Future Agricultures

Working Paper

Climate Change and Agricultural Policy Processes in Ghana

Daniel Bruce Sarpong[1], **Nana Akua Anyidoho**[2]

1 Dept. of Agricultural Economics and Agribusiness, College of Agriculture and Consumer Sciences, University of Ghana, Legon
2 Institute of Statistical, Social and Economic Research, University of Ghana, Legon

September 2012

Table of Contents

Summary 2

1. Introduction 3

2. Agriculture and climate change in Ghana: policy context and key actors 4

3. Characterising climate change–agriculture debates in Ghana

Climate change as risk to and opportunity for agriculture 9

3.1 As an engine for economic growth and development 9

3.2 Mitigation – opportunity or 'dangerous distraction'? 11

3.3 Adaptation and other alternative narratives 13

4. Externally driven? The role of external and domestic interests 15

5. Concluding remarks 19

References 20

Annexes 23

Annex 1: Review of key actors on climate change and agriculture in Ghana 23

Annex 2: Examples of climate change initiatives in Ghana 28

Annex 3: List of interviews 29

Summary

This paper examines agriculture-climate change policy discussions in Ghana in the context of, on the one hand, increasing international interest and activity around climate change and agriculture, and on the other, concerns over whether climate policy and funding priorities are aligned to domestic development priorities. The paper poses the following questions: What are the contested areas and dividing lines in policy discussions and practices around climate change, which actors are supporting different viewpoints, and what traction do they have in the types of interventions that are being promoted?

The Ghanaian economy is growing fast, and agriculture is key to the country's development ambitions (see NDPC 2010). However, despite its importance to the Ghanaian economy, agriculture has only recently become a central part of climate change policy discussions in the country. The current dominant policy framing of the climate change-agriculture nexus is that climate change is a new, externally imposed, risk that may hinder the drive for modernised agriculture as an engine for growth and poverty reduction. Ghana, according to this framing, should be helped to access funds and technologies to make the agriculture sector more robust and "climate proofed" to face climate change challenges. This dominant framing is supported by key government institutional actors (clustered around environmental units), and by key bi- and multilateral donors in Ghana. Most of climate change activities and funding arising from this framing centre on mitigating the effects of climate change.

Ghana exemplifies the ways in which international climate policy discussions meet domestic policy processes, where outcomes are a result of interplay between external and local discourses, interests and actors. While it is clear that the mitigation focus is pushed by international funding structures, there are also key national processes and interests that promote this orientation. These include a legacy of environmental framing of the climate change problem, the active involvement of mainly environmental actors in climate change policy making, and an interest on the part of government and non-governmental actors in the funding available for mitigation activities.

But there are also divergent views in the Ghana policy space. The benefits from a focus on mitigation opportunities, following on from the disappointing experience with the Clean Development Mechanism (CDM) under the Kyoto Protocol, are being challenged. The argument is that mitigation is an interest that first and foremost serves external actors and that it distracts from what should be Ghana's main task, namely to adapt to climate change. This critique is related to a counter-narrative by NGOs and some donors that policy discussions should focus on how households and communities can be made less vulnerable to current climate risks that hinder agricultural livelihood activities and deepen poverty. Again, the contention is that this goal will be advanced through adaptation activities. Reorienting the country's priorities towards adaptation, moreover, will mean breaking out a cycle of dependence on external actors for policy direction and funding. However, these alternative framings have so far had little traction in major policy debates. In the absence of an influential civil society understanding and affecting the climate change agenda in Ghana, or a national policy framework that balances different interests, there is a risk of disconnected policy solutions in the face of climate change.

1 Introduction[1]

The aim of this paper is to analyse the nature and implications of emerging policy debates on climate change and agriculture in Ghana. Agriculture is of major importance to Ghana's economy and economic growth strategies. On average, Ghana's agriculture has grown at more than 5% over the past 25 years, placing the country among the top five performers in the world, and leading to significant positive effects on the country's poverty and malnutrition rates (Wiggins and Leturque 2011, p. 3). At the same time there is a growing realisation of the risks faced by the sector from climate change. Increased funding for climate change responses may bring opportunities as well as challenges to the agricultural sector in Ghana. Little is known about how this increasing interest may translate into actions and achievement of goals for agricultural development. This matters because policy and funding decisions for climate change activities – both mitigation and adaptation – could have major implications on Ghana's agricultural sector over the coming years.

The paper draws on the analytical framework developed by Keeley and Scoones (2003). The framework highlights the dynamic interaction between three elements: narratives and discourses, actors and networks, and politics and interests. It allows an examination of how policies, strategies and activities are shaped by how the issue is framed, how actors are organised around these narratives, and how they use these narratives to promote particular types of activities. The framework attempts to capture the complexities of policy making in the real world. It acknowledges that the process of formulating and implementing policy is not a linear sequence of rational decisions based on an objective definition of a problem and analysis of possible solutions. Rather, it is a value-driven and political process that is influenced by the agendas and interests of different actors, as well as by ideology, expedience, convenience, compromise and other factors that might be seen to be 'extraneous' to a rational-choice model of policy making (Kingdon, 1995; Stone, 1989). In this way, the informal relationships, decisions and actions may be as important, if not more so, to understanding how policy comes about than the formally laid-out processes.

Using the narrative-actor-politics framework, the paper poses the following questions: What are the key

policy debates around climate change; which actors make up 'coalitions' or interest groups around different policy perspectives; and how influential are these coalitions in promoting their preferred framing of the climate change-agriculture'problem'? The underlying hypothesis for this paper is that as climate change funding enters complex domestic policy processes, understanding the key narratives, actors and their interests can give important insights to why certain interventions are chosen over others, who may win or lose, and ultimately the conditions for achieving climate change policy goals amidst other priorities.

The study is part of a series of country case studies[2] that aims to unpack policy processes on climate change and agriculture. The paper is based on document reviews of NGO reports, research reports, donor agency reports, and government policy and strategy documents, as well as seven in-depth interviews with individuals who were either part of or knowledgeable about policy processes on climate change and agriculture in Ghana (see Annex 3).

The paper is structured as follows. The next section gives an overview over the policy context on climate change and agriculture in Ghana, demonstrating the strong focus on modernised agriculture as an engine for growth and development more broadly, but also that climate change is not well integrated into agricultural sector policies. Section 3.1 then explores the dominant narrative on agriculture and climate change and how key actors cluster around these. The next two sections discuss how mitigation (3.2) and adaptation (3.3) are critiqued and contested in Ghana with alternative but much less influential narratives. Section 4 discusses sources and impacts of current debates. While there is a clear external push for certain narratives and consequent activities, outcomes are determined by the interplay between external and domestic actors. In conclusion, the paper argues that to achieve climate change and agriculture policy goals, there is a need to open debates to avoid incoherence and policy outcomes driven by a few interests rather than balanced against different goals.

2 Agriculture and climate change in Ghana: policy context and key actors

The Ghanaian government has a long history of engaging with climate change, adopting an Environment and Climate Change Policy as early as 1991 (EPA, 2007).[3] In 1992, the Government signed the Climate Convention (UNFCCC) at the Earth Summit in Rio de Janeiro, which was ratified by the Ghanaian government on December 5, 1995. Ghana published the first National Communications in 2000. The second National Communication in 2010 provided an inventory of the sources and channels for removal of greenhouse gas emissions; assessed the vulnerability of different sectors (including agriculture, water, energy and industry) to climate change; and detailed the mitigation strategies Ghana intended to pursue.[4] There are two, not incompatible, viewpoints as to the motivation for the assimilation of climate change as an issue of interest in Ghana's domestic policy space: First, various government documents and a number of respondents for this study stated that, while climate change is a problem caused by developed countries, it is now a global problem that demands a response from each country, and particularly from sub-Saharan countries that have been shown to be potentially worst affected by climate change.[5] Ghana is willing to do its part, but being the casualty of a problem not of its making, it would require assistance to combat the effects of climate change.[6]

The second viewpoint is that climate change processes in Ghana are driven less by an independent assessment of the problem than by international climate change negotiations and available financing for climate change policy making and programming.[7] For those with this viewpoint, the government's reliance on external actors for direction and funds will be in keeping with the relationship that has historically existed between donors (or "development partners") and Ghana, as an example of a developing African country. In this regard, a respondent said, climate change as an issue could be likened to any other issue, such as HIV/AIDS, for which a global advocacy and a fund is created: "It's more how the wind is blowing now, that is climate change. Now everything you do you have to show climate-change sensitivity".[8]

Agriculture has only become a significant part of climate change policy debates in Ghana in the last two or three years.[9] Previously, climate change discussions were centred on environment, energy and forestry.[10] This is despite a number of donor-funded project activities on climate change having taken place in Ghana since the mid-1990s, many of which focus on agricultural livelihoods (Würtenberger et al. 2011, see also Annex 2). Agriculture-climate change debates emerged particularly in the run-up to the COP in Copenhagen in 2009, considered by many as a turning point on climate change discussions in Ghana.[11]

Ghana's agricultural sector has shown impressive performance and can be considered one of Africa's success stories (Wiggins and Leturque, 2011). The sector contributes the biggest share to GDP at 30%, and provides livelihoods for 60% of the population (NDPC, 2010, 2011). Successive plans for poverty reduction and growth have been based on the agriculture sector (e.g. NDPC 2005, 2010). The country's current medium term development plan, the Ghana Shared Growth and Development Agenda (GDSA 2010-2013), premises the social and economic transformation of the country on a modernised agriculture (NDPC 2010). However, it is also clear that the sector is plagued by low productivity as a result of low technology, the small size of land holdings and reliance on rainfall. There are also questions about the sustainability of the sector in the face of an aging rural population (MMYE, n.d.; MoFA, 2007; NDPC, 2010). The overall contribution of agriculture to GDP has also declined in recent years (NDCP, 2011).

