLICY ON CLIMATE CHANGE FOR NAMIBIA – 2011: The National policy on climate change aims to manage climate change responses in a way that recognises the national developmental goals and promotes integration and coordination of programmes of various sectors organisation so that benefits to the country as a whole are maximized, and negative impacts minimized (GRN, 2011). This will be achieved by implementing adaptation measures to reduce the vulnerability of the population to impacts of climate change by enhancing their adaptive capacity whilst pursuing sustainable development. The policy aims to strive for excellence to address climate change as a challenge by responding in a timely, effective and appropriate manner via exploring adaptation and mitigation approached relevant to different sectors at local, regional, and national level for improved quality of life for all citizens. The specific objectives of the policy are:

1. To develop and implement appropriate adaptation strategies and actions that will lower the vulnerability of Namibians and various sectors to the impacts of climate change
2. To develop action and strategies for climate change mitigation
3. To integrate climate change effectively into policies, institutional and development frameworks in recognition of the cross-cutting nature of climate change
4. To enhance capacities and synergies at local, regional and national levels and at individual, institution and systematic levels to ensure successful implementation of climate change responses activities
5. To provide secure and adequate funding resources for effective adaptation and mitigation investments on climate change and associated activities e.g. capacity building, awareness and dissemination of information

The policy is seen to be a useful instrument to further Namibia's national approach to addressing the impending climate risks. However, it is also seen to be in conflict with existing sectoral policy instruments and even sectoral national development aspirations. Although the policy includes an overview of "key policies and laws of relevance to climate change", no detailed analysis of policy conflicts or implications has been undertaken during its development. It is clear that a detailed analysis of the policy implications is required to ensure that relevant sector and national policies can be adjusted in light of the new instrument. Although the analysis in this paper does not provide a detailed review, a few critical sector-specific conflicts have been identified in Table 2.

TABLE 2: Indicative identification of sector policy conflicts with new National Climate Change Policy of Namibia (2011)

SECTOR	SECTORAL POLICY PRIORITIES	CONFLICTING WITH NATIONAL POLICY ON CC PRIORITIES	REMARKS
WATER	Promotion of irrigation scheme	Section 4.1. Strategy on sustainable access to water	<ul style="list-style-type: none"> Water is already a limiting factor for development in the country and for economic growth Climate change impacts are expected to affect water availability mostly negatively It is projected that even without climate change Namibia will face absolute water scarcity by 2020 Although more water is being used in the manufacturing and processing sector, irrigation is a top water user in Namibia Vision 2030 promotes irrigation as sustainable development option – an assumption that is unlikely to hold
AGRICULTURE	<ul style="list-style-type: none"> The Namibian Agricultural Policy suggest that there is considerable potential for expansion of irrigated agriculture through the sustainable utilization of the country's perennial and ephemeral river sources Promotion of irrigation scheme i.e. through "Namibia's Green Scheme" 	Section 4.1. Strategy on sustainable access to water	<ul style="list-style-type: none"> The water sector has been identified as the most vulnerable to climate change affecting the national economy significantly It is envisaged that the development of irrigated agriculture under the Green Scheme Initiative will add additional demand on the use of both perennial river and groundwater as sources of irrigation water Even without the threat of climate change, Namibia is expecting absolute water scarcity by 2020 Climate change is likely to exacerbate the already dry conditions, especially in the central, inland areas
AGRICULTURE, VISION 2030	<ul style="list-style-type: none"> The Namibian Agricultural Policy suggests a vision of food self-sufficiency, which would be supported by the irrigation-driven "Green scheme" 	<ul style="list-style-type: none"> Food security strategy Section 4.1. Strategy on sustainable access to water Potential conflicts even within the policy with Section 4.2 Strategy on food security and sustainable resource base Linked to Section 4.3 Strategy on agriculture 	<ul style="list-style-type: none"> Even with investments into water use efficiency, irrigation for food production will remain a critical issue to agricultural food production in Namibia
FORESTRY	National Forestry Policy	- Strategy 4.4. on Forestry i.e. (a) Strengthen the existing National Forestry Policy to avoid illegal logging that could lead to deforestation and land degradation	Based on the climate change Policy, it looks like the Forestry Policy has some loopholes in it regarding illegal logging.
FISHERIES; NDP 3	Aquaculture Act of 2002: regulate and control aquaculture activities; to provide for the sustainable development of aquaculture resources	<ul style="list-style-type: none"> Aquaculture is not explicitly mentioned in the policy Mentions integrated fisheries and marine resources management 	<ul style="list-style-type: none"> The water section in Vision 2030 clearly states that aquaculture has no potential in terms of water availability in Namibia Water scarcity arguments apply Extreme events such as floods are a major risk factor for aquaculture infrastructure, and invasive alien species are a major sustainability concern

