NAMIBIA AND ANGOLA

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THE SIGNIFICANCE OF CLIMATE CHANGE IN NAMIBIA AND ANGOLA – IT'S TIME FOR AN ENERGY TRANSITION IN SUB-SAHARAN AFRICA

The Capanda dam on the Kwanza River in the Malanje province has four turbines that generate an output of 520 megawatts. The plant covers more than half of Angola's energy needs.

For years, climate change and the consequences it has for Africa has been a subject of debate, one conducted with varying degrees of intensity and for different reasons and motivations. IPCC's 2007 report painted a clear picture of the consequences of climate change for southern Africa in general and for the driest country in southern Africa, Namibia, specifically. Among other findings, the report concluded that climate change presented a serious threat to livelihoods, particularly those of the poorest segments of the population, and that it would adversely affect agriculture in countries like Namibia due to decreased precipitation.[1] It named climate change as the cause of future developments in Sub-Saharan Africa such as declining grain harvests, changes in water run-off and its availability, growing tensions due to increased drought and flooding, and impacts on ecosystems and livelihoods due to higher temperatures and aridity.[2]

The third and latest instalment of IPCC's Fifth Assessment Report (AR5) says that global carbon emissions have risen by 2.2 percent each year during the last ten years. The report notes that the share of renewable energies needs to treble or quadruple in the next few years to reduce the increase in greenhouse gases and achieve the goal of reducing carbon emissions by 40 to 70 percent by 2050. It argues that this is the only way to mitigate dire consequences such as droughts or the level of precipitation in African countries falling even lower than it is today.[3] However, the actual relevance of these future scenarios has not yet manifested itself to the necessary extent in government policy in Namibia and Angola. The focus has tended to be on more basic problems such as unemployment, the weak education and healthcare systems, or the food and water scarcity that plague the people of these countries, most of whom live in rural areas.

Neither Namibia nor Angola has put climate change and its consequences at the top of the political agenda, although this is not to say that they have not recognised how important the topic is for their future. Namibia's National Development Plan (NDP4, Vision 2030) absolutely recognises the importance of sustainable development, and particularly the role of renewable energy. Yet a potential policy framework for implementation in the near term has yet to be put in motion beyond the most rudimentary level. To this day Namibia has tended to put issues related to climate change on the back burner. Industrialised nations in Europe, the Americas and Asia are seen as the biggest culprits of climate change, and opportunities for sweeping changes are generally met with scepticism. In Angola, too, people have shown a restrained attitude about the consequences of extreme water and air pollution brought on by the oil industry, particularly in the Cabinda region's river delta, because oil has helped the country's economy grow by leaps and bounds during the last ten years. Without the boom in oil production, the progress Angola has made would not have been possible. However, there are signs in both countries that their respective energy and natural resources policy might be overhauled in the medium to long term.

1 | Cf. Michel Boko et al., "Africa. Climate Change, 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change", M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson (eds.), 04/2007, Cambridge University Press, Cambridge, pp. 433–467.

2 | Cf. ibid., p. 435 f.

3 | Cf. Christoph Seidler, "Neuer IPCC-Bericht: Klimaschutz-Experten setzen Europäer unter Druck" (Climate protection experts put pressure on Europeans), *Spiegel Online,* http://spiegel.de/wissenschaft/natur/ipcc-wg3-und-eu-klimabericht-heizt-streit-in-europa-an-a-964120.html [28 July 2014].

In 2012, the Konrad-Adenauer-Stiftung and Von-Oertzen-Consulting published a study on the importance of renewable energies in Namibia in the hope of raising awareness of the subject, particularly among policy makers. It was assumed that the topic would be met would interest because Namibia had experienced a long period of drought that had serious consequences for many farmers in rural parts of the country.

However, the official response was lukewarm. In early 2014, the Friedrich Ebert Foundation published a comprehensive study on the potential of renewable energies in Namibia that was primarily aimed at the country's young people.[4] In addition, President Pohamba officially announced to parliament this year that Namibia would have to leverage the benefits of renewables to meet the country's energy needs. Nampower, the state-owned utility company, only meets around 39 percent of demand. The rest of the country's electricity is imported from surrounding countries.

In April 2014, the Namibian parliament hosted a two-day energy conference – substantially supported by the Konrad-Adenauer-Stiftung – on the importance and foreseeable consequences of climate change for southern Africa as well as the opportunities offered by renewable energies. Namibian and international experts exchanged ideas on the topic and passed a joint declaration that will serve as a signal of what is possible in Namibia – and possibly beyond. The declaration calls on parliament and the government to show greater recognition of the consequences of climate change for the country and institute a legislative initiative for better use of renewable energies. In addition to a large number of specific implementation measures, such as the greater exploitation of solar energy (Namibia has the highest number of sunny days of any country in the world), grid expansion and tariff fees as intermediate steps on the path to an energy feed-in law, the declaration also aims to bring younger generations on board by making climate change and sustainable solutions for energy security a part of every subject in every school. Namibia has therefore taken its first step towards a slow but steady switch to renewables. Namibia's parliament will discuss how to continue with these plans in June 2014.

