



Briefing Paper

Tackling Adaptation Challenges: Critical Step towards Sustainable Energy Sectors in the EAC

By Houssam Wazzan

Summary

This briefing paper discusses how climate change has affected the production of hydropower in the East African Community (EAC) countries. In Uganda for instance, lower water levels in Lake Victoria reduced power generation by 50 MW which costed 1.3 percentage points of GDP growth to the “Pearl of Africa”. Effective implementation of UNFCCC instruments like National Adaption Programs of Action (NAPA) and Nationally Determined Contributions (NDCs) can support adaptative action.

Introduction

Among the various challenges posed by climate change, energy challenges seem to be arising in importance and criticality, in particular in the East African Community (EAC). Since energy is known as an essential factor in our modern life, from being the driver of almost all economic activities as well as of our basic domestic needs, any change affecting it will have severe impacts at a broad level.

With climate change resulting in droughts, one of the main sources of energy in the EAC countries is drastically affected, namely hydropower. It was witnessed in Uganda for example between 2004 and 2006, that the reduction in water levels in Lake Victoria resulted in a reduction of hydropower generation by 50 MW and this consequently led to a decline in GDP growth rate from 6.2 percent to 4.9 percent.¹ More recently, Uganda suffered in year 2009 from severe droughts resulting again in low water levels in Lake Victoria which shrank the capacity of hydropower generation further.² In Kenya and Tanzania the case was similar. For instance, between 1997 and 2005, Tanzania witnessed a drought that caused the Metera Dam to reach its lowest water level, resulting in a 17 percent drop in hydro generation.³ In Kenya, the drought that occurred between 1999 and 2002 drastically affected hydropower which was reduced by 25 percent capacity in year 2002. The resultant cumulative loss was estimated to be about 1-1.5 percent of total GDP.⁴ Furthermore, global

warming has warmed the Indian Ocean and resulted in decreased rainfall in East Africa, where it is known that the increased frequency of droughts in this region will continue as long as global temperature continues to rise.⁵

Therefore, this over-reliance on hydropower in the EAC region (aside from biomass energy) poses several challenges. Since hydropower depends on water, climate change is seen to create major barriers in this context, as it affects rainfall patterns and causes droughts. In this briefing paper, the main energy challenges related to climate change in the EAC are addressed, with a focus on adaptation as a form of solution to these challenges. A section later explains how adaptation is taken into account within the UNFCCC system/discussions.

Main Energy Challenges related to Climate Change in the EAC

The major impacts of climate change can be classified as follows: increased frequency and intensity of droughts, extreme weather conditions, changing rainfall patterns and climate variability, and higher temperatures.⁶ These impacts are seen to affect hydropower and thermoelectricity production, as well as energy consumption.⁷ Therefore, energy challenges in the EAC region can be classified as follows: (1) overreliance on hydroelectric power generation which is highly sensitive to climate variability and change; (2) low financial investment in the development of renewable energy technologies; and (3) inadequate development of

1 Karekez Stephen, Kimani John, Onguru Oscar, and Kithyoma Waeni. "Energy Security and Adaptation to Climate Change in East Africa and the Horn of Africa: Large Scale Hydropower vs. Decentralized Renewables." Heinrich Böll Stiftung East & Horn of Africa. N.p., Aug. 2012. Web. 20 June 2016.

2 https://energypedia.info/wiki/Uganda_Energy_Situation

3 CGI Special Report: Climate Change in Africa: Adaptation, Mitigation and Governance Challenges. Edited by Hany Besada and Nelson Sewankambo

4 ibid

5 Kammen Daniel, Jacome Veronica, and Avila Nkiruka. "A Clean Energy Vision for East Africa: Planning for Sustainability, Reducing Climate Risks and Increasing Energy Access", March 2015.