Most of Namibia's sector policies do not explicitly address climate change, or they have not yet undergone specific climate risk analysis. The Climate Change Policy asserts that mainstreaming of climate change issues in existing policies is more powerful than enacting more policies and laws on climate change. Mainstreaming is proposed as a key tool, leading to more comprehensive and resilient sector policies and avoiding duplications and conflicts in institutions' mandates. Systematic assessments of how best to "climate change proof" the various sector policies is consequently needed and should be an ongoing process that needs to be furthered as the understanding of good adaptation options improves. At this point little practical actions in this direction can be seen and no sector specific climate risk analyses are in place. Practical examples of climate change "adjusted" sector policies are lacking and sector and national development planning priorities seem to be set without taking climate change risks into consideration.

Among the most prominent weaknesses at this point is the difficulty to fully engrain planning for future climate risks into other sectors. While the Investment and Financial Flows (I&FF) assessments undertaken for adaptation and mitigation in Namibia reached out to sectors such as agriculture and energy (MET – Agriculture Working Group, 2011; MET – Energy Working Group, 2011), there is still limited understanding of climate related issues in most sectors. Even the existing analyses currently contain assumptions that are not fully aligned with the National Policy on climate change, and may include maladaptive considerations that will need to be identified and clearly communicated about in the future.

5.3 OVERVIEW AND LESSONS LEARNT FROM NAMIBIAN CLIMATE CHANGE PILOT ACTIVITIES

Namibian stakeholders including government, private institutions, think tanks, civil society and to some extent business are implementing an array of pilot projects and pioneer climate change planning and adaptation actions.

In the past two years, the MET implemented the Africa Adaptation Programme – Namibia Project⁹ (AAP NAM) and has made significant efforts in building a broader capacity to deal with climate change risks and adaptation. Targeted capacity building, awareness raising and strategic communication activities have been implemented by the project unit based in the MET and by sub-contracted partners. An innovative climate change adaptation (CCA) ambassadors' programme was launched in 2011, providing updating opportunities for technical staff of public and private sector institutions on climate change risks and adaptation options. More than 80 individuals representing more than 30 government and 25 private sector institutions participated in the programme, which has helped broaden the climate change capacity across a wide range of sectors. The Ministry of Justice, the Office of the Ombudsman, the Ministry of Defence, Trade and Industry, to name just a few, have designated CCA ambassadors, serving as focal persons in their respective institutions.

Although few sectoral policies are yet addressing the expected future climate risks (see above), there is a trend that the awareness base has broadened significantly in the past five to six years. Sector specific climate change risk assessments are beginning to be planned in sectors such as fisheries and health. For example, the fisheries sector, through the trans-boundary Benguela Current Commission (BCC; Namibia, South Africa and Angola) is in the process of preparing a climate change project addressing vulnerabilities in the fisheries sector.

Overall, through National Communications as well as technical consultancies under the AAP and other Adaptation Pilot Projects, an improved knowledge foundation has been created on climate change. Under the AAP, the MET, for example, implemented an awareness campaign at key levels of target groups to build a national approach to climate change. The target groups included:

Namibian stakeholders including government, private institutions, think tanks, civil society and to some extent business are implementing an array of pilot projects and pioneer climate change planning and adaptation actions.

9 A project funded by the government of Japan through UNDP.

High-level decision makers: From parliament, cabinet and business community through development of a set of policy makers briefs on key climate change issues (i.e. risks, impacts, economics, adaptation, responses, financing – all dealt with in a cross-sectoral manner)

Technocrats: From a wide range of cross-sectoral representation (e.g. representatives from the military, the police, the Ministry of Gender Equality and Child, the Office of the Ombudsman, Ministry of Justice etc. along with the more traditional Ministries and organizations responsible for sectors such as agriculture, water, forestry, environment, mining, energy). Over 80 people representing 40 organizations from the private and public sector attended the professional updating events and form part of the Namibian Climate Change Ambassadors' Network.

Youth: The foundation for longer-term engagement of this specific target group was laid through a dedicated climate change awareness and action outreach suite of activities including a music concert, an art and essay competition, a national youth conference on climate change (which culminated in the formation of the Namibian Youth Coalition on Climate Change) and the development of a Youth Action Programme as well as the financial and technical support to selected "pilot youth projects" with two existing youth organizations.