Even in Angola, it seems, the oil age will not last forever. There, too, people are calling for greater diversification in the economy to prepare for the post-oil boom era.[5]

CLIMATE FORECAST FOR NAMIBIA

Namibia is one of the driest countries in Sub-Saharan Africa. Its climate is shaped primary by the Benguela Current, which brings cold water up from the Antarctic to Namibia's Atlantic coast, and by the Intertropical Convergence Zone and the Mid-Latitude High Pressure Zone, which meet in the north of the country. The combination causes cold, dry air masses to move closer to the earth, which prevents almost all precipitation.[6]

The country is the wettest from October to April. The north gets some 700 millimetres of precipitation each year, but parts of the south and the west may get less than 25 millimetres. The coastal areas have relatively low temperatures (10 to 22 °C on average) while the interior of the country can see temperatures of up to 37 °C. In addition, the rate of evaporation is extremely high.[7] Current forecasts estimate climate change will raise average temperatures by 1 to 4 °C by 2065. The rainy season is expected to get shorter, which would extend the dry season and have a grave impact on the ecosystem and people's livelihoods.[8]

4 | Natalie Renkhoff (ed.), "2014: Powering Namibia into the Future. Towards Sustainable Energy Production", Friedrich Ebert Foundation; Margaret Angula, "Gender and Climate Change. Namibia Case Study", Heinrich Boell Foundation, 2010.
5 | Cf. "Still much too oily", *The Economist*, 10 April 2014, http://econ.st/1pqcwoP [28 July 2014].
6 | Republic of Namibia, Ministry of Environment and Tourism, "Namibia Second National Communication to the United Nations Framework Convention on Climate Change", 2011, p. 19 f.
7 | Ibid., p. 20 f.
8 | Ibid., p. 57 ff.

NAMIBIA'S NATIONAL CLIMATE AND RENEWABLE ENERGY POLICY

In the past, Namibia's energy supply has not played a major role in social and political debates. Fuel and most of the country's electricity is imported from its neighbours, especially South Africa. Over time, however, people changed the way they thought about the issue.

The country ratified the UNFCCC in 1995 and approved a white paper on energy policy in 1998.[9] There is also the Namibian Renewable Energy Programme and a Renewable Energy and Energy Efficiency Capacity Building Programme, although these have not yet led to the desired scope of expansion in production capacity. In 2010, Namibia passed a National Climate Change Policy (NCCP), which is intended to serve as a legal framework for adapting to climate change.[10]

BARRIERS TO EXPANDING RENEWABLE ENERGY POTENTIAL IN NAMIBIA

The white paper from 1998 points to Namibia's nearly inexhaustible but minimally exploited renewable resources: "In addition to hydropower potential…, solar radiation in Namibia is the highest measured so far in any country in the world (up to 3100 kWh / m^2 / year in certain areas) and excellent wind resources exist in coastal areas."[11] Important hurdles to developing these resources include high dependence on imports from neighbouring countries, inadequate or highly abstract legal frameworks for planning, a relatively old grid in need of expansion, very low electricity prices as well as a lack of funding and a low level of interest in investing in production facilities.[12]

There is enormous potential in expanding the exploitation of renewable energies in Namibia. According to the white paper, a variety of production technologies for solar, water, wind and biomass sources are already available today and could gradually lead to greater independence and self-reliance for Namibia.[13] In particular, small plants that require relatively low investment could contribute to the realisation of decentralised production and supply systems and compensate, at least in part, for insufficient grid expansion.

NAMIBIA'S COLLABORATION WITH THE EU AND INTERNATIONAL ORGANISATIONS

EU development cooperation[14] with Namibia has yet to put forth an approach for projects to fight climate change.[15] However, the first quarter of 2014 did see the EU begin to focus on this area, as it earmarked around €6.7 million from the Tenth European Development Fund for measures addressing climate change adaptation and mitigation.[16] A small number of such projects have already been rolled out. They include a project to support a hybrid mini-electricity grid for solar, photovoltaic and diesel feed-in, with a rated power of 202 kilowatts, in Tsumkwe[17] and the ECOFISH project, which brings together countries bordering the Benguela Current (Angola, Namibia, South Africa) and a number of international actors such as the EU, the FAO, the UNDP and various NGOs with the aim of improving cooperation to sustain the ecosystem on Africa's south Atlantic coast.[18] Various SADC documents and treaties on climate change as well as the AU's New Partnership For Africa's Development (NEPAD) programme are seen as integral parts of Namibia's climate policy.[19] According to the UNFCCC secretariat, desertification is the greatest risk facing Namibia as a result of climate change. Namibia is therefore highly engaged in multilateral forums in order to slow this phenomenon. The Namib Declaration was drafted during the UN Conference to Combat Desertification, which was held in Windhoek in September 2013.[20]