Concerns about the agricultural sector are heightened by recent studies on climate change impacts that highlight the risk to agriculture in Sub-Saharan Africa, and in Ghana in particular (e.g. Yaro et al., 2010). Changes in rainfall patterns and increased temperatures are likely to bring considerable additional challenges to a sector that is already at risk from climate variability (Boko et al. 2007; EPA, 2000; Hulme et al., 2001). Agriculture is thus presented as being vulnerable to climate change, but is also contributing to climate change effects, and it is a driver behind deforestation. But there are also potential opportunities for the agricultural sector from funding aimed at curbing emissions of greenhouse gases (GHGs), in particular through REDD+. [12]

Agriculture is a key focus of the recent document "Ghana Goes for Green Growth: National Engagement on Climate Change" (MEST 2010)[13] , which represents the main government document on climate change, and which is expected to be the basis for the national policy framework on climate change that is currently being drawn up. [14] Similarly, Ghana's Shared Growth Development Agenda (GSGDA 2010-2013) highlights the importance of facing climate change in development strategies, including addressing agricultural impacts (NDPC 2010). Supported by the Climate and Development Knowledge Network (CDKN) [15] and led by the National Climate Change Committee (NCCC), the document sets out the key strategy areas for Ghana to become a "climate compatible economy", combining the goals of mitigation/low carbon development, adaptation and development.

Despite the increased salience of agriculture in climate change policy discussions, the environment has been and continues to be a primary focus. This is, no doubt, related to the fact that environmental actors have been central at the outset in shaping the agenda on climate change in Ghana.[16] In 1994, Ghana enacted the Environmental Protection Agency Act (Act 490) which established the Environmental Protection Agency (EPA) as a regulatory and enforcement agency under the Ministry of Environment, Science and Technology (MEST), which itself was founded shortly after the 1992 Rio Summit.[17] The EPA led the preparation of the climate change assessment reports required under the UNFCCC. Until recently, the EPA was the UNFCCC focal point for Ghana, mandated to oversee the Clean Development Mechanism (CDM) under the Kyoto Protocol.[18] The focal point is now MEST. One explanation for this shift from EPA to MEST is that, at this point in international negotiations on climate change, the emphasis is on policy making, and that this requires a ministry and cabinet minister to lead the process .[19] Thus, some see this move as a reflection of the increasing importance given to climate change.[20] At the same time, there is the suspicion that MEST's more visible role is motivated by its interest in having control of the climate agenda and the funding that comes along with it.[21] There are also concerns about the capacity of the ministry, and of its National Climate Change Committee (NCCC), to effectively lead the policy process in terms of expertise and fiscal resources.[22]

Recently, there have been efforts to develop a National Climate Change Policy Framework (NCCPF) to increase policy coherence on climate change, and increase Ghana's attractiveness to funding. The drawing up of the policy, which will be based on the "Ghana Goes Green" document, is being led by the National Climate Change Committee (NCCC) established under MEST in 2010. The NCCC has the mandate of reviewing policies and programs to complement national priorities on climate change. It includes representatives from ministries and government agencies, including MoFA, Ministry of Finance and Economic Planning, Ministry of Energy, The Energy Commission, Environmental Protection Agency, Forestry Commission and the National Development Planning Commission. It also includes representatives of the private sector, donor community, civil society organisations and academia. It is currently chaired by a former top technocrat of MEST. The NCCC is an advisory committee and has no executive decision mandate, which – as we will discuss later – has implications for how effective it is in achieving its goals.

The NCCPF has one major aim, namely "to ensure a climate resilient and climate compatible economy while achieving sustainable development and equitable low carbon economic growth for Ghana" (RoG 2011, p.22). The framework is "intended to provide the overall strategic direction for harmonizing and co-ordinating national efforts to combat climate change, as well as facilitating sustainable development".[23] The NCCPF is linked to the key strategic objective of the Ghana Shared Growth Development Agenda (GSGDA) in that it is meant to help foster high and equitable levels of growth going towards middle-income status (MEST, 2010). CSOs have complained about the slow progress of work on the NCCPF and have attributed it, among other things, to a lack of staff and expertise to coordinate the policy process and to encourage broad-based consultation.[24]

Overall, the extent to which climate change has become "mainstreamed" in policy making in Ghana is debatable. On the one hand, 36 of the 55 Nationally Appropriate Mitigation Actions (NAMA) submitted by Ghana to the UNFCCC in 2010 have been incorporated into Ghana's current development plan, the GSGDA (NDPC, 2011). On the other hand, by 2010, only 20% of government ministries, department and agencies had developed strategies related to climate change, from a baseline of 0% in the previous year (ibid.).[25] The place of agriculture in the climate change debate is also ambiguous as the environment, energy and forestry receive more attention. For example, of the 55 Nationally Appropriate Mitigation Actions (NAMAs) Ghana submitted in 2010 as part of its obligations under the UNFCCC, only 8 referenced agriculture, while 33 were related to energy and 8 to land use (NDPC 2011). And while, as we have mentioned, climate change issues feature in the GSGDA as both a threat to and opportunity for agriculture (NDPC, 2010), climate change is not referenced in the sector policy of the Ministry of Food and Agriculture (MoFA). This may be partly due to the fact that the Food and Agriculture Sector Development Policy (FASDEP II) of MoFA was produced in 2007, at which time

agriculture had not yet gained traction in climate change policy discussions in Ghana. This again underscores that climate-change agriculture policy processes in Ghana are still incipient and under contestation. It also raises questions about whether there is real commitment to climate change as a policy issue or whether it is a case of the government aligning itself with a discourse order to access climate change funds, as a number of the respondents for this study suggested. This question is relevant given that the majority of climate change related reports, research and programs have been funded by donors or been in response to international obligations. [26] We will return to this point about national commitment and initiative later in the paper.

3 Characterising climate change–agriculture debates in Ghana

3.1 Climate change as risk to and opportunity for agriculture as an engine for economic growth and development

As seen in the preceding discussion, both MEST (2010) and the GSGDA (NDPC 2010) consider climate change as a major risk to agriculture, and consequently to Ghana's future development. The GSGDA links agriculture-climate change issues to economic growth: "Vulnerability and adaptation assessments have demonstrated that the [Ghana] economy will be adversely affected by climate change since it depends on sectors that are predominantly susceptible to the impacts of climate change" (NDPC 2010, p. 50). [27] Thus by putting agricultural yields and outputs at risk, climate change threatens the basis for Ghana's social and economic transformation.

Both documents highlight the need for the country to "climate proof" the agriculture sector. Proposed solutions centre on technologies to improve the robustness of the sector in the face of climate change, such as drought tolerant crop varieties and a transformation from rainfed to irrigated agriculture, as well as reducing deforestation through agricultural expansion and soil carbon storage. The idea is that, through these strategies, the agricultural sector can contribute to three goals simultaneously, namely to reduce emissions, reduce vulnerability through adaptation, and promote economic growth and development. This is similar to the notions of "climate smart agriculture" and "triple wins" promoted by the FAO, World Bank and other agencies (FAO, 2009). This dual nature of the agriculture sector in reducing emissions, but more positively taking steps to adapt to climate change and to advance development is captured in the idea of a "climate compatible economy" (MEST, 2010).[28] To understand how this framing of "triple wins" on emission, vulnerability and growth or development plays out in the Ghana policy context, it is necessary to unpack this broad narrative and the surrounding debates on mitigation/low carbon development and adaptation/resilience.

Agriculture – in Ghana as elsewhere – is a major emitter of greenhouse gases. As a non-Annex I country under the Climate Convention, Ghana does not currently have any obligations to reduce greenhouse gas emissions, nor is it likely to in the foreseeable future. This is reflected in references to the need for Ghana to be able to increase emissions as it develops, illustrated by the following quote: "Ghana stands at a crossroads. We have only recently become a net emitter of greenhouse gases, but our economic growth requires modernisation, particularly in the agricultural sector. This requires investment in infrastructure and will increase demand for energy, which is likely to result in higher emissions." (MEST 2010, no page number, italics added). Nonetheless, Ghana stands to gain from funded activities for mitigation because there are opportunities for reductions in greenhouse gas and carbon storage through new funding to REDD+ and other mitigation programmes. While not technically an obligation under the UNFCCC, there are references in policy documents to Ghana's responsibility to tackle emissions, as this quote from the GSGDA illustrates: "With predictions that agricultural output may fall by 30% in Africa and the effect that lower rainfall may have on the country, Ghana must make its contribution to international efforts to contain and mitigate the effects of climate change" (NDPC 2010, p. 50).

In terms of vulnerability, MEST (2010) suggests that every part of society will be touched by the effects of climate change. "While our own contribution to global climate change has been negligible, the impact of climate change on our economy and on our poorest people is already substantial" (MEST, 2010). However, the GSGDA points out that the impacts of climate change will be differentiated among various social groups, some of whom will have higher vulnerability, with the list including "the poor, women, children, and rural residents and residents of the northern part of the country" (NDPC, 2010). Other groups such as farmers and young people are added to the list of the vulnerable as groups who must be protected from the harms of climate change on their primarily agriculture-based livelihoods. The reduction of vulnerability to climate change is to be tackled through adaptation activities (MEST, 2010).

A development focus is present in policy discussion on climate change, with the GSGDA declaring "climate change [as] a development issue" (NDPC 2010, no page number). The foreword to the "Ghana Goes Green" document further states, "Climate change is affecting Ghana's economic output and livelihoods and is a threat to our development prospects" (MEST 2010, no page number). The threat of climate change is seen to be even greater because of the steady progress that Ghana has made in respect of development (ibid.) and the importance of agriculture to that progress and to the country's future prospects (MEST, 2010; NDPC, 2010). The vulnerability of agriculture to climate change is thus seen as an obstacle to be tackled if development - via modernised agriculture (NDPC, 2010) – is to take place (MEST, 2010; NDPC, 2010).