Local communities and service organisations they work with: In a participatory manner five regional cluster climate change community toolkits were designed and translated into nine region-specific vernacular languages. These toolkits are now being disseminated by the MET throughout the regions at specially designed training events that aim to build capacity of Training-of-Trainers (TOTs) that will utilize the toolkits with key targets at the regional and local level.

Gender mainstreaming: In all these capacity related efforts a strong gender focus was integrated, ensuring that climate change is being analyzed and responded to in a gender sensitive manner. Although only just at a starting point of integration of gender sensitive climate change action some good initial knowledge and debates on this matter have been held.

The University of Namibia and other tertiary learning institutions as well as national think tanks and NGOs are increasingly dealing with climate change related work.

The University of Namibia and other tertiary learning institutions as well as national think tanks and NGOs are increasingly dealing with climate change related work. Such work focuses on climate monitoring and analysis, risk and impact assessments, assessments of existing coping strategies and approaches to adaptation on sectoral and community level. There is also a focus on exploring how to best influence decision making through strategic communications, capacity development and creating engagement to effect a relevant climate change action.

With international funding becoming more available, more climate change responses are being implemented by a greater diversity of partners. Coordination and direction giving to such initiatives will become increasingly important to Namibia, and relevant governance mechanisms must be set up to facilitate a strategic Namibian response (see section 5.1).

Notably, Namibia is implementing a vivid and quite active Community-based Adaptation (CBA) programme, which aims to support local communities in identifying climate related risks in sectors such as agriculture, wildlife management, tourism development, infrastructure and financing small-scale pilot interventions to generate knowledge and follow-on action in terms of preparedness. In 2011, the AAP invested specifically in the broadening of the CBA approach and additional climate change and youth activities were implemented (MET, 2011d). Reaching out to this specific target group proved to be particularly popular, and created enthusiasm amongst participants.

Namibia is implementing a suite of climate change adaptation activities. These range from awareness raising to capacity development and knowledge generation, and they are guided by an evolving and comprehensive policy framework. At this moment many activities are still explorative in nature, and generate the knowledge and foundation for longer-term evidence-based decision making. It will be critical for Namibia to ensure that well orchestrated policy actions, with a focus on capacity building, be continued beyond the targeted support through instruments like the AAP. Initial planning for the implementation of the Third National Communication (TNC) may form a promising opportunity in this regard, and innovative projects outside the government sphere could complement such work.

A problem is that useful pilot approaches are often not systematically developed. Within institutions the programmatic approach often leads to spurts of good action, which later on is not pursued and supported to a large extent because no dedicated financial allocations can be negotiated in the Medium-term Expenditure Frameworks (MTEF) and ministerial budgets (see section 5.4). This is often exacerbated by the fact that the MET is perceived as not a very powerful ministry, already suffering from low budget allocations in comparison to other sector ministries. In NGOs and think tanks such as universities a similar trend is recognizable with funding opportunities dictating the work directions taken. Due to inadequate core funding many NGOs operate like consultancies and are more responsive when it comes to taking up work instead of being able to maintain longer-term focal topics of engagement. Even with a trend of increased financing for climate change globally, there is a need to develop long-term visions and engagements to deal adequately with climate change.

5.4 NATIONAL PLANNING PROCESSES FOR CLIMATE CHANGE RESPONSES

The national development planning process in Namibia is well established. A 30-year development vision, Vision 2030, guides the overall development aspiration for Namibia to become a developed and industrialised country by 2030. The vision is “for Namibia to be a prosperous and industrialized nation, developed by her human resources, enjoying peace, harmony and political stability” (Office of the President, 2004). Vision 2030 is guided by sustainable development principles, and although climate change policy issues did not feature prominently and in a cross-cutting manner when the Vision was developed in the late 90’s and early years of the new millennium, the underpinning five-year National Development Plans (NDPs) up to NDP 3 (2008-2012) progressively address climate risks. NDP 4 is currently under preparation.

The vision is “for Namibia to be a prosperous and industrialized nation, developed by her human resources, enjoying peace, harmony and political stability” (Office of the President, 2004).

The National Planning Commission (NPC) in the Office of the President coordinates the national planning process and is responsible for tracking progress in its implementation. All 21 line ministries and 13 regional governments are involved in the preparation of the NDPs, and civil society and other interest groups inputs are usually sought. The NDP process in Namibia is iterative and participative, with the framework approach set out through the NPC Secretariat (NPCS). Each NDP process so far has differed in terms of approach and process, and after an extremely inclusive and elaborate NDP 3 process, NDP 4 seems to take a more pragmatic approach.



