Policy Brief

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Foreword by William Lyakurwa, *AERC Executive Director*

Climate Change and Economic Development in Sub-Saharan Africa

The ninth African Economic Research Consortium (AERC) senior policy seminar, held in Yaoundé, Cameroon, in March 2007, identified the impact of climate change on economic development in Africa as a top priority for further policy-oriented research. Taking up this challenge, AERC organized its tenth senior policy seminar around the theme, *Climate Change and Economic Development in Sub-Saharan Africa.*

Held in Addis Ababa, Ethiopia, in April 2008, Senior Policy Seminar X attracted 80 participants from 21 countries. Africa's leading continental economic organization the United Nations Economic Commission for Africa (UNECA) joined AERC in hosting the event. Senior government officials in attendance included top African policy makers and advisors, scholars, resource persons, and directors of various research institutes. Six full ministers and two assistant ministers in relevant policy areas attended. The seminar was described by many participants as an "eye-opener" in getting them to focus on climate change issues, thereby achieving its aim to sensitize policy makers to the huge impact climate change will have.

The issue is urgent because 2009 marks a crucial period for negotiating the future framework for all of the world's economies to mitigate or adapt to climate change. In this context, SSA governments need to step up their contribution to the debate and the negotiations. Most existing analyses of climate change impact tend to rely on other countries and regions, which have more reliable data and models, and have therefore analysed the potential impact of climate change for themselves. Very little analysis or forecasting has focused on Africa, even though it is likely, as a result of its geography, geology and poverty, to suffer the most from the impact of climate change. Ironically, Africa has contributed the least to the phenomenon. A key contribution of the seminar was to identify the top priorities for analysis to support African policy makers in raising a louder African voice in the climate change negotiations leading up to Copenhagen at the end of 2009.

Senior policy seminars are annual forums convened by AERC to provide high level African policy makers with the opportunity to come together to learn about the results of AERC and other research, exchange policy experiences with each other, and interact with AERC researchers. Importantly, they are also a vehicle for defining future policy research needs. Each seminar features the presentation and discussion of several papers related to a chosen policy theme. From these, this policy brief is distilled to transmit key messages to policy makers. This brief, along with the full seminar report and a volume containing the seminar papers, is being published and shared widely with policy makers to inform policy decisions, and within the AERC network to encourage researchers to respond to the key policy issues raised by the participants. The publications will also be available on the AERC website: www.aercafrica.org.

Introduction

Climate change induced by global warming is already having a fundamental impact on sub-Saharan Africa's development prospects, yet few African countries are prepared for or even aware of the potential consequences. Since 2009 is a crucial year for discussions on actions to help African countries to mitigate against or adapt to climate change, the theme of this seminar intended to provide insights into ways that maximize equitable national development.

AERC researchers approached the issues from four perspectives with papers organized around the following themes:

- Climate Change and Economic Development – Issues, Challenges and Opportunities
- Food Security and Sustainable Agriculture
- Impact on Africa's Trade and Competitiveness
- Assessment of Climate Risk

"Africa must reinforce its research to strengthen its voice in global climate change negotiations."

Thereafter, participants summarized the policy lessons of the seminar in terms of:

- The impact of climate change on development
- Lessons learned from other parts of the world
- Opportunities and challenges presented by climate change
- Strategies and policy options for managing the impact of climate change
- Policy relevant research issues

Welcoming the participants, Prof. William Lyakurwa, Executive Director of AERC, asked policy makers to spell out a proactive stance, at a time when the international community was preparing to arrive at a global consensus on managing climate change, and highlighted the role the SPS could play in increasing regional and national awareness among policy makers on climate change. Ms. Lalla Ben Barka, Deputy Executive Secretary of UNECA, underlined the importance of climate change to African countries, congratulated AERC for mainstreaming climate change into its research agenda, and described the work of UNECA's Climate Policy Centre in building capacity of African policy makers to participate in international discussions.

"Climate change could reverse five decades of Africa's development efforts."

In the official opening address, Dr. Louis Kasekende, Chief Economist of the African Development Bank, emphasized the need for a strong African voice in international negotiations on climate change, an area in which Africa's two key economic continental bodies and its researchers – coordinated by AERC – need to collaborate closely. He emphasized that Africa could gain or lose from climate change, and that if losses outweigh gains, Africa's people will be at risk. The direct and indirect impacts of climate change threaten to reverse decades of African development efforts, and Africa must ensure that it contains the losses to a minimum level (1% of GDP) rather than the maximum (20%).

"We need African research to show how climate change is already derailing Africa's development – and what can be done about it."

Climate Change - Issues, Challenges and Opportunities

The keynote presentation was given by Prof. Richard S. Odingo, Vice Chair of the UN Intergovernmental Panel on Climate Change (IPCC). He focused on the ramifications of human activity in inducing the global warming that is propelling climate change. Research by IPCC and others has shown that climate change is largely man-made, and results from the concentration of what are called greenhouse gases in the Earth's atmosphere. Because of its low level of industrialization, Africa's contribution to the phenomenon is minimal.

