Ecological Economics 141 (2017) 190–201

Contents lists available at ScienceDirect

Ecological Economics

journal homepage: www.elsevier.com/locate/ecolecon

Analysis

Managing Climate Change Risks in Africa - A Global Perspective

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ARTICLE INFO

Article history:
Received 31 July 2016
Received in revised form 17 April 2017
Accepted 7 June 2017
Available online 23 June 2017

Keywords:
Managing climate change risks
Adaptation
Africa

ABSTRACT

Africa is projected to experience diverse and severe impacts of climate change. The need to adapt is increasingly recognized, from the community level to regional and national governments to the donor community, yet adaptation faces many constraints, particularly in low income settings. This study documents and examines the challenges facing adaptation in Africa, drawing upon semi-structured interviews (n = 337) with stakeholders including high-level stakeholders, continent-wide and across scales: in national government and UN agencies, academia, donors, non-governmental organizations, farmers and extension officers. Four key concerns about adaptation emerge: i) Climate data, scenarios and impacts models are insufficient for supporting adaptation, particularly as they relate to food systems and rural livelihoods; ii) The adaptation response to-date has been limited, fragmented, divorced from national planning processes, and with limited engagement with local expertise; iii) Adaptation policies and programs are too narrowly focused on explicit responses to climate change rather than responses to climate variability or broader development issues; and iv) Adaptation finance is insufficient, and procedures for accessing it present challenges to governments capacities. As a response to these concerns, we propose the 4-Cs framework which places adaptation for Africa at the center of climate projections, climate education, climate governance and climate finance, with corresponding responsibilities for government and non-government actors.

1. Introduction

Africa is believed to be the continent most vulnerable to climate change impacts (Carabine et al., 2014; Niang et al., 2014; Porter et al., 2014). Water and food systems, public health, and agricultural livelihoods are projected to be severely disrupted by climate change, including enhanced drought, sea level rise, changes in the incidence and prevalence of vector-borne diseases, changes in the ranges and yields of food and non-food crops, and more frequent occurrence of extreme climate driven bio-economic events. These projected changes are expected to exacerbate already high levels of food and water insecurity, poverty, and poor health, and undermine economic development (Dasgupta et al., 2014; Murray and Ebi, 2012; World Bank, 2010). Adaptation will have to be a priority for climate policy on the continent this century, where 'adaptation' refers to efforts across scales to build resilience and reduce vulnerability to the impacts of climate change.

There is now a rapidly developing body of literature on adaptation taking place at household and community levels in Africa (Dube and

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http://dx.doi.org/10.1016/j.ecolecon.2017.06.004
0921-8009/

Sekhwela, 2008) (Dabi et al., 2008; Ensor and Berger, 2009; Osman-Elasha et al., 2008; Wellard et al., 2012). The responses of farmers and communities to climate impacts, supported by the actions of civil society and international development organizations, are illustrative of significant capacity for innovation to climate impacts at local to regional levels in Africa. Yet there are cogent arguments (see Morton et al., 2014) that the scale and rate of climate change will exceed the capacity of African farmers to adapt through their own skills and knowledge alone. These arguments are compounded by demographic changes, with the population of Africa estimated to increase from 1.2 billion to 2.4 billion in 2050, and the continent must greatly increase food production (as well as addressing losses at harvest or post-harvest - (FAO, 2014; Hodges et al., 2014) to respond to an era of rapid climate change (FAO, 2014). There is an urgent need for science to support adaptation decision making across scales in view of the difficulty and uncertainty that is associated with agricultural productivity and food security in Africa (Lobell et al., 2008). While the challenge of adaptation for Africa is formidable, the need to adapt is increasingly recognized, from the community level through regional and national government levels to the donor community (Bizikova et al., 2015; De Souza et al., 2015; Lwasa, 2015; Stringer et al., 2014; Stringer et al., 2009). If adaptation is to gain traction, it will need co-ordination, leadership, and recognition of the need to adapt (Moss et al., 2013; Sherman and Ford, 2014).

Adaptation in Africa faces many challenges, spanning technical, political, institutional and organisational, economic, social and biophysical dimensions. As a technical example, developing better projections of climate change impacts is important for adaptation (Katz et al., 2013), but is constrained in many African nations by a lack of historical information on weather and climate (Conway and Schipper, 2011). Adaptation requires institutional leadership for developing policies and programs to respond to future risks, catalyze interest and action of stakeholders, and for distributing resources (Ford and King, 2015; Smith et al., 2009), yet institutional failure in rural extension services and lack of consideration of emerging problems from climate risks have been identified as region-wide barriers (Fankhauser and McDermott, 2014; Ford et al., 2015; Lynam and Twomlow, 2014; Morton et al., 2014). The costs of adaptation are also affected by significant development deficits, with some estimates suggesting the costs of adapting in Africa could exceed US$50 billion/yr (UNEP, 2015). In fact, a new UNEP report shows five time higher than previous estimate with the cost of adaptation in developing countries including countries in Africa estimated to be between $280 and $500 billion per year by 2050 (UNEP, 2016), suggesting that cost of adaptation in Africa may rise above $100 billion per year by 2050. While adaptation finance through the United Nations Framework Convention on Climate Change (UNFCCC) will help offset some of these costs, it is not of the magnitude required for climate proofing (Donner et al., 2011; Fankhauser and Schmidt-Traub, 2011; UNEP, 2015). All these challenges are coupled with societal transitions, population growth, and rapid urbanization facing African nations.