Namibian floods. Photographer Aaron Goodman ©

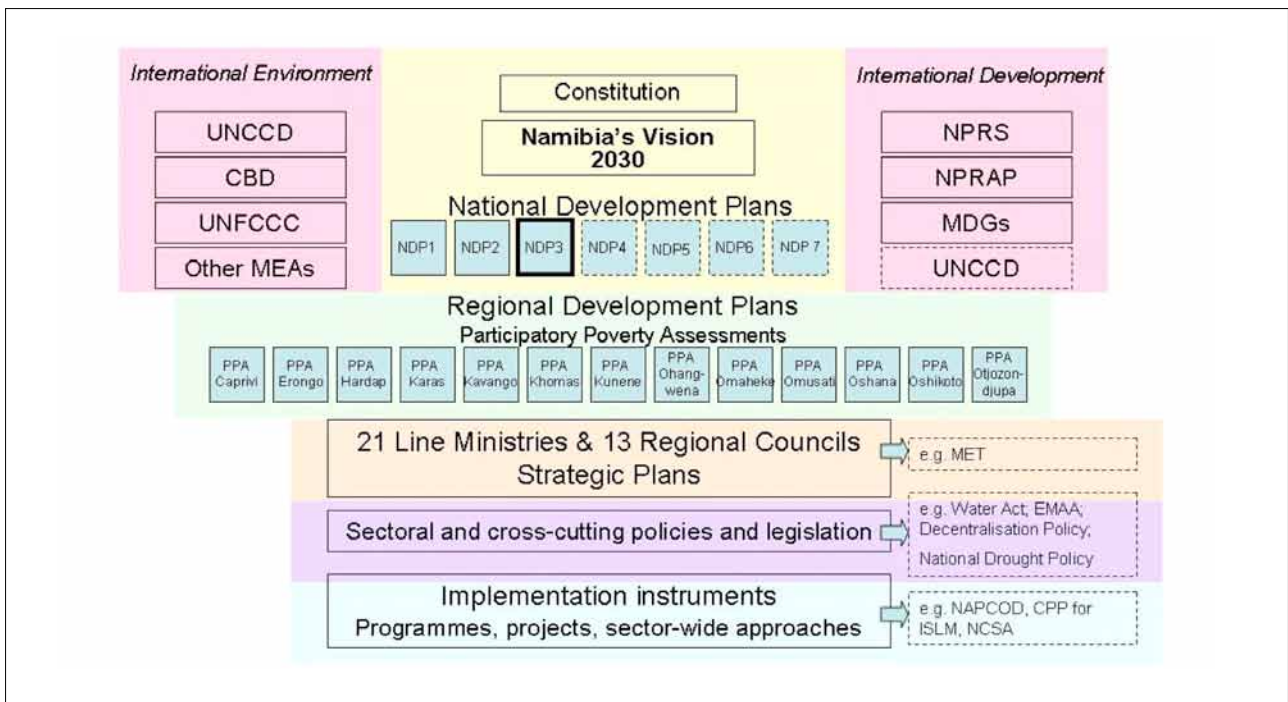


FIGURE 3: Namibia's environment and development policy framework, international and domestic instruments (Zeidler & Jones, 2007), as it contributes to Vision 2030. Bottom-up and participatory inputs are solicited e.g. through Participatory Poverty Assessments, aggregated at the regional level to Regional Poverty Profiles, and should feed into Regional and National Development Planning, especially through the Regional Councils. Line ministries contribute to planning and delivery through sectoral and cross-sectoral policies and implementation instruments as well as institutional Strategic Plans. This diagram was developed as a guiding tool to review the institutional and practical planning linkages within the environment and national development planning frameworks, identifying both the domestic set-up and international instruments that are influential. This context applied directly to the NDP 3 process.

The NDP planning process in Namibia optimally sets out from local level needs assessments, which in the early 2000's was formed by the Participatory Poverty Assessments (PPAs) undertaken in selected communities in each of Namibia's regions. The local level needs were summarised into Regional Poverty Profiles, which in turn were to feed into the NDP process (NDP 3 at the time). NDP 3 followed a participatory approach that included regional representation and inputs through specific regional inputs. Consultants were appointed to facilitate regional planning and budgeting, which additionally was brought into the development of selected Key Result Areas (KRAs). While NDP 2 had a small focus on climate change, NDP 3 (2007/8-2011/12) features explicit climate change policy actions, mostly in the KRA on environmental sustainability (KRA 8). However, as environmental sustainability was dealt with as a cross-cutting issue throughout the NDP (see example in Zeidler, 2007), along with other issues such as poverty alleviation and gender, elements are ingrained in most chapters, at least to some extent.

