

**The Consequences of Inaction:  
Climate Change and the Challenges for  
Rural and Agrarian Policy in Africa**

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## INTRODUCTION

The pervasiveness of an uncontrollable climatic challenge on the human ecosystem at the dawn of the twenty-first century calls for critical reflection on the consequences for Africa's future development. The planet has been getting warmer. For instance, the surface air temperature records from meteorological stations around the world show a warming trend over the last century. The evidence of a changing climate described in the fourth assessment report of the Intergovernmental Panel on Climate Change (IPCC) reveals the reality of climate change and its influence on our ecological system.<sup>1</sup> Given the prediction of continuous global warming, there is consensus that the effects of global climate change will hit Africa the hardest relative to other regions despite the continent's modest contribution to atmospheric concentration of greenhouse gases.

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This paper seeks to lay out the nature of the challenges facing not only communities but also policy makers across the continent, as a result of climate change and its associated environmental consequences. The paper is largely descriptive, as it seeks to give an outline of the potential and real threats facing Africa. However, the paper also highlights a number of practical policy implications and ideas to inform responses by policy makers at national state level as well as at the supra-national level on the continent.

## CHALLENGES POSED BY CLIMATE CHANGE

The African Union and its subsidiary bodies have acknowledged that climate change and its impacts constitute a pressing policy priority. For most African states the road to the fifteenth Conference of the Parties (COP-15) of the United Nations Framework Convention on Climate Change (UNFCCC) in Copenhagen in December is paved with ambitious short and long-term goals about mitigating greenhouse gas emissions (GHG) and promoting adaptation to climate change. For Africa, the challenges deriving from climate change are being compounded by the continent's environment being hugely vulnerable to climatic constraints which constitute a major force in the development of the continent's vegetation, agriculture and economy in general. Many of Africa's economies depend on semi-subsistence rain fed agriculture which accounts for 20% of the continent's gross domestic product (GDP), employing almost 70% of the total labour force and is the main source of livelihood. Though over 90% of farms are less than 5 hectares in size, these small-scale and rain-dependent farms account for over 80% of agricultural production and support the food and fibre needs of about 700 million people on the continent. Anticipated temperature and precipitation changes will therefore have far-reaching effects on agriculture, farm profitability, land use patterns, food security and patterns of trade, regional comparative advantage and development in general. The

consequences of climate change are therefore likely to be severe for a continent much of whose livelihood revolves around farming and the countryside. Agricultural productivity improvements have been a major driving force of social and economic change in human societies for millennia. The traditional production of crops and livestock fulfilled household requirements for food, fibre, fuel, medicine and other essential consumables.

Worrisome is that agricultural productivity growth in Africa during the past 40 years has not kept pace with population growth. Cereal yields on the continent have stagnated at about 1 metric ton per hectare over this period, while in East Asia cereal yields increased more than fourfold. The per capita growth rate of agricultural GDP in Africa was negative during the 1980s and 1990s, though improvements were observed in early 2000. Production growth of the major food crops, especially for maize and root crops, is based almost entirely on extending the cultivated area, with only minor contributions from growth in yield per hectare. Poor infrastructure, high transport costs, inadequate institutional support, political instability, diverse agro-ecological complexities, limited availability of suitable high-yielding varieties and low fertilizer use have all contributed to the observed low agricultural productivity. Climate variation is one stress among many that affects the continent's agro-ecosystems. Projected climate change is certain to compound the stress and affect the continent's agriculture through bio-physical alterations in the agro-ecosystem and through social and economic changes at farm, region, national and continental levels. The current challenge for policy in a changing climate scenario is thus to create a framework for accommodating associated impacts including community vulnerabilities, adaptation strategies and capacity in the context of multiple stresses caused by climate change.<sup>2</sup>

