

Climate Change Adaptation Policy in Ghana: Priorities for the Agriculture Sector

Working Paper No. 68

CGIAR Research Program on Climate Change,
Agriculture and Food Security (CCAFS)

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RESEARCH PROGRAM ON
**Climate Change,
Agriculture and
Food Security**



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Abstract

This report is intended to complement the 2011 CCAFS publication “State of Climate Change Adaptation and Mitigation Efforts for Agriculture in Ghana” (Domozoro 2011). It provides relevant updates regarding the policies, projects, or initiatives introduced therein, and an assessment of the evolving political scenario.

Specifically, this document presents an objective look at 17 key policy documents within three thematic areas: (1) governance, (2) agriculture, and (3) climate change institutions in Ghana. Several key projects are also included in this analysis given their relevance and status within Ghana’s agricultural adaptation regime. A discussion of the institutional arrangements in each of the thematic areas is provided first, along with a short description of each of the 17 policies and projects. Then, in the following analysis section, objectives and priorities for each of the policies are outlined, together with their evolution over time, intending to identify the temporal shifts in agricultural climate change policy direction in the country. Policy interplay between and within these thematic areas is also addressed. Power and influence dynamics between actors in Ghana’s climate change adaptation regime are discussed in the following section and the results of a Multilevel Stakeholder Influence Mapping (MSIM) exercise are provided. Finally, a discussion of key challenges and recommendations are provided, as identified through semi-structured interviews with actors across the country’s adaptation regime.

The document is primarily addressed through an adaptation lens, as this research results from the Systemic Integrated Adaptation project, a CCAFS Theme 1 Adaptation to Progressive Climate Change initiative in collaboration with Oxford University’s Environmental Change Institute (ECI).

Keywords

Agriculture; Climate change; Adaptation; Policy; Ghana; Power and influence.

Key messages

From the analysis of 17 key development, climate change, and agriculture policy documents:

- Ghana’s agriculture and climate change policy environment is dense. In the 17 documents analysed here, 192 separate policies are cross-referenced. Of these, the Ghana Poverty Reduction Strategy (I &II) and Food and Agriculture Sector Development Policy II are among the most widely cited in the current policy portfolio. **(Page 48)**.
- “Improved domestic marketing,” “improved access to export markets” and “improved access to agricultural technologies” have remained consistent agricultural policy objectives from 1996 to present. More recently, public-private partnerships (PPP) and value chain development have emerged as key agricultural sector development strategies in Ghana. **(Pages 19, 32–34, 36)**.
- Climate Change is referenced 62 occasions in the Ghana Shared Growth and Development Agenda (GSGDA), but only on one occasion in the Food and Agriculture Sector Development Policy II, the country’s most recent medium-term development and agriculture sector plans, respectively. **(Page 38)**.
- “Awareness creation and capacity building”, “improved land management”, and “development of improved varieties” are among the most frequently cited policy objectives in Ghana’s climate change policy portfolio. **(Page 44)**.
- Agriculture and food security features prominently in the National Climate Change Policy (NCCP) as the first of five focus areas. Particular emphasis is placed in the NCCP on ‘developing climate-resilient agriculture and food security systems.’ **(Page 30)**.

From the application of Multilevel Stakeholder Influence Mapping (MSIM):

- Actors with the *highest* perceived influence in Ghana’s agricultural climate change adaptation regime include the Ministry of Food and Agriculture (MOFA), Ministry of Environment, Science, Technology and Innovation (MESTI), Environmental Protection Agency (EPA), farmers and the World Bank. **(Page 53)**.
- Of actors deemed ‘highly relevant’ to climate change in agriculture, the actors with the lowest perceived influence include the National Disaster Management Organisation (NADMO), agro-industries, banks, Ghana Climate Adaptation Network (G-CAN) and universities. **(Page 55)**.

- Farmers, as noted above, are considered highly influential in the agricultural climate change adaptation policy process, but only when the perspectives of actors from regional and district levels are introduced. Farmers *do not* occupy an influential position from the perspective of central-level actors alone. **(Page 56)**.