The NDP sets out the national development priorities, usually in a very comprehensive manner, and the sector plans optimally confer with the various sector ministries' and regional governments' priorities and own strategic plans, where such plans exist. The OPM is requesting all public institutions to prepare such strategic plans, which should be the implementation instruments of NDP. The Medium-Term Expenditure Frameworks (MTEF)—the medium-term budget plans of the government—are designed to finance the priorities set out in the NDP in line with the envisaged budget requirements to undertake effective implementation. Once again the budgets should optimally link to the budgeted strategic plans of the public institutions. In reality, however, the envisaged sectoral budgets may not match the final allocations in the MTEF. Priorities that are not reflected as part of NDP and ministerial/regional government strategic plans will not easily find governmental budget allocations in the MTEF or in national budgets.

It is therefore of great importance that a critical long-term sustainable development issue such as climate change finds adequate reflection in all levels of government planning and budgeting processes. This is also required in private sector planning and budgeting processes, which are quite different and not detailed in this review.

The NDP 4 development process in Namibia started very recently, and it is apparent that a departure from the NDP 3 process has been made. NDP 3 was considered too elaborate and too ambitious to set a strategic accentuation for investment priorities. It therefore is difficult to measure progress and impact. Under new leadership at the NPC the new focus for NDP 4 has been announced with three goals: Employment creation, economic growth and addressing social and income inequities for the new planning period (2013-2017)¹⁰. At this point it is still not clear how the process will practically unfold. Sectors such as health and environment are, for example, important to Namibia's societal wellbeing and priorities must of course continue to be addressed—even if they are not the focus of the NDP 4 framework.

In terms of climate change and other environmental concerns, the Green Economy framework, an important context for the upcoming Rio+20 summit, would provide obvious entry points for mainstreaming climate change into four identified NDP 4 priority areas, which are tourism and agriculture, manufacturing, transport and logistics, and mining and energy. Led by MET, Namibia has engaged in a first round of dialogues and national approach definitions for a Green Economy through a suite of consultative workshop and brainstorming events conducted with support from the German government in the run-up to Rio+20. It is possible that climate change and environmental sustainability issues could be approached through a Green Economy lens and linkages.

At this point, however, there are many questions remaining about the NDP 4 process and Namibia's capability to address climate change priorities in the coming years. Considering that most of the identified priority areas for NDP 4 are highly vulnerable to climate change, and additionally are potentially contrary to setting out on a low carbon development paths, entry points for engagement bringing climate change priority actions around the table are of the highest importance.

10

At this point very limited public information on NDP 4 is accessible, although an online NDP 4 forum has been established on the National Planning Commissions' website at www.npc.gov.na.

06

Response options and entry points for integration



Flooded church. Photographer Adrian Sanchez ©

From the analysis of the current climate change governance framework in Namibia, several priority entry points for improved positioning of national climate change action emerge.

ENTRY POINT 1: BUILDING THE NATIONAL APPROACH BASED ON PILOT EXPERIENCES

1. The strong efforts of MET (with dedicated funding from the government of Japan) must be continued in a systematic manner and relevant funding must be sought for by the ministry. The established more unified approach must be further rolled out to have a broader impact.
2. The punctuated programme piloting must be integrated into a systematic long-term strategy on climate change capacity development within the ministry and government of Namibia at large.
3. The blueprints that have been developed should be utilized as they currently are (as long as they are still current and appropriate) to move from resource material development to roll out and implementation.

ENTRY POINT 2: SUPPORT SECTOR RISK ANALYSIS AND SERIOUS CLIMATE CHANGE PROOFING OF POLICIES AND NATIONAL DEVELOPMENT PLANNING FRAMEWORK

4. A detailed analysis of climate change related sector risks and associated policy implications is needed and policy conflicts need to be systematically identified and addressed. At this point Namibia's economic and development pathways and aspirations do not sufficiently factor in climate risks.
5. An open and technically informed debate about key climate threats and sector vulnerabilities must take place, and consistent and responsible policy decisions must be taken and followed through on. One key element must be that the recently agreed National Climate Change Policy receives the importance and "seniority" it deserves in overriding sector policies and plans that are not climate change resilient to guarantee more sustainable development options for Namibia in the future. As such the National Climate Change Policy should be regarded as a framework policy that guides the mainstreaming of climate change into sector policies.