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Global warming and climate change not only reinforces existing constraints for producer groups on the continent, but also present new challenges that are likely to create shocks and stresses for primary economic sectors which are highly dependent on environmental conditions that are in turn sensitive to changes in climatic conditions.<sup>3</sup> The impacts and consequences of climate change differ across countries.<sup>4</sup> For instance the cooler countries such as Egypt, South Africa, Zambia, and Zimbabwe are likely to suffer from livestock losses and therefore loss of beef cattle due to warmer temperatures. Irrigated crops in currently hot regions such as Ethiopia and West Africa will suffer from global warming, whereas irrigated crops in the Nile Delta and the Kenyan highlands will benefit. However, some effects are fairly universal. Dryland crops in all countries throughout Africa will be damaged by any warming. Estimates suggest that the marginal impact of precipitation is mostly beneficial, compared with that of warming, and that livestock and irrigated farms will mostly benefit from rising precipitation and lose from declining precipitation. With 70% employed in

the agriculture sector, livelihood - the capabilities and assets, including both material and social resources, and activities required for livelihood - will be affected.

On the whole, decreasing average annual and seasonal rainfall will be a serious problem in many regions, reinforced by more sudden heat waves, droughts, storms and floods across the continent.<sup>5</sup> Changes in rainfall and intensified land use are known to exacerbate the desertification process, particularly in the Western Sahel and Northern and Southern Africa. Projected increase in droughts, floods and other extreme events would add to stress not only on water resources, food security, human health, but on infrastructure as well. This will constrain development. Any further strain on agriculture and rural areas may in turn have important implications for domestic investment, resource allocation and overall government policy. And profound consequences on the general economy will be heightened when the frequency of events such as floods and droughts exceed the range of current normal risk management, markedly affecting revenues from production and cost to consumers.<sup>6</sup>

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With climate change already occurring, communities face the impending challenge of reducing the risk and damage it is causing. However, a plethora of factors account for low adaptive capacity in African farms and rural households such as low incomes and inequitable land distribution, absence of formal social safety nets and dependence on rain-fed agriculture. While agriculturists will be grappling with direct effects on their farm harvest, the attendant sea level rise will affect coastal settlements, causing flooding and coastal erosion, especially along the eastern southern African coast. For instance more than one quarter of Africa's population lives within 100 kilometres of the coast and most of the continent's largest cities are situated along coastlines that are vulnerable to sea level rise, coastal erosion and extreme environmental events.<sup>7</sup> In addition, major rivers are highly sensitive to climate variations and may experience decreases in water run-off, affecting agriculture and hydropower systems, which may increase cross boundary tensions. Adaptive capacity will therefore depend not only on addressing income and employment constraints but also on the degree of civil order, political openness and sound agro-economic management.

## **AGRARIAN POLICIES IN THE CONTEXT OF CLIMATE CHANGE**

After independence, most African states pledged to prioritise agriculture in their development agendas. However, decades on, following increased exploitation of mineral resources, agriculture was relegated to the lower rung of priorities until the mid 1980s when commodity prices declined and the scars of food insecurity became apparent. Despite its overwhelming socioeconomic and

political importance, agriculture struggles to recover and has not regained its pride of place beyond lip-service in policy circles. This is in spite of the recent food and financial crises that led to civil disturbances in many states across the continent. Even in the midst of crude oil and mineral booms, agriculture still remains the most important rural household enterprise across the continent. Rural food processing and marketing which depend on agricultural growth is responsible for almost 10% of national incomes and about 30% of rural incomes.

Contemporary challenges to agriculture and rural areas call for the development of an integrated vision on agriculture and development, strengthening the governance of the agricultural sector, improving rural productivity, accessing remunerative markets, managing the natural resource base in a sustainable manner and reducing vulnerabilities to diverse risks. Encouraging the diversification of the rural economy and promoting agrarian development in many countries on the continent will entail dealing with low levels of agricultural productivity, environmental degradation, rapid population growth, poor rural infrastructure, lack of access to markets and market information, low levels of investment in people, ethnic and tribal conflicts, inappropriate economic policies, and the adverse effects of globalization.