Paradoxically, the current policy document for the agricultural sector, the Food and Agriculture Sector Development Policy (FASDEP II), does not directly identify climate change as a constraint to agricultural production and sustainability, even though references are made to climate related risks and climate variability. For instance, the document states that "food production fluctuates from year to year due to frequent variations in the magnitude of rains during and between growing seasons… [and] rainfall is a major determinant in the annual fluctuations of household and national food output" (MoFA 2007, p. 9). However, no connection is made to larger climate change processes. Neither does the Medium Term Agricultural Sector Investment Plan (METASIP) of MoFA contain any mention of climate change.

Thus, the dominant narrative on climate change and agriculture in Ghana has arguably broadened over recent years into a development concern from an earlier focus on climate change as a largely environmental issue. However, while agriculture-climate change issues are now covered in key government documents, they are still not part of agricultural sector documents. However, when we go beyond the government to other actors in the policy space, such as non-governmental actors and researchers, dividing lines emerge as this dominant narrative provided by the government is problematized and alternative narratives offered.

3.2 Mitigation – opportunity or 'dangerous distraction'?

There is a strong view among stakeholders in Ghana that much of the activity and funding on climate change in Ghana has focused on mitigation. Funding figures bear this out. Using indicative spending activities on climate change-related projects in Ghana over 2004-2011, Cameron (2011) estimates that total funding for adaptation activities was $493.6m compared to $794.7m for low carbon growth (mitigation) related interventions. However, mitigation-specific activities are more dominant than this suggests, as these figures also include development projects where adaptation is not explicitly mentioned. [29]

MEST (2010) highlights climate change as a shared problem calling for shared solutions, including efforts to reduce emissions. The proposed national policy framework (NCCPF) is meant to commit the country to a "low carbon growth path" against the likelihood of increase in emission of greenhouse gases as a consequence of the process of economic growth and development. This is intended to result in "a more robust economy", generate business opportunities and attract international funding for programs such as the Reducing Emissions from Deforestation and forest Degradation (REDD) program (MEST, 2010).

For agriculture, the main mitigation opportunities relate to REDD+ and agriculture as a key driver for deforestation. Actors such as the Forestry Commission and key donors argue that this is a key opportunity for Ghana. CDM has been a disappointment, with no CDM projects in Ghana and with Africa as a whole hosting a meagre 2% of the global total registered projects to date.[30] However, there is renewed optimism under REDD+ which offers opportunity for renewed efforts, activities and funding.

Several respondents for this study (particularly those working outside of the government) were sceptical of the utility of mitigation in promoting the type of agricultural activities needed for development. They perceived the privileging on mitigation over adaptation activities to be more reflective of the agenda of Ghana's donor agencies than of Ghana's development interests. Respondents suggested that donors, through their funding decisions, direct the government towards mitigation as a way to meet their countries' emission targets, for instance by encouraging Ghana and other African countries to develop forests as sinks for carbon emissions.[31] Some respondents pointed out that mitigation projects were disconnected from Ghana's development concerns and were unlikely to benefit those who needed it the most. [32] CSOs have formally posted this challenge to the perceived bias towards mitigation in the draft policy framework, citing these very objections. [33]

One respondent characterised the government's advocacy on climate change, which is mitigation-biased, as "unnecessary" because, in his view, it did not reflect Ghana's situation and needs, but was a case of the government "following the money".[34] And indeed respondents were agreed that there is significant funding available for climate change work, and particularly for mitigation activities. A group of development agencies, including the World Bank, Netherlands Embassy, the UK's Department for International Development (DFID) and the French government, provide budget support for MEST and Ministry of Lands and National Resource through the National Resource and Environmental Governance (NREG) (a five-year budget support sector program that begun in 2008). Most MEST climate change activities are run with funds from NREG, whose funding is channelled the Ministry of Finance and Economic Planning (MoFEP). Thus, MoFEP, MEST and other recipient ministries, including their subsidiaries such as the Forestry Commission and Mining Commission, are aware of the potential funding available for climate change activities, which has led to some friction between stakeholders as they position themselves to gain from such funds (Cameron, 2011). Private actors are also becoming active, though less visibly than in many other countries (See also Annex 1).

In summary, there is skepticism about the possibility of achieving triple wins in the agricultural sector, mainly on the basis of the concern that mitigation projects is likely to drive the agenda. This is not withstanding the discourse on "green growth" and "climate compatible economy" which are seen by skeptics as mere discourses which, in actual implementation, push emissions actions.[35] Many see the focus on mitigation as a reflection of an unwelcome and possibly dangerous external influence that closes off the policy space to other goals beyond reducing emissions [36] and, by so doing, hobbles

Ghana in its efforts to develop since that process will inevitably involve increasing greenhouse emissions. As one interviewee noted, "Ghana's policy framework talks about 'green growth' – but that's not the same as 'sustainable growth'. The latter means that we might have to adopt some non-green strategies in order to have sustainable economic growth…'But (prioritizing) mitigation means that we are not even allowed to develop".[37]

3.3 Adaptation and other alternative narratives

The main critique of the mitigation focus of government policy discussions is that it crowds out what should be Ghana's main concern, namely adaptation. If mitigation is perceived to be the agenda of external actors, then adaptation is presented as a counter-narrative that is more in tune with Ghana's situation. A government official made the distinction that while mitigation is advocated by "the international community", adaptation is being taken up at the country level, and regionally through the African Development Forum under the African Union. [38] There also signs internationally that donors are trying to redress this imbalance (Hedger, 2011).

The skew towards mitigation in policy discussions as well as in actual programming and funding is seen as an obstacle to Ghana's development pathways because, it is argued, "if indeed climate change is viewed as a development issue, then it is in adaptation activities that development will be advanced".[39] The contention then is that addressing the threat of climate change to the agriculture sector will require a shift to adaptation policies and actions.[40]

Adaptation to climate change is more likely than mitigation to affect production and distribution activities in fundamental ways. Adaptation activities are often geared towards the areas of the economy and the people who are most vulnerable to the negative impact of climate change. In Ghana, as in other African countries, given the evidence that agricultural lands and productivity is at risk from climate change, and the fact that agriculture provides livelihoods for a majority of the population who also tend to be the poorest, it stands to reason that adaptation strategies are more likely to work towards development writ large. This is bearing in mind that development in the national development plan, the GSGDA, is based on agriculture and defined in terms of poverty reduction and economic growth. Proposed adaptation solutions relevant to agriculture centre on discrete options such as drought tolerant crop varieties, expansion of irrigation and other adjustments to agricultural practices. Related to this is a focus on avoiding environmental degradation and improving the use of natural resources, in particular related to the notion of sustainable land management (SLM); as one interviewee noted, "You cannot talk about agriculture and climate change without addressing sustainable land management".[41]

The dividing line in the climate change debate between mitigation and adaptation coincides with whether climate change should be viewed as an environmental or development concern. In Ghana, as elsewhere, there has been a strong environmental focus in climate change discussions. From the early 1990s onwards, climate change was aligned to government institutions with responsibility for the environment, notably MEST, EPA and the national meteorological service, and was advocated mainly by civil society groups with an interest in the environment.[42] Over recent years, an increasing number of other government and non-government actors have become involved in climate change activities, including agriculture (cf. Cameron, 2011).[43] More development-focused narratives are linked to proliferation of actors across a number of sectors in Ghana, both governmental and non-governmental.

It is in the adaptation narrative that groups such as farmers and women are referenced as groups whose livelihood and food security will be negatively impacted by climate change. These groups are not well-organised and therefore their interests are advocated by civil society organisations such as Friends of the Earth, Abantu for Development, and the Ghana Agricultural Workers Union.[44] The argument forwarded is that climate change policy making should be concerned first and foremost with the most vulnerable, and that their needs should be addressed through programmes that emphasised climate resilience. Moreover, these programs should be based on research and be context-specific.[45]

The push for adaptation as a counterbalance to the dominance of mitigation in the "official" government narrative on climate change in Ghana. There is yet another narrative which focuses on multiple stressors and challenges of resource access that deepen vulnerability to climate change effects. A research study conducted by BBC World Service Trust (2010) that found that there is awareness among Ghanaians of climate change effects that directly impinge on their lives and their ability to carry out livelihood activities, particularly those related to agriculture. These impacts include changes in rainfall patterns and flooding, decline in cocoa production, depletion of water, forests and other natural resources. The study suggested that the Ghanaian public does not make a link between these challenges and climate change as a global phenomenon, and as a result tend to blame their own actions, such as bush burning and deforestation. Incidentally, because of this perspective, the emphasis in these public discussions is neither on climate change mitigation or adaptation, but on ceasing those actions that are thought to cause climate change (Cameron, 2011).

The presence of such divergent framings between government and other actors is partly due to the fact that there has been little meaningful interaction between these actors on climate change and agriculture. A number of NGOs work on climate change related issues in Ghana. Some of the major ones on policy advocacy include Friends of the Earth-Ghana, Green Earth Organization, Third World Network-African, ABANTU for Development, SEND-Ghana, Participatory Development Associates, Christian Aid and CARE International.