6. A dedicated and well facilitated policy level debate with influential decision makers must be ongoing to ensure that Namibia's decision-making capacity in terms of long term sustainable development and economic policy setting stays up to date with key global trends, threats and opportunities. A specific strategy on how to establish such a long-term process that has real policy impact must be developed with strategic communication, learning and change management expertise.

ENTRY POINT 3: INFORM NDP 4 PROCESS AND FACILITATE PROGRESSIVE ACTION ON CLIMATE CHANGE RISKS IN IT

7. The current focal approach of NDP 4 promotes four sector clusters that are all extremely climate change vulnerable, but does not include climate resilience planning. This is a major shortfall and may set Namibia out on a dangerous and unsustainable development path. Tourism and agriculture, manufacturing, transport and logistics, and mining and energy are the selected NDP 4 focal areas. If the aspired development goals are to be achieved and hold into the future (i.e. Vision 2030) it must be ensured that rigorous and technically informed climate change adaptation and mitigation measures be worked into planning to ensure sustainability.
8. Following a Green Economy approach on which Namibia already has had some initial dialogues and deliberations in preparation of The Rio+20 process can address some of the climate change concerns.

ENTRY POINT 4: BUILD COLLABORATIONS AND PARTNERSHIPS FOR EFFECTIVE IMPLEMENTATION

9. Adaptation action and resilience building is needed at the local level. In a society where already more than half the population is unemployed, where subsistence agriculture is of low productivity, and where most economic sectors are highly vulnerable to the impacts of climate change significant investments must be made to protect the country from societal chaos and poverty. Currently developed pilot approaches must be furthered and integrated in national approaches to development. Serious and dedicated fresh thinking must be advanced for developing the most suitable innovations and ensuring that local people can absorb and apply them.

ENTRY POINT 5: FOCUS ON CLIMATE CHANGE FINANCE AND GETTING THE NEEDED COMMITMENTS THROUGH TOP POLITICAL ENGAGEMENT

10. Climate change finance is a key issue developing rapidly on the international front. It is clear that not all the resources needed to build climate change resilience and adaptive capacities, as well as to finance mitigation actions, can come from international sources. The government of Namibia, private investors, business and industry, and even the local level small-scale farmer, must allocate resources to address the risks. Innovative support interventions coming from banking institutions and insurance companies, among others, must be sought.
11. The NDP 4 and MTEF, as well as relevant sector plans (incl. strategic plans of sector ministries, private sector institutions and businesses as well as associated budgets) must integrate and address climate change risks and financial allocations to deal with them effectively.
12. An open debate on the most strategic—and for Namibia's future most beneficial coordination mechanism of climate change matters has not yet taken place. Such a debate will be key to strategically direct increasing climate change financing and coordinate cross-sectoral and multi-stakeholder interventions. At this point the importance of the climate change matter to sustainable development in Namibia is not fully realized. This is reflected in the lack of institutionalization of the coordination mechanism. The MET has only one dedicated Deputy Director position without support staff within its current structure.