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Planned interventions designed to stimulate socioeconomic change and better rural livelihoods, either by focusing on agriculture, mining, forestry and fishery or on local characteristics and assets, can contribute to rural well-being and other stakeholders in the phenomenon of climate change. Rural development is a sine qua non for agricultural development<sup>8</sup>. Rural development would facilitate agricultural production through the provision and efficient workings of basic production infrastructures in the rural areas. Also, improved agricultural productivity would lead to the development of rural areas through improved income generation and better living standards for communities. It is therefore very important to consider ways of developing the rural areas, both farm and non-farm sectors.

While climate change will bring about the interaction of the human, ecology and atmospheric systems, it will also bring about a potentially significant development challenge to African states<sup>9</sup>. The nature and extent of the weather and climate related stresses already affecting vulnerable populations (i.e. crop losses, displacement, and lack of access to clean water) will become more severe in the future. Both the level of risk faced by vulnerable populations, and the number of people at risk, will grow if no proactive capacity building to respond to these additional stressors takes place. Therefore development policy will have to pay attention to specific vulnerabilities associated with the sensitivity of particular populations to climate impacts that may not have been on the agenda in the past. These include taking care of people living in coastal

areas, lowlands, drought, and flood prone regions or people whose livelihoods directly depend on resources that are going to be negatively affected by climate change. Although policymakers often approach the former through risk management, addressing the underlying conditions of existing vulnerabilities has proven to be much harder for development practitioners.

The impact of climate change on the agricultural sector and associated systems may reverberate throughout the economy. Governments may be confronted by increased expenditure on social welfare, health, distribution and consumption related subsidies on food production. Associated budgetary and foreign exchange pressures because of a potential reduction in export revenues and increased food imports, would have to be met either by raising additional financing or reallocating planned government expenditures. Additional finances may have to come from borrowing, increased taxes and charges for publicly provided goods and services. The impact of these on the countryside and civil society will be daunting.

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***Critical to the success of any supra-continental effort is a thorough and comprehensive strategic planning process that builds on consensus among regional level planners, national stakeholders and frontline communities, to create a unified vision on climate change adaptation.***

The African Union (AU) may need to intervene at national level in terms of efforts towards adaptation. However, critical to the success of any supra-continental effort is a thorough and comprehensive strategic planning process that builds on consensus among regional level planners, national stakeholders and frontline communities, to create a unified vision on climate change adaptation. While the New Economic Partnership for Africa's Development (NEPAD) acknowledges that agriculture is the key sector in the development agenda through the pillars of land and water management, other challenges such as rural infrastructure and market access; increasing food supply and reducing hunger; and promoting agricultural research, technology dissemination and adoption<sup>10</sup> will be difficult to deal with. Though the Comprehensive African Agriculture Development Program (CAADP) the primary vehicle for driving NEPAD's vision for agriculture, views agricultural and rural development issues as being intertwined, the primary conceptual weakness in the current NEPAD framework and its action plans, is the lack of a household livelihoods perspective.

A household level perspective - with an understanding of how households make decisions within constraints and opportunities imposed by the conditions of local and national economies, - allows for more integrated and knowledgeable approaches to be taken to address development challenges. The nucleus of the impact of climate change is on rural households which are subject to insufficient endowments and accumulation of assets. The livelihoods perspective provides a sound perspective of how rural households survive against vulnerability and risk. It allows vulnerability to be assessed by linking the local with the national, regional and global scales of mutual influence.<sup>11</sup> It provides a tool to understand

both the structural factors that impact on poverty, as well as individual patterns of behaviour, strategies of asset accumulation and use at the household level that also contribute to sustaining a livelihood. The household is an important unit when formulating macro-policies that have a bearing on livelihood strategies. Households are also more likely to provide pointers of which strategies or macro-policies work and which do not, and how social exclusion manifests through the different layers of the economy.