9 | Cf. ibid., pp. 18, 101.
10 | Cf. Republic of Namibia, Ministry of Environment and Tourism, "National Policy on Climate Change for Namibia", 2010; Republic of Namibia, Ministry of Environment, "Convention on Climat Change", 2011, p. 101.
11 | Republic of Namibia, Ministry of Mines and Energy, "White Paper on Energy Policy", 1998, p. 43.
12 | Cf. Detlef von Oertzen, "Namibia's Energy Future. A Case for Renewables", Konrad-Adenauer-Stiftung, 2012, pp. 15, 37 ff., 86.
13 | Ibid., p. 43 ff.
14 | Development cooperation with Namibia set at €123.5 million in the 10th European Development Fund (EDF).
15 | EU, EEAS, "Technical and financial co-operation", http://eeas.europa.eu/delegations/namibia/eu_namibia/tech_financial_cooperation/index_en.htm [28 July 2014].
16 | EU, EEAS, "Call for Proposals Climate Change Adaptation and Mitigation, Including Energy (27 March 2014)", http://eeas.europa.eu/delegations/namibia/grants_tenders/files/20140205_en.htm [28 July 2014].
17 | N. 15; Tsumkwe Energy, "Outcomes", 2012, http://tsumkwe.startaenweb.com/outcomes [28 July 2014]; European Commission, "Environment. Tsumkwe Energy in Namibia", 2014, http://ec.europa.eu/europeaid/documents/case-studies/namibia_environment_tsumkwe_en.pdf [28 July 2014].
18 | Benguela Current Commission, http://benguelacc.org [28 July 2014].
19 | N. 10, p. 32.
20 | Cf. Republic of Namibia, "Statement by H.ehifikepunye Pohamba", speech at the AU Summit, 30 January 2014, http://bit.ly/1kmro91 [28 July 2014]; n. 10, p. 32.

CLIMATE FORECAST FOR ANGOLA

Angola has a tropical climate with stable temperatures of 20 to 25 °C all year round. It receives the most rain from October to April (100 to 250 millimetres per month). The northeast is the wettest region, and precipitation rates decline towards the south and west. The country received an average of 2 millimetres less rain per decade from 1960 to 2006. The average annual temperature, meanwhile, has risen by 1.5 °C each year during the same period. It is expected to rise by 1.2 to 3.2 °C by 2060 and 1.7 to 5.1 °C by 2090. There are conflicting forecasts for precipitation rates (–27 percent to +20 percent in 2090).[21] The southern provinces of Cunene, Huila and Namibe have suffered from severe droughts in recent years.[22]

ANGOLA'S NATIONAL CLIMATE AND RENEWABLE ENERGY POLICY

Angola sees climate change and its consequences primarily as a threat to the country's economy and population. The topic is rarely addressed in public debates, but when it is, the focus is on its impact and ways of adapting to it, not on ways for combating its causes. In 2011, Angola adopted a national energy strategy that includes the following key points:[23]

- Main goal: a four-fold increase in energy production by 2025,
- Decentralised production in small power plants/generators, primarily using water, solar and wind power and local materials (household waste) when ecologically and economically feasible,
- Electrification of large sections of the country, especially rural areas (goal for 2025: provide electricity access to some 50 to 60 percent of the population; today around 40 percent of Angolans have electricity, mostly those in urban areas),
- Reducing the percentage of biomass in energy production from 64 (2009) to 35 percent (2025) to protect forests and savannahs as natural carbon sinks.

Further initiatives in Angola include the Centre for Tropical Ecology and Climate Change, founded in 2012, and the International Conference on Energy and Water, held for the first time in 2013.[24]

ANGOLA'S STANCE ON THE EU AND MULTILATERAL COOPERATION ON CLIMATE AND RENEWABLE ENERGY ISSUES

In 2012, Angola and the EU signed the EU-Angola Joint Way Forward (JWF), which forms the basis for future bilateral cooperation on a number of topics.[25] As part of the JWF, Angola and the EU seek to work together in areas such as:[26]

- Mitigating and reversing negative impacts of environmental pollution and climate change,
- Transferring knowledge and experience between scientific institutions,
- Exchanging information on energy policy, supply, security, diversification and efficiency as well as best practices,
- Pursuing joint projects to expand the (renewable) energy supply.