Environment-focused NGOs tend to focus on forest conservation, while development-oriented NGOs typically focus more on advocacy around social justice and gender. The presence of civil society organisations in Ghana on climate change was perhaps at its zenith in the lead up to Copenhagen when there was an effort worldwide to fund and in other ways support civil society organisations (CSOs) to do advocacy to encourage the government's commitment to addressing climate change. In general, CSOs have promoted particular interventions on climate change outside of policy processes or have taken an oppositional stance to government policy (see Annex 1). Despite their level of activity, they are seen by many as having limited influence on policy debates and processes. Some interviewees in this study cited a lack the technical knowledge on the part of these NGOs to meaningfully engage in the policy process whether at national and international levels.[46] Concerns have also been raised about their level of independence and actual commitment to climate change, given that the local NGOs that lead work on climate change are funded by international NGOs and donors with their own agendas.[47] Nonetheless, there are indications government is increasingly listening to the voice of CSOs, for instance in consulting CSOs on the draft climate change policy framework and in including a CSO representative on the NCCC, although it is suggested that this is at the instance of donors who require civil society participation in the process .[48]

4 Externally driven? The role of external and domestic interests

Previous sections have discussed the fact that mitigation-related activities have received more attention and funding in Ghana than adaptation, and have described the concerns that surround this orientation, including that they support external rather than domestic interests. Here we will explore further the reasons for this situation.

Apart from the government officials, researchers and members of civil society organisations cited in this paper, others have made the argument around strong external influences on policy narratives and processes, and that external agendas have been key in shaping the policy agenda in Ghana (e.g. Wurtemberger et al. 2011; Cameron, 2011). While the state is the local source of dominant narratives and the key driver of associated policy processes, it is significantly influenced by international discourse and institutions around climate change, which at the local level are represented by donors or "development partners". A representative of MEST spoke, for instance, of the "heightened awareness that (government actors) derive from international debates".[49] Others examples are Northern-driven advocacy campaigns ahead of the Copenhagen conference, to raise the consciousness about climate change, as well as Annex I countries' interests in forestry and mitigation projects.

A fragmented approach to climate change and of the lack of a coherent national response in Ghana also lays the country's policy processes open to external influence. Until recently, there had been little interaction among various actors in Ghana on climate change. Even within the government, sectors, commissions and other agencies tended to work in an isolation promoted by targeted funding for discrete programmes and projects located in particular units of the government. For instance, between 2005 and 2006, 28 projects were being run by EPA with support from ten different international agencies (SNV 2007, cited in Cameron, 2011). A number of events are contributing to changing this situation: one is the on-going development of a climate change policy that will be a catalyst for the mainstreaming of climate change into sectoral policy (this process is part of UNFCCC requirements of providing reports on national vulnerability and assessment); second, the creation in 2008 of the NREG, a multi donor budget support sector programme that seeks to integrate donor efforts in climate change.

Another reason for the perception of an externally-driven climate change agenda (which is also given as the reason for the emphasis on mitigation over adaptation), is a lack of knowledge on climate change among many government officials and among civil society, which means the government will tend to go for external rather than domestically generated knowledge. Repeatedly, interviewees stated that climate change is "a highly technical issue"[50] and a "science".[51] Furthermore, adaptation, more so than mitigation activities, requires an analysis of local situations and innovation to respond to specific contexts. This requires human resource, financial outlay and planning. Our interviews suggest that there is a dearth of climate change research, and especially those related to adaptation strategies, because domestic climate change actors (be it the government, academia, civil society or the private sector) do not have the expertise and funds or (in the case of the government, the commitment) to produce relevant and usable knowledge and products.[52] Others contend that the little research that is available is not considered in policy formulation because, among policy makers, climate change is about politics more than it is about science,[53] and that this politicising of climate change is related to the available money to be made from it.[54]

The lack of domestic political pressure may also play a part in the strength of external influences on climate change policy processes in Ghana. While there is awareness among ordinary Ghanaians about climate change studies also show that the Ghanaian public does not make a link from these events to climate change (BBC Trust 2010). It is therefore not surprising that "there is not a broad demand from constituents for politicians to own the response agenda to climate change, and thus little or no domestic accountability pressure for achievement " (Cameron, 2011,p.20).This lack of local pressure on politicians is a reason why one of our interviews predicts that climate change is, for instance, unlikely feature in the upcoming elections in 2012.[55] CSOs which can potentially provide a counterbalance to the

government or mediate in discussions between state and citizens' interest, are not playing that role effectively, for reasons already discussed, including a lack of knowledge and questionable commitment to climate change. While organisations such as ABANTU for Development and Friend of the Earth are bringing new ideas and are getting a seat and a voice in the policy process (through having representation on the NCCC, for instance), many other CSOs are operating outside of policy processes. It bears mentioning that this situation is not peculiar to discussions on climate change; it is generally the case that CSOs tend to have little policy influence in policy processes in Ghana (Darkwah et al. 2006).

At the same time, it is clear that the mitigation focus could be in the interests of domestic actors, as well as it seems to suit international actors. An example of private sector involvement in climate change activities is Cadbury's Cocoa Carbon Initiative, and also the Vision 2050 farm forestry project (see also Hashimu, forthcoming). The confidence of private business to undertake adaptation and or mitigation investments hinges on the knowledge that there exists clear policy framework important in creating an environment that is conducive to private sector engagement. The lack of an appropriate framework is one obstacle to private sector involvement in climate change policy processes in Ghana,[56] in addition to a lack of knowledge of climate change (see Annex 1 for description of the role of the private sector in climate change policy processes).

On the part of government actors, both at institutional and individual levels, there is incentive to attend to mitigation because of greater program funding, personal allowances, and opportunities for travel and status (Cameron 2011). Further, mitigation is presented as primarily the responsibility of the government, which can be fulfilled by instituting and enforcing regulations, while adaptation involves a broader range of stakeholders. Adaptation would therefore involve time-consuming consultation and would require the government to perhaps compromise on its financial interests in the climate change agenda.

It is interesting to note that, while there is a strong external influence on the content and process of policies on climate change in Ghana, and a recognition in government reports that climate change must be tackled globally, there does not seem to be a consequent understanding in the dominant policy narrative that climate change impacts and policies are tied into global political and economic systems.[57] In the "Ghana Goes Green" document, for instance, the statement about the dire state of forest reserves – including the rate of deforestation – mentions that "hard-pressed farmers are resorting to slash-and-burn practices" that destroy forests (MEST 2010). It does not make any reference to the fact that natural resource extractive industries have similarly deleterious impact on the forest and on rural livelihoods, and that the government shares the blame for this damage by granting mining concessions in forest reserves (Crawford and Anyidoho, forthcoming). The presence of these particular multinational corporations is part of the process of economic liberalization that Ghana has embarked on and is also a consequence of the fact that the economy that is structured to rely on natural resources. Thus, solving the problem of deforestation or the broader problem of climate change should involve a recognition of the need for a paradigm change in terms of economic growth and development. Such a perspective would inform advocacy around the role of global governance structures that shape the content of climate change debates rather than on the need to manage risks. In this study, this narrative was largely silent.[58]

In summary, the external influence on Ghana's climate change policy processes is the result of the external actors pushing their interests but is also made possible by local circumstances and local actors: The government has power and influence over the domestic agenda, but is lacking in capacity and a coherent policy that weighs concerns for adaptation towards development against the benefits and potential costs of mitigation activities. However, despite the increased awareness about climate change within the government, this is still largely limited to specific departments and units, such as MEST, EPA and MoFA. Even among these, it is debatable whether there is a real commitment to pursuing climate change policy making aside from the available funding. Even the impetus to put together a climate change policy was largely external. [59] Civil society actors are similarly are similarly lacking in capacity to produce knowledge and to use that knowledge to influence the clearly political climate change policy process.

5 Concluding remarks

This paper has explored policy debates on agriculture and climate change in Ghana, including the dominant narratives and sub-narratives, and the actors and drivers in the debate. Economic growth in the country is based on a well-functioning agricultural sector. Climate change is thus a threat but also a potential opportunity for agricultural stakeholders.

We have seen that dominant narratives on climate change and agriculture is based on the hope of an agricultural sector that will lead to economic growth and development; climate change is a threat to the extent that it poses an obstacle to agricultural productivity and sustainability. Agriculture and climate change debates are broadly centred on the hope of "triple wins" – to reduce emissions, to reduce vulnerability to the impacts of climate change through adaptation, and to promote economic growth and development. In practice, however, mitigation has so far been favoured in debates and funding over adaptation. There are a number of dissenting voices that consider mitigation, notably forestry and REDD+ related projects, as driven by, and mainly benefitting, external interests. The paper suggests, however, that while there are clearly significant external drivers, these also play into the interests of key domestic actors.

On concerns around climate resilient development, dominant narratives are promoting technology transfer and "climate proofing" of agriculture. This is questioned by some actors, emphasising the need for vulnerability reduction among the poorest through small-scale, locally-relevant strategies rather than the technological fixes and an agricultural transformation to large scale, mechanised agriculture envisaged by MEST (2010).

As suggested above, a wider set of actors are now more prominent in defining problems and solutions. However, the legacy of climate change framing as an environment concern is still visible in the dominance of environmental actors, for example through the key role of EPA, and now MEST, and the prominence of environmentally focused actors among the NGOs involved in climate change activities. Some of the adaptation concerns also link to previous debates around land degradation, such as sustainable land management (SLM). There are signs that climate change is being used as a justification for keeping smallholders out of forest areas to reduce deforestation, whereas key government strategies are actually promoting forest destruction through mining activities (Anyidoho, 2009; Crawford and Anyidoho, forthcoming).

The foregoing brings up concerns raised by international organisations that the international focus on climate change and agriculture (and distilled through terms such as "climate smart agriculture"; FAO, 2009) may be dominated by interests promoting mitigation projects which do not necessarily have the interests of the poorest and most vulnerable in mind. The Ghana case illustrates how there are deep and important differences on the description of problems and solutions at country levels.