Climate change is already provoking more extreme weather events (high and low temperatures, more frequent droughts and floods) in Africa. Future warming is very likely to accelerate, bringing rising sea levels and more extreme temperatures and weather shocks such as cyclones. The impact will continue for centuries even if greenhouse gas emissions are stabilized. Up to 250 million Africans will suffer from reduced water resources and crop production. Destruction of mangroves and coral reefs will reduce fisheries and tourism earnings. Coastal cities and infrastructure will be vulnerable to rising sea levels, deforestation and forest fires will undermine forest ecosystems, and ice caps on Africa's mountains could disappear. Health will also be hit, as a result of water-borne diseases and the spread of malaria to highland areas.

Africa's leaders need to undertake common sense mitigation measures, without waiting for the Western world to fulfil promises made in 1992. The top priority should be to develop coping strategies to adapt to climate change, including technology, education, information, skills, infrastructure, access to resources and management capabilities.

Policy makers concluded in this session that Africa should:

- Integrate climate change into the development plans of all ministries, reflecting its economy-wide impact.
- Maximize the value placed on its forest ecosystems by the international community, to make sure that it does not have to compromise its economic development to save them.
- Link anti-climate change policies with anti-poverty policies, because the poor are most likely to be affected.
- Use carbon capture and storage technology where carbon-based energy is essential.

"Africa's leaders need to act now, not wait for the Western world to fulfil its promises."

Food Security and Sustainable Agriculture

In terms of food security and sustainable agriculture, the cost of action or inaction against climate change can be simulated through country-level models adapted to each agro-ecological zone's land resources and farming systems. These models have shown that:

- Biofuels production in Central Africa – the world's second largest forested area – and elsewhere will deplete forest cover, reduce food production and result in greater import dependence.
- Africa's combined carbon emissions will not match those of the US in the next 50 years.
- Only about a quarter of the African continent is arable land, meaning that priority needs to be given to increasing yield per hectare.

"Biofuels will deplete forests, cut food production and increase import dependence."

Africa's top priority should be adaptation, because it does not have the financial resources necessary to prioritize mitigation. Africa will be worst affected by climate change and needs to do much work using IPCC and other tools to calculate the impact of climate change on development and to estimate the costs of adaptation measures.

Policy recommendations that stemmed from the deliberations included:

- Analyse thoroughly the climate change and poverty impact of selling land to multinational companies for production of biofuels.
- Develop an Africa-wide energy use database and models.
- Develop an Africa-specific model to estimate costs of climate change and mitigation and adaptation measures, as well as to forecast climate developments.
- Establish meteorological infrastructure to monitor climate change.
- Ensure that women, who are the principal food producers have the knowledge, training, tools, technology and rights to do that job more effectively.
- Analyse the impact of climate change on water availability for livestock and game.
- Accelerate efforts to be food self-reliant, notably by enhancing extension services and improving agricultural technology.
- Consult agricultural and food producers about all aspects of adaptation.
- Build human capacity in all these areas of monitoring, analysis and policy design, and where necessary establish new institutions to give the issue priority.

"We must invest in building our capacity to monitor, analyse and design policies to combat climate change."

Climate Change, Trade and Competitiveness

Sub-Saharan Africa is particularly vulnerable to global warming because it is already rather warm, it relies heavily on agriculture for development and especially the livelihoods of its people, its low incomes make it less able to adapt, and it is subject to multiple other shocks. Temperatures and sea levels are already rising, and rainfall patterns are changing. Climate change could result in a major setback to the achievement of the Millennium Development Goals.

In terms of its impact on trade and competitiveness, climate change is projected to induce crop losses of 18–28%. There are major constraints to adaptation to climate change, including lack of information on its progress, institutional deficiencies, ecosystem degradation, inadequate access to new energy technology, financial constraints and lack of means to estimate adaptation costs to plan effective adaptation strategies.

"Climate change could be a major setback to the Millennium Development Goals."

SSA should therefore push for the expansion of the Clean Development Mechanism to include agricultural practices. It is also imperative for negotiations to provide credit to SSA for being the lowest contributor to climate change, and to analyse the desirability of anti-climate change insurance. Other necessary steps are investment in mass public transportation systems, improved urban planning, reduced consumption of water and electricity through pro-poor pricing, and provision of tax concessions to firms and households for environmental actions. National Adaptation Programmes of Action should focus on bottom-up consultations on livelihoods, as well as on building adaptive capacity, establishing early warning systems, improving water storage, investing in rural infrastructure and marketing institutions, improving physical infrastructure, and constructing defensive structures such as mangrove belts and tree shelterbelts.

The discussions among policy makers recommended that Africa's governments:

- Conduct similar analysis for other key sectors and contributors to livelihoods (such as minerals, petroleum and biofuel), as well as for wider trade competitiveness.
- Ensure that coordinated mechanisms to combat the effect of climate change are in place across all institutions, and that institutions have capacity for early warning and timely response to disasters.
- Foster regional coordination as an essential component in the sharing of water resources, information and best practice.
- Tap into the Clean Development Mechanism, notably renewable energy, to enhance African competitiveness.
- Ensure that trade and investment talks take into account the impact of climate change, notably the comparative emissions of multinationals and local companies.
- Incorporate analyses of climate change policies into budget revenue projections.