Angola is bound by the UNFCCC's global climate protection regime. The country regularly asks for technology transfer in multilateral forums as well as financial support from industrialised nations. At the same time, Angola has pointed out that climate initiatives must not be allowed to threaten its economic development.[27] The United Nations has planned environmental protection and climate change initiatives in its development programme for Angola.

21 | Cf. C. McSweeney, M. New and G. Lizcano, "UNDP Climate Change Country Profiles: Angola", 2010, http://bit.ly/1tsUKVS [28 July 2014].
22 | Cf. Joao Baptista Borges, speech at COP19 in Warsaw, 2013, http://unfccc.int/files/meetings/warsaw_nov_2013/statements/application/pdf/cop19_hls_angola.pdf [28 July 2014].
23 | Cf. Republic of Angola, Ministry of Energy and Water, "The National Energy Security Strategy and Policy; Pres. Decree No. 256/11", 2011.
24 | "Governo angolano inaugura Centro de Ecologia e Alterações Climáticas", Africa21Digital, 25 August 2012, http://africa21digital.com/conhecimento/ver/20028115 [28 July 2014]; Angola Conferencia sobre Energia e Aguas (ACEEW), 2013, http://aceew.org [28 July 2014].
25 | Author's note: Other important documents on multilateral cooperation include the Cononou Agreement and the Joint Africa-EU Strategy (JAES).
26 | Cf. ibid.
27 | As in: UN, "Small Island Countries Say Climate Change Already Threatens 'Very Existence', Urge Immediate Aid to Vulnerable States, in General Assembly Debate", press release, 12 February 2008, http://un.org/News/Press/docs/2008/ga10689.doc.htm [28 July 2014].

STATUS QUO FOR RENEWABLE ENERGY PRODUCTION AND UNDEVELOPED POTENTIAL IN ANGOLA

Renewable energies currently provide a portion of Angola's energy production as a result of the widespread use of biomass. There is significant potential for expanding wind energy in the Namibe province. Solar energy and photovoltaics are most feasible in the south, where solar radiation is the highest. Hydropower could be cost-effective along the long rivers and on the coast.[28] Fossil fuel resources, especially crude oil, have not been used for a great deal of energy production so far. However, they are set to climb to between 45 and 55 percent of Angola's energy mix (2009: 33 percent).[29] Proven natural gas reserves stand at 270 billion cubic metres and are estimated to total more than 1,200 billion cubic metres (as of 2009).[30] Such plans and motives stand in the way of expanding the use of renewable energies in Angola.

SUMMARY FOR NAMIBIA AND ANGOLA

It appears that climate change, its effects and potential steps for adapting to it and preventing it are slowly gaining more of a foothold among the Namibian people, in the media and especially among policy makers. However, limitations owing to high investment costs, low technical feasibility and a lack of strong interest among political actors have meant that relevant energy supply projects – whether for fossil or renewable energy sources – are not receiving the impetus they need. The water supply in particular, both for direct nourishment and as a production resource (for agriculture, cooling, etc.) is equally critical, and sometimes it is even more important in the eyes of the people.

The general public in Namibia therefore do not yet appear to be sufficiently aware of the issue of climate change. The recent discussion initiated by the Konrad-Adenauer-Stiftung in the Namibian parliament signalled the start of a long overdue and serious look at the opportunities of renewable energies and the consequences of global climate change. This conference, Namibia's first on energy issues, revealed that Namibia clearly has the desire to take on a new leading role in renewable energy issues in southern Africa, especially given that the country is ideally equipped in terms of natural resources to ramp up its use of renewables. If the country manages to quickly create a legal framework for feeding renewable energies into the public grid, it will have taken an important step towards protecting the climate and beginning a switch to renewables. This is also likely to lead to new sources of income for the country's drought-plagued farmers and new ways to work their land. The Konrad-Adenauer-Stiftung's latest proposal for a programme that would unite agriculture and energy production, drawing on lessons learned from the German experience, has strongly resonated with Namibia's farmers and several of its parliamentary representatives. The fact that Namibia hopes greater use of new forms of energy production will also close gaps in its energy supply, not to mention make it less dependent on imported electricity, provides additional momentum for the debate over the consequences of climate change and the opportunities offered by renewables in Namibia.

In Angola – unlike in Namibia – climate change and its consequences are almost a non-issue in society. The topic is rarely discussed in the media. Policy makers are focused on growing the economy primarily with the help of fossil resources and seeking multilateral support from industrialised countries. And yet there are also signs that this severely isolated market is slowly opening up for foreign investment, and that the country is slowly starting to change its thinking, particularly with regard to the significance of a nationwide electricity supply.

28 | Cf. n. 23, pp. 12, 14.
29 | Cf. ibid., p. 3. The production of fossil fuels accounted for approx. 60 percent of GDP in 2008 so economic considerations likely to play a role here.
30 | Ibid., p. 19.