Analysis of narratives underlying policy debates, and how actors form around these, can help reveal key divides in debates about climate change and agriculture, and lead to understanding of how they come about. Importantly, such analysis can also give insights into possible future pathways. The challenge for evidence-based policy making in Ghana is to reconcile the different interests around climate change. There is currently limited room for alternative narratives in the debate, as it is dominated by carbon sequestration and risk management approaches to agricultural adaptation As Ghana begins the process of drawing up a policy, it is important that spaces be opened up for a wider range of actors and goals. This will inevitably bring up conflict, for example that between mitigation priorities manifested in cultivation of biofuels and smallholders on land.

However, in order to achieve "climate smart agriculture" aligned to development strategies, evidence on smallholders' effectiveness and vulnerability, as well as the vulnerability and opportunity of other stakeholders, need to be brought into the discussion. In particular, a greater attention to adaptation activities, as has been recommended by a number of climate change actors interviewed in this study, will require the country to be more proactive in research, funding and planning than it has been.

END NOTES

1 Acknowledgements: We would like to thank Lars Otto Naess and Jim Sumberg for their review of this paper at various stages.

2 Similar case studies are carried out in Ethiopia, Kenya and Malawi, as part of the Future Agricultures' Climate Change Theme.

3 The objective of this policy was to create a common approach to regional and global environmental issues by maintaining ecosystems and ecological processes essential for the functioning of the biosphere, sound management of natural resources and the environment, protection of humans, animals and plants and their habitats; and the integration of environmental considerations at all levels in sector structural and socio-economic planning.

4 One interviewee recalls that this period was a "flurry of meetings and workshops on climate change at this time by government, donors and civil society" [Interview with climate change scientist, University of Ghana], Accra, 19 October 2011].

5 E.g. Interview with official of the Forestry Commission, Accra, 14 November 2011; Interview with official of Ministry of Environment, Science and Technology, Accra, 18 November 2011. Also the "Ghana Goes Green" document (MEST, 2010).

6 A government official, evoking the principle of "differentiated responsibility", asked rhetorically, "When it comes to emissions, who are those emitting more and who is impacted most? So what should be done about it? They have the money and we don't and we are the ones suffering so how can they help us to come out of the problem". He said further, "We are saying climate change is already there and it is affecting the lives of people and the main thing that must happen is that people should learn to adapt in their own little way, with support from the developed countries who have the resources to help with the situation." [Interview with official of the Ministry of Environment, Science and Technology, Accra, 18 November 2011].

7 Interview with climate change scientist, University of Ghana, Accra, 19 October 2011; Interview with member of the NGO Friends of the Earth and member of the National Climate Change Committee, Accra, 29 December 2011.

8 Interview with member of the National Climate Change Committee, Accra, 8 November 2011.

9 Interview with official in the Ministry of Food and Agriculture (MoFA), Accra, 8 November 2011; also interview with member of the NGO Third World Network, Accra, 10 November 2011. The latter saw this shift as coinciding with a broader perspective on climate change at the international level to better incorporate socio-economic concerns.

10 Interview with official in the Ministry of Food and Agriculture (MoFA), Accra, 8 November 2011.

[11] Interview with official in the Ministry of Food and Agriculture (MoFA), Accra, 8 November 2011; Interview with member of the NGO Third World Network-Africa, Accra, 10 November 2011; Interview with climate change scientist University of Ghana, Accra, 19 October 2011.

[12] REDD refers to Reduced Emissions from Deforestation and forest Degradation program.

[13] Frequently referred to as "Ghana Goes Green". This label will be adopted in the rest of this paper.

[14] Interview with member of the National Climate Change Committee, Accra on 8 November 2011.

[15] CDKN is a UK/Dutch funded initiative to support decision makers in developing countries achieve so-called climate compatible development.

[16] These actors include the Environmental Protection Agency, the Forestry Commission and the Ministry of Energy, Science and Technology [Interview with official of the Ministry of Food and Agriculture, Accra, 8 November 2011]. It also includes NGOs with interest in forests and the environment [Interview with member of the NGO Friends of the Earth and member of the National Climate Change Committee, Accra, 29 December 2011].

[17] The Act makes compliance to environmental regulations mandatory, with individuals or corporate bodies liable on conviction to fines or to terms of imprisonment (EPA, 2000). The Act also ensures the application of a set of systematic measures to promote compliance in accordance with environmental impact assessment procedures and measures.

[18] The Kyoto Protocol was ratified by Ghana's Parliament in 2002 while it entered into force globally on February 16, 2005 (cf. Agyeman-Bonsu, 2007b). National guidelines have been developed to assist in assessing how CDM projects contribute to sustainable development (Agyeman-Bonsu, 2007d). To date, however, no CDM projects have taken place in Ghana.

[19] Interview with member of the NGO Friends of the Earth and member of the National Climate Change Committee, Accra, 29 December 2011.

[20] Interview with member of the National Climate Change Committee, Accra, 8 November 2011.

[21] In response to the question, "Why was the focal point moved to MEST since the EPA was under MEST in any case, and has more expertise?", a member of the NCCC said, "It's all part the politics. There's a lot of resources in CC; look, the guys on climate change, they travel like every other day. A lot resources." [Interview with member of the National Climate Change Committee, Accra, 8 November 2011].

[22] Interview with member of the NGO Friends of the Earth and member of the National Climate Change Committee, Accra, 29 December 2011; Interview with member of the National Climate Change Committee, Accra, 8 November 2011; Interview with climate change scientist, University of Ghana, Accra, 19 October 2011.

[23] NCCC Chair, Daily Graphic, Thursday, 17 November 2011. http://www.ghana.gov.gh/index.php/news/features/9131 [accessed 1st January 2012].

[24] Interview with member of the NGO Friends of the Earth and member of the National Climate Change Committee, Accra, 29 December 2011.

[25] Specifically, these were strategies that addressed the "impact of climate and its relationship with agriculture, marine ecosystems, coastal zone infrastructure, human health and settlement, biodiversity, water resources and wetlands, etc" (NDPC 2011, p. 113).

[26] "There are regular international meetings that force us to write reports, make commitments, etc. They push the country to work hard so we can participate… So basically, it's those events and conventions that move us along, as well as donor money" [Interview with member of the National Climate Change Committee, Accra, 8 November 2011].

[27] The coupling of climate change-agriculture with development is also observed in the press: a study of newspaper stories on climate change in the first half of 2008 found that climate change is often written about on the back of stories that are primarily about development, whether looked at through the lens of food security, livelihoods or health (Gadzekpo, 2009).

[28] Derived from CDKN's concept of "Climate Compatible Development", defined as "development that minimises the harm caused by climate impacts, while maximising the many human development opportunities presented by a low emissions, more resilient, future" (Mitchell and Maxwell 2010: 1).

[29] Using the same data but only focusing on adaptation and mitigation-specific projects, Wurtemberger et al. (2011), using the same data but, arrive at a much lower share of climate change activities targeted at adaptation.

[30] Africa hosts 91 out of 4377 registered CDM projects. Source: cdm.unfccc.int (accessed July 2012).

[31] A respondent from an NGO stated, "Some of the most fractious issues on CC is about finance and how the developing countries want to maintain their advantage, and how they can shift cutting down on emissions to developing countries – that is purely economic" [Interview with member of the NGO Third World Network-Africa, Accra, 10 November 2012]. Another said, "Development partners attempt to influence the policy process towards mitigation in their own interest, for carbon trade off" [Interview with member of the NGO Friends of the Earth and member of the National Climate Change Committee, Accra, 29 December 2011]. Also interview with climate change scientist, University of Ghana, Accra, 19 October 2011.

[32] Interview with member of the NGO Friends of the Earth and member of the National Climate Change Committee, Accra, 29 December 2011; Interview with climate change scientist, University of Ghana, Accra, 19 October 2011; Interview with member of the NGO Third World Network-Africa, Accra, 10 November 2012.

[33] From an undated document titled "Input made by CSOs attending the 'CSOs Round table Consultation Workshop on the National Climate Change Policy Framework (NCCPF), at Angie Hill Hotel, East Legon Accra, on 29th July, 2011."

[34] Interview with climate change scientist, University of Ghana, Accra, 19 October 2011. Also, interview with member of the NGO Friends of the Earth and member of the National Climate Change Committee, Accra, 29 December 2011.

[35] To quote an interviewee, "There is 'talk' about adaptation in public but the 'walk' is mitigation" [Interview with member of the NGO Friends of the Earth and member of the National Climate Change Committee, Accra, 29 December 2011].

[36] Interview with member of the NGO Friends of the Earth and member of the National Climate Change Committee, Accra, 29 December 2011.

[37] Interview with member of the NGO Third World Network-Africa, Accra, 10 November 2012.

[38] Interview with official of the Ministry of Food and Agriculture, Accra, 8 November 2011.

[39] Interview with climate change scientist, University of Ghana, Accra, 19 October 2011.

[40] Ibid.

[41] Interview with official of the Ministry of Food and Agriculture, Accra, 8 November 2011.

[42] Interview with official of the Ministry of Food and Agriculture, Accra, 8 November 2011; Interview with member of the NGO Friends of the Earth and member of the National Climate Change Committee, Accra, 29 December 2011.

[43] See Annex 2 for a mapping of climate change activities in Ghana.

[44] Interview with member of the NGO Friends of the Earth and member of the National Climate Change Committee, Accra, 29 December 2011.

[45] Interview with climate change scientist, University of Ghana, Accra, 19 October 2011.

[46] Interview with climate change scientist, University of Ghana, Accra, 19 October 2011; Interview with member of the NGO Third World Network-Africa, Accra, 10 November 2012; Interview with member of the NGO Friends of the Earth and member of the National Climate Change Committee, Accra, 29 December 2011.

[47] Interview with climate change scientist, University of Ghana, Accra, 19 October 2011.

[48] Interview with member of the NGO Friends of the Earth and member of the National Climate Change Committee, Accra, 29 December 2011.