- Agriculture Working Group. (2011). Investment and financial flows to address climate change in Namibia: Final report: Adaptation – LULUCF/agriculture sector assessment. Windhoek: Ministry of Environment and Tourism.
- Angula, M. (2010). Gender and Climate Change: Namibia Case Study. Cape Town: Heinrich Böll Foundation Southern Africa.
- Barnes, J.I., Nhuleipo, O., Muteyauli, P.I., & MacGregor, J. (2005). Preliminary economic asset and flow accounts for forest resources in Namibia. DEA Research Discussion Paper No 70. Windhoek: Ministry of Environment and Tourism, p20.
- Barnes, J.I., Nhuleipo, O., Baker, A.C., Muteyauli, P.I., & Shigwedha, V. (2009). Wildlife resource accounts for Namibia, 2004. DEA Research Discussion Paper No 79. Windhoek: Ministry of Environment and Tourism, p26 .
- Barnes, J., Alberts, M., & MacGregor, J. (2010). The economic impact of climate change on land use in Namibia. Unpublished Draft Paper. London: International Institute for Environment and Development (IIED).
- Brody, A., & Reeves, H. (Eds), (2011). Gender-Responsive Strategies on Climate Change: Recent Progress and Ways Forward for Donors. BRIDGE/IDS.
- Brown, L.H. (2010). The effects of climate change on revenues to commercial agriculture and tourism enterprises in Namibia. Thesis (MSc) - University of York, Heslington.
- CIA World Factbook. (2011).The World factbook. Retrieved January 20, 2012, from <https://www.cia.gov/library/publications/the-world-factbook/geos/wa.html>
- Consulting Services Africa (CSA), Laquar & Lithon. (2009). Sea-level rise in Namibia's coastal towns and wetlands: projected impacts and recommended adaptation strategies. Unpublished report, Ministry of Environment and Tourism, p177.
- Dahlberg, E., & Wingqvist, G.Ö. (2008). Namibia Environmental and climate change policy brief. Stockholm: University of Gothenburg.
- Draper, P., & Mbirimi, I. (Eds). (2010). Climate change and trade: The challenges for southern Africa. Sunnyside: South African Institute for International Affairs.
- DRFN. (2004). Volume 2: Local/regional level capacity assessment under Namibia Capacity Needs Self-Assessment for global Environmental Management project. Windhoek: Ministry of Environment and Tourism.
- Dirx, E., Hage, C., Tadross, M., Bethune, S., & Curtis, B. (2008). Climate change vulnerability and adaptation assessment. Windhoek: Ministry of Environment and Tourism.
- Fifty second session of the Commission on the Status of Women (2008). Interactive expert panel on Emerging issues, trends and new approaches to issues affecting the situation of women or equality between women and men. "Gender perspectives on climate change". Thursday, 28 February 2008, 3:00 – 6:00 p.m. Retrieved January 26, 2012.
- GEF/UNDP. (2011). Namibia Second National Communication to the United Nations Framework Convention on Climate Change.
- GDRC. (2012). What is Gender Analysis? Retrieved January 24, 2012, from <http://www.gdrc.org/gender/framework/what-is.html>
- GRN. (2002) Initial national communication to the United Framework Convention on Climate Change. Retrieved January 25 10, 2012, from <http://unfclimatechange.c.int/resource/docs/natc/namnc1.pdf>
- GRN. (2011). National policy on climate change for Namibia – 2011. Windhoek.
- Hughes, P., Brundrit, G.B., & Seanson, S. (1992). The vulnerability of Walvis Bay to rising sea levels. *Journal of Coastal Research*, 8, 868-881.
- Jolly, S., & Esplen E. (2006). Gender and sex: A sample of definitions. Brighton: BRIDGE (gender and development).
- International Bank for Reconstruction, & Development/World Bank. (2008). Development and climate change: A Strategic Framework for the World. Washington.
- IPCC. (2001). Summary for Policy Makers. In *Climate Change 2001: Impacts, Adaptation and vulnerability*. Cambridge: Cambridge University Press.
- LAC. (2005). Our land we farm: An analysis of the Namibian Commercial Agriculture Land reform Process. Windhoek Legal Assistance Centre (LAC).
- Mendelsohn, J., Jarvis, A., Roberts, C. & Robertson, T. 2002. Atlas of Namibia : A portrait of the Land and it's People. David Philip Publishers, Cape Town, http://209.88.21.36/Atlas/Atlas_web.htm
- Mfune, J.K., & Ndombo, B. (2005). An assessment of the capacity and needs required to implement Article 6 of the UNFCCC in Namibia. Windhoek: Ministry of Environment and Tourism.
- Mfune, J.K., Oliver, C., Ruppel, O., Willemsse, N., & Mosimane, A.W. (2010). Proposed Climate Change Strategy and Action Plan. Unpublished manuscript, Windhoek: Ministry of Environment and Tourism.
- MET, 2002. Namibia – Initial National Communication to the UNFCCC. Ministry of Environment and Tourism