6 supra note 2

7 Africa's Adaptation Gap. Technical Report: Climate-change impacts, adaptation challenges and costs for Africa. www.unep.org/roa/amcen

energy infrastructural facilities.⁸ As a matter of fact, the Department for International Development (DFID) performed a study which showed that huge macroeconomic costs in East Africa arise from the climate variability characterized as floods and droughts, causing declines in economic growth.⁹ Larger potential economic costs are still predicted in the future, where adaptation is considered to be a solution in order to reduce these impacts.¹⁰

Why Adaptation may be Relevant to Tackle such Challenges in the Region?

Perhaps, one of the main reasons that render adaptation as the most relevant way to tackle climate change is the fact that the impacts of climate change are sure to continue for decades, even if mitigation is to be taken into consideration.¹¹ Moreover, experience suggests that the best way to address climate change impacts is by integrating adaptation responses into development planning.¹² In addition to being an efficient way in coping with climate change, adaptation strategies, if effectively implemented, can provide transitional pathways to green growth and to protection and improvement of the livelihoods of hundreds of millions of Africans.¹³

The growing population of EAC Partner States is spread in all ecological regions, including regions where extreme weather conditions such as floods

and droughts occur.¹⁴ Adaptation is therefore crucial and of utmost importance in order to ensure the proper functioning and development of socioeconomic and environmental systems.¹⁵ Adaptive measures can be the adoption of some renewable energy technologies by governments such as geothermal and biomass cogeneration. Aside from being sustainable and independent of climate condition, these technologies can have further benefits in creating employment too. Kenya performs better in this context since it already enjoys a wider diversity in its electricity generation sources compared to some of its counterparts in the EAC (like Uganda for example). As a matter of fact, hydropower's share in Kenya was decided to be reduced 15 percent by 2014, relying on other forms of energy that do not depend on the vagaries of weather (solar and biomass energy for example).¹⁶

How is Adaptation Considered within the UNFCCC system and negotiations?

Since year 2000, the UNFCCC started considering national adaptation planning within its system/discussions. This consideration started with experts being requested by the Conference of the Parties (COP) to start drafting guidelines for the preparation of National Adaptation Programmes of Action (NAPAs),¹⁷ which will be discussed later in this paper. Over the past 16 years of institutional development to support national adaptation

8 East African Community Climate Change Policy: www.eac.int

9 Economics of Climate Change in East Africa: SEI News

<https://www.sei-international.org/projects?prid=1586>

10 *ibid*

11 *supra* note 7

12 East African Community: EAC Position On Climate Change Negotiations

13 Climate change adaptation can help promote sub-Saharan African livelihoods – UN report. 13 August 2014.

<http://www.un.org/climatechange/blog/2014/08/climate-change-adaptation-can-help-promote-sub-saharan-african-livelihoods-un-report/>

14 East African Community Climate Change Master Plan 2011 – 2031. September 2011

15 *ibid*

16 <http://www.bloomberg.com/news/articles/2012-11-16/kenya-electricity-hydro-power-generation-to-fall-to-45-in-2014>

17 Policy Update #16: The UNFCCC National Adaptation Planning Model: A Foundation for Fulfilling Post-2015 Commitments? Part I: <http://sd.iisd.org/policy-updates/the-unfccc-national-adaptation-planning-model-a-foundation-for-fulfilling-post-2015-commitments/>

planning in developing countries under the UNFCCC, two main and important observations stemmed out.¹⁸ First, there is no need to start from scratch, rather to continue building on the current national adaptation planning architecture while expanding its resources to more countries and ensuring adequate funds.¹⁹ Second, it's important to point out that developing countries' experience with adaptation planning can really present an inspiration/guideline to the developed countries.²⁰

Certain groups and committees were further created under the UNFCCC in order to take adaptive actions dealing with the adverse effects of climate change. These are, among others, the Adaptation Committee and the Least Developed Countries (LDC) Expert Group.