[49] Interview with official of the Ministry of Environment, Science and Technology (MEST), Accra, 18 November 2011.

[50] Interview with member of the NGO Friends of the Earth and member of the National Climate Change Committee, Accra, 29 December 2011.

[51] Interview with climate change scientist, University of Ghana, Accra, 19 October 2011.

[52] Interview with member of the National Climate Change Committee, Accra, 8 November 2011; Interview with member of the NGO Third World Network-Africa, Accra, 10 November 2012; Interview with member of the NGO Friends of the Earth and member of the National Climate Change Committee, Accra, 29 December 2011.

[53] Interview with climate change scientist, University of Ghana, Accra, 19 October 2011. He gave the example that the Ghanaian official delegation to climate change conferences typically will not include scientists, in contrast to the developed countries such as Britain and the US, and even South Africa, whose delegations will prominently feature scientists who one can see communicating with their negotiators during the talks.

[54] One interview made references to 'multi-country corruption' in climate change [Interview with climate change scientist, University of Ghana, Accra, 19 October 2011]. Also Interview with member of the National Climate Change Committee, Accra, 8 November 2011.

[55] Interview with member of the NGO Third World Network-Africa, Accra, 10 November 2011. This view was echoed by another interviewee who stated, "'Left to Ghana alone, we don't talk about climate change – not our politicians, chiefs or elders" [Interview with member of the NGO Friends of the Earth and member of the National Climate Change Committee, Accra, 29 December 2011].

[56] One interviewee described the constraints that a private firm might face in attempting to produce climate change sensitive products: "[They] can apply for a license to undertake the mitigation process but they have to go through a system and it can even take about 3 or 5 years for a single clean development technology project to be approved" [nterview with climate change scientist, University of Ghana, Accra, 19 October 2011].

[57] As mentioned, it was only in interviews with the Third World Network-Africa (TWN) that a global political economy perspective on climate change was presented.

[58] In our interviews, TWN emerged one organization that wants the dominant narrative to situate the problem within a national and international political and economic context, so that both problem and

solution engage with the global politics. However, TWN is not as engaged in national policy processes around climate change, locating its advocacy at the level of international negotiations.

59 "The current phase of international negotiations demands that countries should have their own climate change understanding that they can feed into the international policy processes….[Plus] development partners want to see clear commitments within formal policies" [Interview with member of the NGO Friends of the Earth and member of the National Climate Change Committee, Accra, 29 December 2011].

60 Interview with member of the National Climate Change Committee, Accra, 8 November 2011.

References

Agyeman-Bonsu, W. K. (2007a). National Climate Change Adaptation Strategy. Paper presented during a workshop on National Adaptation Strategy Development in Akosombo.

Agyeman-Bonsu, W. K. (2007b). Overview of Climate Change Programme in Ghana. Paper presented during the National Forum on Climate Change. Accra.

Agyeman-Bonsu, W. K. (2007c). Overview of Climate Change Programme in Ghana (Unpublished paper). Accra.

Agyeman-Bonsu, W. K. (2007d). National Climate Change Adaptation Strategy (Unpublished paper). Accra

Anim-Kwapong, G.J. and Frimpong, E.B. (n.d.) Vulnerability of agriculture to climate change – impact of climate change on cocoa production. Vulnerability and adaptation assessment under The Netherlands Climate Change Studies Assistance Program Phase 2 (NCCSAP2). New Tafo: Cocoa Research Institute.

Anyidoho, N.A. (2010). Ghana Synthesis Report. Research report produced for the Rights, Power and Civic Action in Developing Societies (RIPOCA) project.

BBC World Service Trust (2010). Ghana Talks Climate Research Report.

Boko, M., I. Niang, A. Nyong, C. Vogel, A. Githeko, M. Medany, B. Osman-Elasha, R. Tabo and P. Yanda, 2007: 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., Cambridge University Press, Cambridge UK, 433-467.

Cameron, C. (2011). Climate Change Financing and Aid Effectiveness, Ghana Case Study. Agulhas, Applied Knowledge.
Crawford, G. and Anyidoho, N.A. (forthcoming). Ghana: struggles for rights in a democratising context.

Darkwah, A., Amponsah, N. and Gyampoh, E. (2006).. Civil Society in a changing Ghana: An assessment of the current state of Civil Society in Ghana. Accra: , GAPVOD and the World Bank.

Economy Watch (2010). Economy, Investment and Financial Reports. www.economywatch.com/energy-economy/carbon-market

Environmental Protection Agency [EPA] (2007). The Clean Development Mechanism in Ghana. A Guide. Developed under the Capacity Development for the Clean Development Mechanism (CD4CDM) by KITE and SSNAFRICA. Accra, Ghana: Environmental Protection Agency of the Ministry of Environment, Science and Technology.

Environmental Protection Agency [EPA] (2000). First National Communication to the UNFCCC. Environmental Protection Agency of the Ministry of Environment, Science and Technology.

European Commission (2007). Institutional Assessment and Capacity Development: Why, what and how? Luxembourg: Office for Official Publications of the European Communities. 39 pp. McKinsey & Company. 2001. Effective Capacity Building in Nonprofit Organizations. Venture Philanthropy Partners.

Food and Agriculture Organization [FAO] (2010). "Climate Smart" Agriculture: Policies, Practice, and Financing for Food Security, Adaptation and Mitigation. Food and Agricultural Organisation of the United Nations.

Gadzekpo, A. (2009). Climate Change Discourses in the Ghanaian media: Sloganeering or Real commitment? In Coulter, P. and Midttun, A. (Eds.). Escaping Climate Change: Climate Change in the Media: North and South Perspectives, Report nr. 1 2009 CERES21-Creative Responses to Sustainability.

Hedger, M. (2011). Agriculture and Climate Change in the UN Climate Negotiations, Policy Brief, 043. Retrieved from www.future-agricultures.org on 11 February 2012.

Hulme, M., Doherty, R., Ngara, T., New, M., Lister, D. (2001). African Climate Change: 1900-2100. Climate Research, 17:145-168.

IFAD-IFPRI Partnership Newsletter (2010). Innovative Policies on Increasing Access to Markets for High-Value Commodities and Climate Change Mitigation. Climate Change Mitigation. September.

IFPRI (2011). Report. Assessment of Organizations Involved in Climate Change, Carbon Trading and Market Access for High Value Agricultural Commodities in Ghana. An IFAD-IFPRI Partnership on Agriculture and Climate Change Mitigation Activities.

Intergovernmental Panel on Climate Change, IPCC (2007) 'Summary for Policymakers'. In Climate Change 2007: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of

the Intergovernmental Panel on Climate Change, ed. M. L. Parry, O. F. Canziani, J. P. Palutikof, P. J. van der Linden, and C. E. Hanson. Cambridge, U.K.: Cambridge University Press.

Karanja M. (2010). Kenya Eyes Carbon Dollar. Retrieved from www.capitalfm.co.ke/business on 9 November 2010.

Keeley, J. and Scoones, I. (2003). Understanding Environmental Policy Processes: Cases from Africa. London: Earthscan, pp. 21-39.

Kingdon, J. W. (1995). Agendas, Alternatives, and Public Policies. New York: Harper Collins.

Lessik, A. and V. Michener. (2000). Measuring Institutional Capacity. Recent Practices in Monitoring and Evaluation Tips, No. 15. United States Agency for International Development.

Lusthaus, C., Adrien, M., Anderson, G., Carden, F., and Montalván G. P. (2002). Organizational Assessment: A Framework for Improving Performance. Washington, D.C.: International Development Research Centre, Ottawa Canada and Inter-American Development Bank.

McKinsey & Company (2001). Effective Capacity Building in Nonprofit Organizations. Venture Philanthropy Partners.

Ministry of Food and Agriculture [MoFA] (2007). Food and Agriculture Sector Policy (FASDEP II). Accra: Ministry of Food and Agriculture.

Ministry of Food and Agriculture (2011, May). Facts and figures (2010). Report produced by the Statistics, Research and Information Directorate (SRID) of the Ministry of Food and Agriculture. Accra: Ministry of Food and agriculture.

Ministry of Science, Environment and Technology [MEST] (2003). Ghana's Climate Change Technology Needs and Needs Assessment Report, version 1. Accra: Ministry of Environment, Science and Technology.

Ministry of Science, Environment and Technology [MEST] (2010). Ghana Goes for Green Growth: National Engagement on Climate Change Discussion Document. Accra: Ministry of Environment, Science and Technology. [online: http://prod-http-80-800498448.us-east-1.elb.amazonaws.com/w/images/2/29/GhanaGreen.pdf]

Ministry of Manpower, Youth and Employment (n.d.). National Employment Policy (Final draft version 4). Accra: Ministry of Manpower, Youth and Employment.

Naab, J.B, Gonzalez-Estrata, E., Thornton, P.K., Koo, J., Adiku, S.G.K., Walen, V. and Jones, J.W. (2008). Feasibility of Using Carbon Markets to Support Improvements in Cropping Systems and Increase Household Income in Northern Ghana. Carbon Enhancing Management Systems (CEMS). University of Florida: IFAS.

National Development Planning Commission [NDPC]. (2011, August). The Implementation of the Ghana Shared Growth and Development Agenda – 2010 Progress Report. Accra: National Development Planning Commission.

National Development Planning Commission [NDPC]. (2010, September). The Ghana Shared Growth and Development Agenda 2010-2013, Vol 1 – Policy Framework (final draft). Accra: National Development Planning Commission.

National Development Planning Commission [NDPC]. (2005, September). The Ghana Growth and Poverty Reduction Strategy, 2006-2009. Accra: National Development Planning Commission.

National Commission on Science for Sustainable Forestry (2010). Carbon Trading: A Primer for Forest Land Owners. Retrieved from www.carbon.sref.info on 30 August 2010.