The challenge of adaptation for low income countries in general and Africa in particular, has been long recognized, and in 2001 the UNFCCC initiated the creation of the National Adaptation Programmes of Action (NAPAs) for the Least Developed Countries (LDC) to identify and establish priorities for adaptation assistance. Of 54 countries in Africa, 33 countries have produced NAPAs at the time of writing (as of May 2016-UNFCCC database). NAPAs remain an important tool in the management of climate change risks in Africa, identifying priority activities and catalyzing country-level interest in climate change, yet the link between NAPAs and key at-risk sectors such as agriculture and water resources remain unclear. As a result, mainstreaming NAPAs into these sectors have faced many challenges partly due to lack of data and limited technical capacity (Stringer et al., 2009), undermining the implementation of adaptation activities in African nations (Hepworth, 2010; Oates et al., 2011). This demonstrates that despite NAPAs being produced by many Africa countries, defining adaptation priorities at the national level still remains a huge problem. For example, water insecurity which represents one of the major problems in Ethiopia, received little attention in the nation's NAPA document (Oates et al., 2011), reflecting limited consultation with the key stakeholders and weak policy processes (Yirgu et al., 2013). Other studies illustrate that the adoption of new innovation in agricultural production is poorly integrated and articulated in NAPA documents for other African countries including Sierra Leone, Gambia, Sudan, Botswana, Benin, Uganda, Mozambique and Chad (UNEP, 2015) (Stringer et al., 2009) (Morton et al., 2014). Herein, more comprehensive action plans that address the challenges of climate change have been advocated in view of the limited scope of NAPAs (Held et al., 2013). In Ethiopia, for example, an Ethiopian Programme of Adaptation to Climate Change (EPA-CC) was introduced to replace the NAPA because the latter was lacking a strategic vision for the country's sustainable developing agenda (Held et al., 2013). In most of these countries, adaptation initiatives are limited in scale and often fail to express the number of beneficiaries in NAPA documentation, suggesting poor engagement of local institutions and other relevant stakeholders in NAPA projects (Smucker et al., 2015) (UNEP, 2015). More broadly, a lack of multi-level stakeholder engagement in decision-making process for adaptation action in Africa has been noted in the literature (Bryan et al., 2009; Koch et al., 2006; Ziervogel and Taylor, 2008), thereby calling for policy responses or new NAPAs to tackle this problem. A new approach is considered urgent in view of the severity of climate vulnerability in many African countries.

Our knowledge of adaptation experiences at farmer and community-level in Africa has grown in recent years. Ford et al. (2015), for example, document and characterize the status of adaptation in 'hotspot' nations in Africa based on a systematic review of the peer-reviewed and gray literature, as well as policy documents; Mannke (2011) evaluates community-based adaptation initiatives in Africa; a number of African farmer-level examples of adaptation are collated by Dasgupta et al. (2014), while the IPCC chapter on Africa in AR5 charts current scientific understanding on multiple aspects of climate change on the continent. Our knowledge of the perspectives of stakeholders on adaptation beyond the level of the community in Africa, however, is limited, one exception being Kumamoto and Mills (2012) who investigate what 20 African countries who are part of the Africa Adaptation Programme perceive to be priority adaptation interventions based on a review of national level program reports. This dearth of documentation on stakeholder perspectives constrains understanding on the extent to which the continent is ready for adaptation, and limits our understanding of the challenges faced. This study responds to this gap, documenting and examining the views of stakeholders on adaptation in academia, national government and UN agencies, donors, non-governmental organizations, farmers, and extension officers. The study addresses the following questions:

1) What is the current status of adaptation policy in Africa and how effective is this policy?
2) What are the key ingredients required to manage and implement adaptation activities successfully?
3) Is current climate finance sufficient and accessible and how can it be managed better?

Key themes from interviews with various stakeholders are presented as a series of concerns about adaptation (building upon the approach of Ford et al., 2015), with an emphasis on water, agriculture, and cross cutting issues. The work fills a critical gap, helping inform strategic planning on where support and action is needed to mainstream adaptation in both the public and private sector by building a roadmap for action based on insights that emerged from the interviews. While other studies have engaged with some of these questions for specific topics and or countries/regions of Africa, to our knowledge none have done so based on interviews with stakeholders, including high-level stakeholders, continent-wide and across scales, regarding the adaptation activities.