The Adaptation Committee (AC) primal role is promoting adaptation action under the convention. It has many functions, of which are: providing technical support and guidance to the Parties; sharing relevant information and experiences; strengthening engagement with national, regional, and international organizations; and providing recommendations when needed.²¹ The LDC Expert Group (LEG) on the other hand mainly provides technical support and advice to the Least Developed Countries (LDCs) on the National Adaptation Programmes (NAPAs), and on the National Adaptation Plan (NAP) process as well.²²

Since December 2015, the Paris Agreement is playing an important role, through international

cooperation. It targets national adaptation efforts in an attempt to strengthen them by enhancing adaptive capacity and fortifying resilience against climate change.²³ All parties are expected to submit and update their adaptation communications, needs for support, along with their plans of actions. Developing country Parties will receive enhanced support for adaptation actions.²⁴

Furthermore, the last Bonn negotiations that happened on May 2016 led to positive outcomes that will support the Paris Agreement's widely anticipated early entry into force.²⁵ The meetings supported the strengthening of the climate actions by countries, as well as the construction of a global system for rules on climate so that they all be on the same ground. The Green Climate Fund (GCF) and the Global Environment Facility (GEF) showed their support in the meetings by presenting their plans of funding the agreements. For instance, the GCF announced their 2.5 billion USD inspirational goal in 2016 for both adaptation and mitigation programmes and projects.²⁶ The GEF on the other hand has a budget of 250 million USD to support projects on adaptation.²⁷

Which Adaptation Actions to be taken at National and Regional Levels?

Actions and measures concerning adaptation usually vary between national and regional levels. Institutional arrangement's measures for adaptation include creating scientific and advisory bodies, raising awareness and information

¹⁸ ibid

¹⁹ ibid

²⁰ ibid

²¹

http://unfccc.int/adaptation/groups_committees/adaptation_committee/items/6053.php

²²

http://unfccc.int/adaptation/groups_committees/ldc_expert_group/items/4727.php

²³ <http://bigpicture.unfccc.int/#content-the-paris-agreement>

²⁴ ibid

²⁵ <http://newsroom.unfccc.int/unfccc-newsroom/bonn-may-2016-closing-press-release/>

²⁶ ibid

²⁷ ibid

dissemination, training, and carrying out engineering and infrastructural changes.²⁸ However, given the fact that EAC countries often lack adequate institutional capacities, communication channels, implementation means, it is challenging for them to identify priority actions and take relevant measures based on such plans.²⁹

National Adaptation Programmes of Action (NAPAs)

National Adaptation Programmes of Action (NAPAs) identified immediate and urgent projects that are concerned with the adaptation to the effects of climate change.³⁰ Below are a very brief summary of the NAPAs of each EAC country, mainly the points related to energy challenges.

Rwanda for example identified eleven priorities under its NAPA, of which are: promoting non-rain-fed agriculture and introducing of drought resistant species; and developing alternative sources of wood energy.³¹ In Tanzania, project initiatives included: promoting the application of cogeneration in the industry sector for lost hydro potential; introducing alternative farming systems and relocating water sources including wells along the low lying coastal areas; and exploring and investing in alternative clean energy sources e.g. Wind, Solar, bio-diesel, and others.³² Moreover, Burundi also had a list of fourteen selected options of adaptation of which are: identifying and popularizing the improved techniques of wood use and new renewable energies; training and

informing the decision makers and other partners, including the local communities on the methods of adaptation to climate variability; and multiplying hydropower micro stations.³³ Kenya on the other hand prepared a National Climate Change Response Strategy that includes the priority areas for adaptation and mitigation activities.³⁴

Intended Nationally Determined Contributions (INDCs)

Most EAC Partner States have developed a list of contributions to adaptation under their INDCs in the context of energy. Some targeted energy challenges only through mitigation. Almost all EAC Partner States share common goals and targets in the context of adaptation to energy challenges like: renewable energy promotion, capacity building, raising awareness, and others. Furthermore, they mostly require identical measures to help them implement these goals.

In Burundi, the priority was identified as adjusting hydro electrical production to align with successive growth of the Burundian economy.³⁵ Measures that should be taken include supporting facilities that use renewable energy sources. The country should also educate and inform more about climate change risks as well as support the institutions in defining adaptation priorities. Moreover, there should be strengthening of the competences and capacities of actors in order to act upon adaptive measures more efficiently, especially women and farmers.³⁶

In Uganda, some of the priority adaptation actions, related to energy sectors, were as follows: increasing

²⁸ Adaptation Committee: Institutional arrangements for national adaptation planning and implementation. 2014 Thematic Report.