- MET. (2007). Strategic plan 2007/8 - 2011/12. Retrieved January 23, 2012, from http://www.met.gov.na/Documents/MET%20Strategic%20Plan%202007-2008__2011-2012.pdf
- MET. (2008). Guide to the Environmental Management Act No 7 of 2007. Windhoek: Ministry of Environmental Management.
- MET. (2011a): Namibia Second National Communication to the United Nations Framework Convention on Climate Change. Windhoek: Ministry of Environment and Tourism.
- MET. (2011b): Evaluation of the Namibian National Climate Change Committee (NCCC) and the Establishment of Regional Climate Change Committees. Unpublished report, Ministry of Environment and Tourism.
- MET. (2011c): Climate Risk Management Capacity Development Plan. Unpublished report, Ministry of Environment and Tourism.
- MET. (2011d). Namibia Climate Change Adaptation: Youth Action programme. Unpublished report, Ministry of Environment and Tourism.
- MET - Agriculture Working Group. (2011). Investment and financial flows to address climate change in Namibia: Final report: Adaptation – LULUCF/agriculture sector assessment. Windhoek: Ministry of Environment and Tourism.
- MET – Energy Working Group. (2011). Investment and financial flows to address climate change in Namibia: Final report: Mitigation – Energy sector assessment. Windhoek: Ministry of Environment and Tourism.
- Midgley, G., Hughes, G., Thuiller, W., Drew, G., & Foden, W. (2005). Assessment of potential climate change impacts on Namibia's floristic diversity, ecosystem structure and function. Report for: Namibian National Biodiversity Programme, Directorate of Environmental Affairs by the Climate Change Research Group, South African National Biodiversity Institute (SANBI), Kirstenbosch Botanical Garden. Cape Town.
- Muhato, W. (2003). Gender assessment. Namibia country strategic plan 2004–2010 (available at <http://www.usaid.gov/na/pdfdocs/GenderAssessment-NamibiaSP.pdf>). Washington, DC. United States Agency for International Development (USAID).
- Newsham, A., & Thomas, D. (2009). Agricultural adaptation, local knowledge and livelihoods diversification in North Central Namibia. Working Paper 140: Tyndall Centre for Climate Change Research.
- Office of the President. (2004). Namibia Vision 2030: Policy framework for long-term national Development: Main Document. Windhoek: Office of the President.
- Reid, H., Sahlen, L., Stage, J., & MacGregor, J. (2007). The economic impact of climate change in Namibia: How climate change will affect the contribution of Namibia's natural resources to its economy. Environmental Economics Programme Discussion Paper 07-02. London: International Institute for Environment and Development.
- Reid, H., Sahlén, I., Stage, J. and MacGregor, J. (2008). Climate Change Impacts on Namibia's Natural Resources and Economy. *Climate Policy* 8(5): 452–66.
- Röehr, U. (Ed). (2009). Gender into climate policy; toolkit for climate experts and decision-makers. Berlin; GenderCC – Women for Climate justice.
- Röhr, U. (2007). Gender, climate change, and adaptation. Introduction to the gender dimensions. Background Paper prepared for the Both ENDS BRIEFING PAPER: Adapting to climate change: How local experiences can shape the debate. Berlin: genanet – Focal Point Gender, Environment, Sustainability.
- Sherbourne, R. (2009). Guide to the Namibian Economy 2009. Institute for Public Policy Research: Windhoek.
- Thuiller, W., Lavorel, S., Sykes, M. T., Araújo, M.B. (2006). Using niche-based modelling to assess the impact of climate change on tree functional diversity in Europe. *Diversity and Distributions*, (Diversity Distrib), 12, 49–60.
- Turpie, J., Midgley G., Brown, C., Barnes J., Pallett, J., Desmet, P., Tarr, J., & Tarr P. (2010). Climate change vulnerability and adaptation assessment for Namibia's biodiversity and protected area system. Windhoek: Ministry of Environment and Tourism
- UN-Habitat. (2010). Walvis bay, Namibia: Cities and Climate Change Initiative. Retrieved January 23, 2012, from <http://www.unhabitat.org/pmss/listItemDetails.aspx?publicationID=2956>.
- University of Namibia and SARDC-WIDSAA. (1997). Beyond Inequalities: Women in Namibia. Windhoek and Harare: UNAM/SARDC.
- Von Oertzen, D., Kinyaga, V., Krugmann, H., & Dirx, E. (2009). Review and Update of National Circumstances. Prepared for the Ministry of Environment and Tourism as part of the Second National Communication. Windhoek: Ministry of Environment and Tourism.
- World Bank. (2011). Namibia. Retrieved December 09, 2011 from <http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/AFRICAEXT/NAMIBIAEXTN/0,,menuPK:382299~pagePK:141159~piPK:141110~theSitePK:382293,00.html>
- Zeidler, J. (2007). Mainstreaming Environment through the Preparation of Namibia's Third National Development Plan (NDP 3). MET and UNDP Options paper, August 2007
- Zeidler, J., & Jones, J. (2007). Country Case Study: Namibia Mainstreaming Environment with a particular focus on drylands issues into Development Frameworks. Nairobi, UNDP-Drylands Development Center.



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