## NEW PERSPECTIVES AND RURAL POLICY OUTCOMES

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There is no doubt that Africa faces significant ecological risks if the global community fails to adopt measures to mitigate global warming. Households across the continent could face severe socioeconomic risks if they in turn fail to adapt to the consequences of climate change. Many of these risks are gradual and naturally linked to current variability of climate, with agriculture and coastal areas of the continent more especially at risk. Feeding Africa's growing population - which is growing at almost 3% per annum particularly in coastal towns and cities - can be met by promoting effective adaptation strategies through a comprehensive integrated rural agrarian development strategy that upholds the knowledge systems of frontline communities. The participation of frontline communities will put into sharp relief the importance of institutional and governance arrangements, and the roles of livelihoods, power and politics in promoting adaptation. The fundamental link of grassroots adaptation to sustainable development efforts<sup>12</sup> was the basis of the founding prescriptions of COP-1<sup>1</sup> in Berlin in 1995, to adopt Decision 11/CP.1 on adaptation. The Decision prescribed approaching adaptation in three stages: Stage I - Planning, which includes studies of possible impacts of climate change, to identifying particularly vulnerable countries or regions and policy options for adaptation and appropriate capacity building; Stage II - Measures, including further capacity building, which may be taken to prepare for adaptation; and Stage III - Measures to facilitate adequate adaptation, including insurance and other adaptation measures. These stages of promoting adaptation will find room in a well thought-out comprehensive integrated rural agrarian development strategy.

Even in the face of uncertainty to projected warming, given what we already know from current climate variation, some plausible questions in policy circles in and out of the continent still need to be posed: do observed effects provide information about adaptation and vulnerability to climate change? Are impacts of observed climate trends prevalent across diverse systems, multiple sectors, and geographic regions? Providing answers to these questions will require that

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<sup>1</sup> Conference of the Parties of United Nations Framework Convention on Climate Change; first session held in Berlin

regional economic agencies, partners and national authorities unite on policy objectives that identify climate-sensitive sectors, promote institutions that provide guidance on the use of tools and techniques in impact assessments and provide generic guidance on climate risks, promote resilience of physical and biological systems, reinforce human systems through food security, health, water resources, contain sea-level rise, promote better coastal zone and urban areas management.

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***Adaptation provides both a revolutionary frontier on which grassroots participation must begin to influence national policies and the primacy of not only involving frontline local communities but also building on their indigenous perennial effort in adapting to changing climate.***

The persistent disconnect between community needs and the policy process has been the Achilles heel of many African rural agrarian development approaches. Extension service efforts have, for instance, usually been top-down from the national or regional authorities, regional development agencies, NGOs or international development organizations. Adaptation provides both a revolutionary frontier on which grassroots participation must begin to influence national policies and the primacy of not only involving frontline local communities but also building on their indigenous perennial effort in adapting to changing climate. Rural adaptation must therefore be the focus of any adaptation policy since it provides a framework to focus on most vulnerable people, assess their vulnerabilities and strengths, bolster existing knowledge, enable community-driven strategies and action; ensure buy-in and longevity, all in a bid to fortify households against climate-related shocks. This will require that existence of local coping strategies and hard-won lessons from other non-climate challenges such as sustainable livelihoods, disaster mitigation, and natural resource management be employed to widen the scope for adaptation and diversify co-benefits. Therefore, policy outcomes should include the identification of the most vulnerable groups; articulation of unique local vulnerabilities, identification of locally-relevant resilience-building options, enhancement of micro- and macro-level enabling conditions for adaptation, building local adaptation awareness and engaging local stakeholders who are the potential implementers of any adaptation project.