Pinto, A., Magalhaes, N and Ringler, C. (2010). Potential of Carbon Markets for Small Farmers: A Literature Review. IFPRI Discussion Paper 01004. July.

REDD+ Readiness Progress Fact Sheet. Country: Ghana. February, 2011

Republic of Ghana (RoG). Ghana's Second National Communication to the UNFCC. September 2011.

Smith C.E. (2008). Encouraging Climate Change Adaptation through Payment for Environmental Services: Case Studies in the Pacific Region of Costa Rica. University of Waterloo. Waterloo, Ontario, Canada. Retrieved from www.gradworks.umi.com

Stern, N. (2006). Review on the Economics of Climate Change. Cambridge: Cambridge University Press.

Stone, D. A. (1989). Causal stories and the formation of policy agendas. Political Science Quarterly, 104(1): 281-300.

The Copenhagen Diagnosis (2009): Updating the World on the Latest Climate Science. I. Allison, N.L. Bindoff, R.A. Bindschadler, P.M. Cox, N. de Noblet, M.H. England, J.E. Francis, N. Gruber, A.M. Haywood, D.J. Karoly, G. Kaser, C. Le Quéré, T.M. Lenton, M.E. Mann, B.I. McNeil, A.J. Pitman, S. Rahmstorf, E. Rignot, H.J. Schellnhuber, S.H. Schneider, S.C. Sherwood, R.C.J. Somerville, K. Steffen, E.J. Steig, M. Visbeck, A.J. Weaver. The University of New South Wales Climate Change Research Centre (CCRC), Sydney, Australia, 60pp.

United Nations Development Program [UNDP] (1998). Capacity Assessment and Development in a Systems and Strategic Management Context. Technical Advisory Paper No. 3. Management Development and Governance Division, Bureau for Policy Development, United Nations Development Program.

United Nations Development Program [UNDP] (2007). Capacity Assessment Methodology User's Guide.

Capacity Development Group Bureau for Development Policy, United Nations Development Program.

UNOCHA (2005). Policy Processes in Livestock Health and Marketing. Ministry of Agriculture and Natural Resources (Federal Republic of Ethiopia)

Van Loon, J. (2008), Payment Plan for Climate Change Costs Proposed by Stockholm Environment Institute. Retrieved from www.bloomberg.com/apps/news on 3 November 2010.

Wiggins, S. and Leturque, H. (2011). Ghana's sustained agricultural growth: Putting underused resources to work. Overseas Development Institute, London, UK.

Westerhoff, L. and Smit, L. (2009). The rains are disappointing us: dynamic vulnerability and adaptation to multiple stressors in the Afram Plains, Ghana. Mitigation and Adaptation Strategies to Climate Change, 14:317–337

Würtenberger, L, Bunzeck, I.G and van Tilburg, X. (2011). Initiatives related to Climate Change in Ghana: Towards coordinating efforts. Climate & Development Knowledge Network (CDKN).

Annexes

Annex 1: Review of key actors on climate change and agriculture in Ghana

Government Ministries, Departments and Agencies

An IFPRI-IFAD (2011) report identifies key public organizations such as the Ministry of Environment Science and Technology (MEST) and its Environmental Protection Agency (EPA), Forestry Commission (FC) and Water Resources Commission (WRC) and the Forestry Research Institute and Soil Research Institute under the Council for Scientific and Industrial Research (CSIR) to be involved in climate change policy/program formulation.

MEST hosts the National Climate Change Committee (NCCC) that coordinates the development of the NCCPF. This committee has the mandate of reviewing policies and programs to complement national priorities on climate change and is thus guiding the process of producing the NCCPF. Membership includes representatives from the ministries and government agencies (including MoFA, Ministry of Finance and Economic Planning, Ministry of Energy, The Energy Commission, Environmental Protection Agency, Forestry Commission and the National Development Planning Commission). It also includes representatives of the private sector, donor community, civil society organisations and academia.

The Ministry of Environment, Science and Technology (MEST) is currently the UNFCCC focal point in Ghana. Previously the EPA had been the focal point of discussions around climate change and took the lead in preparing the initial climate change assessment reports required of Ghana under the UNFCCC. MEST is taking a more active part in climate change policy processes than before although there are still concerns about the capacity of the ministry to effectively lead the policy process; CSOs have complained about the slow progress of work on the NCCPF and have attributed it, among other things, to a lack of expertise and staff to coordinate the policy process and to encourage broad-based consultation. The NCCC, the policy arm of MEST on climate change, may also be hindered by expertise in that the representatives of various institutions on the board may not have the requisite knowledge of climate change issues. Further, it is suggested that a commission or authority would have greater power than a 'committee' to implement policy, and in particular to have such policy mainstreamed into other MDAs of the government.

The question of expertise within the government is particularly important. The sense from the interviews was that there are few 'experts', even within ministries, departments and agencies (MDAs) that have significant involvement in climate change policy making or programming. Some interviewees were dismissive of the qualification of particular individuals in influential positions or offices related to climate change. It also appears that those who do build up experience are poached by other institutions; there is the illustrative case of the former National Climate Change Coordinator at the EPA who led the writing of Ghana's reports of the UNFCCC and had been part of Ghana's delegation to the COP meetings, who now works with the UNFCCC. The quote below brings up for scrutiny the capacity of lower (local) levels of government to implement the central government's commitments at international levels:

> People sit in Accra and draw beautiful programmes such as the Ghana Shared Growth Development Agenda with its components on climate change and it is sent to the districts, who are supposed to mainstream or integrate these programs at the local level -- how are they going to do it and who is going to do it? (Interview with climate change scientist, University of Ghana, Accra, 19 October 2011).

There is a further challenge to the government's ability to take the lead in climate change policy processes in the form of the number of units involved in running climate change programs. This leads to a level of fragmentation and policy incoherence. For instance, REDD+ is located in a number of locations within and outside of the government structures and within different functions. There is a Technical Coordination Committee under the National Resource and Environmental Governance (NREG) responsible for coordinating Ghana's FIP, Forest Carbon Partnership Facility (FCPF) (REDD+), VPA, National Forest Forum and Non-Legally Binding

Instruments (NLBI). The National REDD+ Technical Working Group is a multi-stakeholder body within the Ministry of Lands and Natural Resources that provides advice and guidance on all REDD+ processes. The Climate Change Unit of the Forestry Commission serves as the REDD+ secretariat of the National REDD+ Technical Working Group. Finally, Technical Sub-Working Groups have been established to provide expertise and oversight on specific REDD+ strategy options and REDD+ methodological issues.

Civil Society Organisations

The presence of civil society organisations in Ghana on climate change was perhaps at its zenith in the lead up to Copenhagen when there was an effort worldwide to fund and in other ways support CSOs to do advocacy to encourage the government's commitment to addressing climate change.

However, they are not believed by several of the people interviewed to have much influence on policy debates and processes. Among reasons given in the in-depth interviews are that they lack the technical knowledge to meaningfully engage in the policy process whether at national and international levels. Again, many CSOs, and in particular the local NGOs that lead work on climate change (see Box 1), are funded by international NGOs and other donors, and this raises questions about their level of independence and actual commitment to climate change.

Development agencies

Development partners – referring to foreign governments and their development arms (e.g. The Netherlands government and DFID) and multilateral agencies (e.g. The World Bank and UNDP) -- are very prominent on Ghana's policy landscape and wield significant influence in the policy process, not least because they provide budget support to the Government of Ghana. Development partners have also formed sector-specific committees or bodies that seek to influence sectoral policies in certain directions.

Development partners are the most influential of policy actors around climate change in Ghana. To begin with, The Netherlands and DFID are represented by a climate change focal person from DFID who is a member of the National Committee on Climate Change. Development partners and donors provide funding for a number of climate change policy activities, such as the reports that Ghana submits to the UNFCCC and initiatives such as REDD. Importantly, a group of development partners, including the World Bank, Netherlands Embassy, DFID, the French government, provide budget support for two sectors – MEST and Ministry of Lands and National Resource - through the National Resource and Environmental Governance (NREG), a five-year budget support sector program that begun in 2008. For instance, most activities of MEST are run with funds from NREG, whose funding is channelled the Ministry of Finance and Economic Planning (MoFEP). Thus, MoFEP, MEST and other recipient ministries, including their subsidiaries such as the Forestry Commission and Mining Commission, are aware of the potential funding available for climate change activities, leading to some friction between

Box 1: CSOs/NGOs in Climate Change-Policy process

Major CSOs/NGOs in Climate Change policy advocacy include Friends of the Earth-Ghana, Green Earth Organization, Third World Network-Ghana, ABANTU, SEND-Ghana, Participatory Development Associates, Christian Aid and CARE International.

Friends of the Earth-Ghana was founded in 1986 and perhaps the largest environmental organization in Ghana dedicated to addressing environmental issues and promoting public awareness of problems in Desertification, Forest, International Financial Institutions, Ozone and Sustainable Societies and have gained considerable expertise in forestry issues.

Green Earth Organization advocates in halting environment degradation, conservation and restoration of the environment geared toward sustainable development and has expanded its activities in lobby and advocacy towards sustainable management of the forest. Besides, it has as part of its policy changes, ensured that all projects that are planned and implemented, to mainstream gender needs.

Third World Network-Africa is a research and advocacy organisation based in Accra, Ghana that was established in 1994 under Ghanaian law as a non-profit company limited by guarantee. It is the autonomous Africa section of Third World Network (TWN), an independent non-profit coalition of organisations and individuals engaged in advocacy on issues related to development, environment and North-South affairs.