²⁹ *ibid*

³⁰ East African Community: EAC Climate Change Policy. May 2010

³¹ NAPA Rwanda. December 2006

³² United Republic of Tanzania: National Adaptation Programme of Action (NAPA). January 2007

³³ République Du Burundi: National Adaptation Plan of Action to Climate Change (NAPA). January 2007

³⁴ *supra* note 7

³⁵ Intended Nationally Determined Contribution (INDC) / Burundi. September 2015

³⁶ *ibid*

the efficiency in the use of biomass in the traditional energy sector, promoting renewable energy and other energy sources, and climate proofing investments in electricity power sector.³⁷ In order to do so, Uganda needs to promote renewable energies and energy efficiency, in addition to involving the private sector in the process to ensure efficiency. Moreover, Uganda should improve legislation and national policies of adaptation, as well as spread awareness by also integrating climate change risks' topic in the educational programs.³⁸

With regard to Tanzania, some of its energy intended contributions were as follows: exploring and investing in energy diversification system, and enhancing the use of renewable energy potential across the country (hydro, solar, wind, biomass and geothermal).³⁹ In order for Tanzania to be able to implement these actions it needs to receive support from the international community, especially technological and financial support. Similarly, Kenya requires international support for the fact that its mitigation and adaptation contributions require billions of dollars.⁴⁰

Recommendations

Relevant implementation remains the critical step in the process post-Paris. With climate negotiations aiming at the creation of some national and regional policies and measures concerning adaptation, the key factor to success is embedded in the ability to implement these agreements and

plans of action relevantly and sustainably.

To start off, the allocation of funds to adaptation (and mitigation) goals should be ensured. In order to do so, effective systems should be created with the aim of ensuring transparency and accountability.⁴¹ These systems' priority should be making sure that first, funds reach the priority areas/projects/stakeholders; and second, funds must be employed efficiently. The systems should engage policy experts, especially in the context of energy challenges. This in turn should facilitate the whole implementation process.

In most cases, funds provided to developing countries and LDCs tend to be employed inefficiently. This is mainly attributed to the lack of transparency, as well as the lack of knowledge and experience in these domains, aside from governmental corruption. Therefore, it is essential to target human capacities and to build efficient human capital that is able to deal with such challenges and find relevant ways in employing adaptation solutions. Scientific research and progress constantly provide innovations in the context of energy and renewable energy resources. Hence, institutional bodies in Partner States should be always updated about what is possible in terms of means of implementation (i.e. technology in this case), in order to benefit from these innovations through transfer of technologies to their countries.

Furthermore, ensuring the coherence and effectiveness in policy implementation requires monitoring, evaluation, and reporting at national, regional and international levels.⁴² This in turn makes policy implementation smoother and more efficient given the fact that Partner States would be

³⁷ Ministry of Water and Environment: Uganda's Intended Nationally Determined Contribution (INDC). October 2015

³⁸ *ibid*

³⁹ United Republic of Tanzania: Intended Nationally Determined Contribution (INDC)

⁴⁰ Ministry of Environment and Natural Resources: Kenya's Intended Nationally Determined Contribution (INDC). 23 July 2015.

⁴¹ *supra* note 33

⁴² *ibid*

obliged to report on their work progress in international forums and meetings. With a lot of political corruption and bureaucratic procedures in developing countries and LDCs, it is essential for the EAC Secretariat, the governments, along with the UNFCCC to develop guidelines for the establishment of Climate Change responsive monitoring and evaluation mechanisms.⁴³

References

Adaptation Committee: Institutional arrangements for national adaptation planning and implementation. 2014 Thematic Report.

CIGI Special Report: Climate Change in Africa: Adaptation, Mitigation and Governance

Challenges. Edited by Hany Besada and Nelson Sewankambo

Kammen Daniel, Jacome Veronica, and Avila Nkiruka. "A Clean Energy Vision for East Africa: Planning for Sustainability, Reducing Climate Risks and Increasing Energy Access", March 2015.