The vision and strategic direction for climate policy for African states needs to deviate from the business-as-usual approach which leaves out vulnerable groups in planning, and rather begin to identify and describe communities' vulnerability to climate change, prioritise adaptation interventions, while identifying what is to drive them and how they are to be monitored. A sustainable climate policy would require an interface with national agriculture development plans, water policy and water management plans, coastal zone management programmes, national biodiversity action plans and sustainable environmental management programmes. This interface includes intensification of food-crop production by smallholders through better access to improved seed, fertilizer and water; water harvesting including the sustainable extraction of groundwater and other underutilized water resources; conservation farming

and improved water use efficiency; shifts towards crop varieties and livestock breeds with greater drought and heat tolerance, and improved pest and disease resistance; enterprise diversification towards higher value crops, value-adding and off-farm employment; agro-forestry and tree crops that can also help mitigate the effects of climate change through carbon sequestration; grain storage improvements, from household to national levels, to ensure security of carry-over stocks and access to surpluses; attending to the peculiarities of women producers;<sup>13</sup> weather forecasting and provision of timely advice to farmers; and weather-related crop and livestock insurance.

The key is thus to make adaptation an integral component of the regional and national risk management strategies. There are already lessons on the ground as we experience a foretaste of that risk through climate variability. Most countries on the continent already have policies and plans to manage human health risks, agricultural risks, financial risks, risks in the transport sector and energy supply risks. Recognising that climate change is a significant impediment to successful economic development, climate change and variability would have to be added to that portfolio of risks. This indicates that risks will have to be managed in an integrated manner - through adaptation. National development plans and sectoral plans will have to include adaptation measures that ensure risks are reduced to acceptable levels. To aid policy making, research units must continue to quantify and characterize the risks and costs of climate variability, and recommend methods to adapt in ways that reduce them.<sup>14</sup> Extension services will have to inform all groups and sectors of these risks and costs, their origins and practical ways to reduce them in a transparent and consultative manner.

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A new, comprehensive and integrated rural agrarian development strategy is needed not only to advance adaptation and empower all stakeholders, but also to utilise international understanding and cooperation. Areas for lesson-learning, peer review and cooperation among African states will be on agriculture development strategies; exchange of national experiences on sector governance to harmonise regional and continental policy. In order to attain many of these rural welfare goals, CAADP would do well to promote harmonisation, monitor policy undertakings and conduct peer reviews. There are also avenues for possible cooperation in research, knowledge systems and dissemination by strengthening cross-country collaboration in research to reduce fragmentation and create synergies. Also important is trade facilitation via quality assurance and improvement of infrastructure. Risk management and assistance in disaster preparedness strategy formulation at various geographical levels, including exchanging information on lessons learned, will require supra-national level capacity building in using market-based price risk management

instruments<sup>15</sup> and development and application of regional early warning systems which are linked to national ones.

## CONCLUSION

Africa's vulnerability to climate change hinges on the continent's high dependence on agriculture which is characterised by low investment, limited surface water availability, and poor soil quality that forces marginal areas out of agricultural production. Correcting the emerging challenges posed by climate change would demand a redefinition of policy, plans and implementation on the continent. There is a need for policy shifts to maintain human security and enhance levels of social and economic development and a review of approaches employed by the public sector in enforcing mitigation and reinforcing adaptation to climate change. Empowering rural areas to recover from the stresses and shocks of climate change and to maintain or enhance their adaptive capabilities will require policy making processes that incorporate improved governance and accountable decision making. This will also entail the mainstreaming of climate change issues into planning processes, empowering vulnerable communities and other stake-holders with climate relevant and good quality information.

The development of community-led adaptation strategies should reflect the dynamics of peoples' livelihoods, especially their efforts to reduce the vulnerabilities they face and to strengthen their resilience. This can only be achieved where adaptation is seen as a process that is itself adaptive and flexible to address the locally specific and changing circumstances that are the reality of the lives of rural agrarian producers. Adaptation should also not be seen in isolation. It must be mainstreamed into wider developmental and other processes rather than being separated into special measures funded separately and executed by separate agencies. All of these measures will remain important for the foreseeable future, not only because of the long residency time for greenhouse gases and the potential for reinforcing extreme climatic events now and in the near future, but also because of the moral imperative for public policy to incorporate vulnerability to climate change for development with a humane face.

## ENDNOTES

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