ABANTU work on, among others, Gender and Climate Change with the goal of deepening and sharing knowledge with a range of actors in the field to strengthen policy advocacy. Currently they have the Gender Action on Climate Change for Equality and Sustainability (GACCES), a core group of activists on gender and climate change. The aim of ABANTU's gender and climatic change is to strengthen the capacities of women to influence climate change policies from a gender perspective.

stakeholders as they position themselves to gain from such funds (Cameron, 2011).

The fact that the funding from the UNFCCC has been coming in trickles rather than the torrents that were at one time expected (Cameron, 2011) means that these bilateral arrangements, backed by funding, assume even more importance, even when they are contrary to the direction of negotiations or agreements within the COP. The implication is that, within these arrangements, Ghana (as a donor recipient) will have less power than it should have as an equal member of COP. On the other hand, the structure of the UNFCCC also encourages this unequal power relationship between Ghana and its development partners. This situation is summed up by Cameron (2011, p. 24):

> "The lack of a domestic climate change framework (in Ghana), and the different mechanisms of finance provision, result in a minority of external funders promoting both their individual interests and projects at the same time as supporting the international mechanisms and vertical funding channels…in which they are stakeholders…The donor approach in Ghana to date has been more supply driven than is preferable. It has not, fundamentally, built wider local ownership around which external support can co-ordinate nor sought to build domestic accountability that will drive alignment and ownership."

Academic community

The interviews emphasised that climate change is a 'technical' area and a 'science', and therefore there is a need for expertise in producing knowledge about the phenomenon and in incorporating these into policies. However, our interviewees indicated that the academic community is not as active in policy-influencing knowledge production as seen in the activities of CSOs and NGOs. The explanations given were that Ghanaian researchers were not as active in climate change, or that they were producing knowledge that was not being attended to by politicians. Both of these perspectives are reflected in the excerpts below:

> Climate change is science. The talk has been between policy makers without consideration of the research on climate change needed to provide evidence-based policy making. Scientists in Ghana are talking about climate change but they are not invited to join the policy discussion. Very soon there is going to be a convention in Durban but the Ghanaian official delegation will not include scientists because the policy makers think it is a political issue rather than science. This is in contrast to the developed countries such as Britain that will send delegations that prominently feature scientists whom one can see communicating with their negotiators through memos during the talks (Interview with climate change scientist, University of Ghana, Accra, 19 October 2011).

One exception to this trend is the setting up of a Centre of Excellence for Global Environmental Change Research at the University of Ghana which aims to build 'research capacity' on climate change adaptation in order to influence policy making on climate change (see Box 2).

Private Sector

The private sector in Ghana is removed from the policy processes on climate change and agriculture, except when these offer prospects for profit-making, such as the production of bio-fuel crops. However, there are very few of these projects in Ghana. One initiative to address climate change impacts in Ghana is being funded by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU). It is implemented by GIZ in cooperation with the National Insurance Commission (NIC) and the MoFEP. It is called the 'Innovative Insurance Products for Adaptation to Climate Change' (IIPAC) and offers farmers insurance products to mitigate their financial risks from weather variability caused by climate changes. Another example of a small-scale project is Cadbury's Cocoa Carbon Initiative.

However, in general, the involvement of the private sector in climate change initiatives is limited (Wurtenburg et al. 2011, p. 25). This may be partly a lack of appreciation of climate change issues and the opportunities it provides, or because of structural constraints to private sector actors taking advantage of such opportunities.

Box 2: Centre of Excellence for Global Environmental Change Research

Recently, Ghana, in collaboration with development partners, has set-up a Centre of Excellence for Global Environmental Change Research at the University of Ghana (UG), with a focus on training and human resource development, building climate change adaptation research capacity, influencing policy through general public awareness and targeted advocacy, and disseminating knowledge and best practices in climate change adaptation. The Centre acknowledges that while the challenges of climate change mounted, climate expertise and adaptation research capacity remained limited in Ghana and other parts of Africa.

The University of Ghana was mainstreaming Climate Change issues into its courses and introduced a new post graduate programme in climate change as measures to enhance the pool of climate change experts in the country. The Centre is currently implementing "Building Capacity to meet the Climate Change Challenge (B4C) in Ghana" which includes UG, Ghana Wildlife Society, Centre for African Wetlands and CARE International Ghana.
Ghana News Agency, December 16, 2011

An interviewee summed it up: "They [actors in the private sector] don't even know that they are connected [to this issue of climate change]. It's only when they have a product to sell that they might use climate change – for example, selling solar equipment, car batteries, GMS food and so on. But in terms of research and innovation for adaptation, for instance---no. On the contrary, they are contributing to degradation– real estate companies cutting down trees, winning beach sand, cutting through mountains….These are anti-climate change responses".[60]

Annex 2: Examples of climate change initiatives in Ghana

Source: Wurtemberger et al. (2011: 29-31)

Table A.1 *Overview of the initiatives related to adaptation in Ghana considered in this report*

	Keyword	Name	Recipient or implementing organization	start date	end date	Initiative sponsor	Amount	Currency
ongoing	Adaptation	Sustainable Land Management in Ghana (no specific climate change focus)	MEST	Jun-10	Oct-15	AfDB, IDA, GoG	129.2mln.	USD
		CARE Adaptation learning programme for Africa (ALP)	CARE	Jan-10	Dec-14	DFID, DANIDA, Ministry of Foreign Affairs Finland	5 mln.	GBP
		Innovative Insurance Products for Adaptation to Climate Change (IIPAC)	GTZ	Dec-09	Jun-13	German Federal Ministry of the Environment		EUR
		Vodafone - Raising awareness for climate change	EPA	Jul-10	Jul-12	Vodafone Ghana		GHC
		Regional Science Service Centres (RSSC)	Unknown	Jul-10	Jun-12	German Federal Ministry of Education and Research		EUR
		URAdapt: Managing water in the urban-rural interface for climate change resilient cities	CSIR/ WRI	2009	2012	International Development Research Centre (IDRC) of Canada, DFID		USD
		Climate Change Adaptation in Northern Ghana	WRC	Jan-08	Dec-11	DANIDA		USD
		Africa Adaptation Programme	UNDP	Dec-08	Dec-11	JICA		USD
		Climate Airwaves	Ghana Community Radio Network					

	Keyword	Name	Recipient or implementing organization	start date	end date	Initiative sponsor	Amount	Currency
completed	Adaptation	CC DARE - Climate Change and Development Adapting by Reducing Vulnerability	UNDP/EPA	Aug-09	Nov-10	DANIDA, UNDP, UNEP	150 000	USD
		Economics of Adaptation to Climate Change	World Bank	Dec-07	Mar-10	DFID, Switzerland, NL	4.4 mln.	EUR
		Netherlands Climate Assistant Programme (NCAP) Ghana Phase Two	ETC International	Jan-04	Dec-07	Dutch Ministry of Foreign Affairs	180 000	EUR
		Netherlands Climate Change Studies Assistant Programme (NCCSAP) Ghana Phase One	IVM	Jan-96	Dec-00	Dutch Ministry of Foreign Affairs		
ongoing	Disaster risk management	Ghana North - Sustainable Development, Disaster Prevention, and Water Resources Management (GFDRR)	NADMO	Jan-08	Dec-11	World Bank	660 000	USD
completed	Disaster risk management	Enhancing National Strategies for Effective Disaster Risk Reduction in Ghana	Unknown	Jan-08	Dec-08	UNDP	140 000	USD
ongoing	Social development and health	Integrating Climate Change into the Management of Priority Health Risks	MoH	Oct-10	Dec-13	GEF (co-financing of 55.8 mln USD through general health sector funding eg by DANIDA)	1.8 mln.	USD
		Climate Change and Human Health in Accra, Ghana	Regional Institute for Population Studies	Sep-09	Jun-12	International Development Research Centre (IDRC) of Canada, DFID	340 000	USD
		Ghana Community-Based Rural development (no specific climate change focus)	MLGRD - Ministry of local government and rural development	Jul-04	Jun-11	IDA, GoG, Local governments	74 mln.	USD

	Keyword	Name	Recipient or implementing organization	start date	end date	Initiative sponsor	Amount	Currency
ongoing	Water management	Ghana Sustainable Rural Water and Sanitation Project (no specific climate change focus)	Community Water and Sanitation Agency (CWSA)	Jun-10	Jun-16	World Bank, GoG	77.3 mln.	USD
		Ghana Urban Water Project (no specific climate changec focus)	Ghana Water Corporation	Jun-04	Dec-12	IDA, GoG, Nordic Development Fund	120 mln.	USD
completed	Water management	Sustainable Development of Research Capacity in West Africa based on the GLOWA Volta Project (no specific climate change focus)	Unknown	Jun-09	Nov-10	German Federal Ministry of Education and Research	566 000	EUR
		GLOWA Volta Project (no specific climate change focus)	University of Bonn	May-00	May-09	German Federal Ministry of Education and Research	11 mln.	EUR
		Water resource management principles	WRC	Jan-01	Dec-07	DANIDA		

Annex 3: List of interviews

Date	Interviewee/Institution
8 November 2011	Ministry of Food and Agricultural (MoFA)
14 November 2011	Forestry Commission
18 November 2011	Ministry of Environment, Science and Technology (MEST)
19 October 2011	Climate Change Scientist, University of Ghana
8 November 2011	Representative of Academia, National Climate Change Committee
29 December 2011	Friends of the Earth – Ghana
10 November 2011	Third World Network Africa (TWN

Future Agricultures

This **Working Paper** was written by **Daniel Bruce Sarpong and Nana Akua Anyidoho** for the **Future Agricultures Consortium**. The series editor is **Beatrice Ouma .** Further information about this series of Working Papers at: **www. future-agricultures.org**

FAC appreciates the support of the UK Department for International Development (DfID)

UKaid from the British people

The views expressed do not necessarily reflect the UK Government's official policies.