"We need to invest in mass public transport systems and improve urban planning."

Assessing Climate Risk

"Drought is the single largest risk."

Most climate change impact analyses are based on non-SSA studies. Drought is the single largest risk, having already quadrupled over the last 25 years. Climate extremes affect around 25% of world gross domestic product (US$3 trillion). At least half of African countries are likely to suffer from significant climate change effects, especially drought. Climate risk management focuses on current pressing issues while factoring in projected changes in climate. To protect themselves against climate risk, countries need to invest in climate information/early warning systems; diversify crops and livelihoods; transfer financial risk through insurance; and develop markets, transportation and storage facilities. Governments should mainstream climate change risk assessment into all aspects of policy planning.

Policy recommendations arising from the ensuing discussions were to:

- Review any actual or planned dependency on coal to avoid excessive emissions.
- Ensure that seasonal data surveys and adjustments take account of climate issues.
- Focus where possible on mitigation as well as adaptation and specifically for agriculture work out detailed, commodity-specific strategies with adequate budgets.

Overall Policy Priorities

"Climate change is already a reality throughout Africa."

At the end of the seminar, policy makers concluded that:

- The ***impact of climate change*** is a reality in all regions of Africa, in terms of sharp reduction and uneven distribution of rainfall, increasing intensity of droughts and floods, temperature rises, and dry winds causing erosion. These are affecting all economic sectors, including tourism, fishing, energy, crop production, livestock, food security, access to safe water, and disease control.
- ***Lessons from other regions*** show the need to mainstream climate change policies – and wider environmental policies – into development plans, as well as to promote popular consultation and private sector participation. Government should be in the lead, held in check by the citizenry, in protecting pro-poor land tenure systems, as well as investing in infrastructure such as crop storage, dams and sea defences. Top priority should be given to developing alternative energy sources, notably solar, wind and hydro energy, given Africa's rich endowment with renewable resources, and to ensuring that the poorest households have access to such sources of energy. Particular attention should be given to vulnerable ecosystems such as mangroves and reefs, as well as to empowering stakeholders to adapt for themselves, based on government-supplied information from early warning systems on future trends.

- Climate change presents several opportunities and many more challenges. The main ***opportunities*** are: gaining income by protecting forests and improving land use; fostering regional integration to share water and power resources; providing an additional spur for long-term planning; developing alternative cheaper and more sustainable energy sources; diversifying and improving the productivity of agriculture; and rationalizing water use.
- On the other hand, the ***challenges*** include lack of funds or political will for dealing with climate change impacts; an additional uncertainty factor in planning; failure to collaborate across sectors or countries; unwillingness to embrace new technologies or to finance their potential high start-up costs; lack of a clear framework for combining environmental sustainability with development and poverty reduction; inadequate knowledge, research and data; and insufficient appreciation of future risks.

"We must maximize our use of renewable energy sources."

In this context, what are the key policy strategies for combating climate change? They include the following:

- Mainstreaming climate change issues into all economic policies and plans.
- Developing weather-resistant crops, improving water and food storage.
- Developing rural infrastructure, irrigation, alternative renewable (solar, wind and hydro) energy sources.
- Encouraging more sustainable transport (mass transit, rail) and other cleaner technology.
- Increasing productivity, value added and regional trade to retain competitiveness.
- Enhancing human resource capacity for monitoring, analysis and policy making.

And what are the key policy research issues? Targeted information is urgently needed on the impact of climate change on African economies, both actual and projected; the key steps and costs for climate change mitigation and adaptation; how to enhance resilience of food crops and agriculture and to ensure greater food self-sufficiency; the management of risk and risk-sharing mechanisms; and the impact of climate change on non-agricultural trade and competitiveness.

"Africa needs much more research to identify key actions (and their costs) to mitigate or adapt to climate change."

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AFRICAN ECONOMIC RESEARCH CONSORTIUM (AERC)
CONSORTIUM POUR LA RECHERCHE ECONOMIQUE EN AFRIQUE

The African Economic Research Consortium (AERC), established in 1988, is a public not-for-profit organization devoted to advanced policy research and training. The principal objective is to strengthen local capacity for conducting independent, rigorous inquiry into problems pertinent to the management of economies in sub-Saharan Africa. In response to special needs of the region, the AERC Research Programme has adopted a flexible approach to improve the technical skills of local researchers, allow for regional determination of research priorities, strengthen national institutions concerned with economic policy research, and facilitate closer ties between researchers and policy makers. The Training Programme augments the pool of economic researchers in sub-Saharan Africa by supporting graduate studies in economics, as well as improving the capacities of departments of economics in local public universities. AERC is supported by donor governments, private foundations and international organizations. Further information concerning AERC and its programmes can be obtained from:

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