East African Community Climate Change Master Plan 2011 – 2031. September 2011

East African Community: EAC Climate Change Policy. May 2010

East African Community: EAC Position On Climate Change Negotiations

Intended Nationally Determined Contribution (INDC) / Burundi. September 2015

Karekez Stephen, Kimani John, Onguru Oscar, and Kithyoma Waeni. "Energy Security and Adaptation to Climate Change in East Africa and the Horn of Africa: Large Scale Hydropower vs. Decentralized Renewables." Heinrich Böll Stiftung East & Horn of Africa. N.p., Aug. 2012. Web. 20 June 2016.

Ministry of Environment and Natural Resources: Kenya's Intended Nationally Determined

Contribution (INDC). 23 July 2015.

Ministry of Water and Environment: Uganda's Intended Nationally Determined Contribution (INDC). October 2015

NAPA Rwanda. December 2006

République Du Burundi: National Adaptation Plan of Action to Climate Change (NAPA). January 2007

United Republic of Tanzania: Intended Nationally Determined Contribution (INDC)

United Republic of Tanzania: National Adaptation Programme of Action (NAPA). January 2007

Online Resources

Africa's Adaptation Gap. Technical Report: Climate-change impacts, adaptation challenges and costs for Africa. www.unep.org/roa/amcen

Climate change adaptation can help promote sub-Saharan African livelihoods – UN report. 13 August 2014. <http://www.un.org/climatechange/blog/2014/08/climate-change-adaptation-can-help-promote-sub-saharan-african-livelihoods-un-report/>

East African Community Climate Change Policy: www.eac.int

Economics of Climate Change in East Africa: SEI News <https://www.sei-international.org/projects?prid=1586>

Policy Update #16: The UNFCCC National Adaptation Planning Model: A Foundation for Fulfilling Post-2015 Commitments? Part I: <http://sd.iisd.org/policy-updates/the-unfccc-national-adaptation-planning-model-a-foundation-for-fulfilling-post-2015-commitments/>

<http://www.bloomberg.com/news/articles/2012-11-16/kenya-electricity-hydro-power-generation-to-fall-to-45-in-2014>

https://energypedia.info/wiki/Uganda_Energy_Situation

http://unfccc.int/adaptation/groups_committees/adaptation_committee/items/6053.php

http://unfccc.int/adaptation/groups_committees/ldc_expert_group/items/4727.php

http://unfccc.int/adaptation/groups_committees/loss_and_damage_executive_committee/items/7543.php

<http://bigpicture.unfccc.int/#content-the-paris-agreement>

<http://newsroom.unfccc.int/unfccc-newsroom/bonn-may-2016-closing-press-release/>

⁴³ ibid



CUTS International, Geneva

CUTS International, Geneva is a non-profit NGO that catalyses the pro-trade, pro-equity voices of the Global South in international trade and development debates in Geneva. We and our sister CUTS organizations in India, Kenya, Zambia, Vietnam, and Ghana have made our footprints in the realm of economic governance across the developing world.

© 2016. CUTS International, Geneva.

This note is authored by Houssam Wazzan. CUTS briefing papers are to inform, educate and provoke debate on specific issues. Readers are encouraged to quote or reproduce material from this paper for their own use, provided due acknowledgement of the source is made.

37-39, Rue de Vermont, 1202 Geneva, Switzerland

geneva@cuts.org • www.cuts-geneva.org

Ph: +41 (0) 22 734 60 80 | Fax:+41 (0) 22 734 39 14 | Skype: cuts.grc

PROMOTING AGRICULTURE, CLIMATE AND TRADE LINKAGES IN THE EAST AFRICAN COMMUNITY – PHASE 2

The PACT EAC2 project builds capacities of East African stakeholders for climate-aware, trade-driven and food security-enhancing agro-processing in their region. Web: www.cuts-geneva.org/pacteac2



The PACT EAC2 project is undertaken with funding support from the Swedish International Development Cooperation Agency (Sida).