From semi-structured interviews with actors across Ghana's adaptation regime:

- Renewed efforts toward fiscal, administrative and political decentralisation have the potential to improve localized decision making in Ghana, but low District Assembly (DA) capacity and delays in fund distribution to DAs from the Ministry of Finance (MOF) stand in the way. Decentralisation will lead to improved local adaptive capacity only when financing keeps pace with the administrative and institutional changes happening across Ghana. This process can be initiated through active engagement of the Ministry of Finance's newly placed Climate Change Unit. **(Page 62)**.
- Decentralisation can support Ghana's agricultural extension service, which has been in deteriorating conditions in recent years due to funding cuts and freeze on staff hiring. The transmission of new technologies between researchers and end users depends on robust extension linkages. Enhanced recognition of the valuable role of extension services would be a valuable outcome of the decentralisation process. **(Page 63)**.
- The Ministry of Local Government and Rural Development (MLGRD) must be adequately engaged in the adaptation planning process so that climate change concerns are properly mainstreamed into Ghana's decentralisation policies from the very beginning. **(Page 62)**.
- The active participation of traditional leaders in adaptation project design and implementation must be encouraged. This will allow district assemblies to leverage the influence of traditional rulers over land and land use, a key resource for management-based adaptations to climate change. These two strands of local governance can work together, for example, to strengthen bylaws against bush burning and other environmentally degrading practices. **(Page 64)**.
- There are several key 'entry points' into Ghana's development planning process for climate change mainstreaming or climate policy integration. These include (1) National Development Planning Commission (NDPC) planning medium-term guidelines for Metropolitan, Municipal and District Assemblies (MMDAs) and Ministries, Departments and Agencies (MDAs); (2) Ministry of Finance (MOF) Budget guidelines for MMDAs and MDAs; (3) National Medium-Term Planning Frameworks (that is, GSGDA I) and District Annual Action Plans (AAPs);

(4) Annual Functional and Organizational Assessment Tool (FOAT) assessments of MMDA operations, among others. (**Page 09**).

- Two principal multi-stakeholder climate change platforms exist in Ghana, the Ghana Climate Adaptation Network (G-CAN) and the Ghana Climate Change, Agriculture and Food Security Platform. Communication between these and other platforms (the National Climate Change Council, the MOFA Task Force on Climate Change) is limited. (**Page 62**).
- Although Ghana has an established National Climate Change Policy (NCCP), it has not undertaken a formal National Adaptation Plan (NAP) process under the United Nations Framework Convention for Climate Change (UNFCCC). (**Page 25**).
- Given the pervasiveness of politics in Ghana, party manifestos become important documents in framing the development agenda of the country. As such, raising awareness and improving climate change capacity of political parties, both in office and in opposition, is a key step in ensuring climate change mainstreaming in Ghana. (**Page 63**).
- The growing private sector in Ghana has been dominated by a few key industries including cocoa, palm oil, gold and an emerging oil market. As such, agricultural input providers and postproduction agribusinesses have not been engaged by the Government of Ghana (GoG) with the same level of urgency. Access to quality inputs and markets are key adaptation strategies for Ghana, and would benefit from agricultural sector engagement in PPP and value chain development approaches. (**Pages 63–64**).

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Acronyms

AAGDS	Accelerated Agricultural Growth and Development Strategy
AAP	Annual Action Plan
AfDB	African Development Bank
CAADP	Comprehensive Africa Agriculture Development Programme
CC/DRR	Climate Change and Disaster Risk Reduction
CPI	Climate policy integration
CSIR	Council for Scientific and Industrial Research
DA	District Assembly
DACF	District Assemblies' Common Fund
DAP	Document analysis protocol
DDF	District Development Fund
DP	Development partner
DPCU	District Planning Coordinating Unit
DPF	Decentralisation Policy Framework
DRR	Disaster Risk Reduction
ECOWAP	ECOWAS Agricultural Policy
ECOWAS	Economic Community of West African States
EPA	Environmental Protection Agency
FASDEP	Food and Agriculture Sector Development Policy
FC	Forestry Commission
FOAT	Functional and Organizational Assessment Tool
G-CAN	Ghana Climate Adaptation Network
GDP	Gross Domestic Product
GECCA	Ghana Environmental Conventions Coordinating Authority
GEF	Global Environment Facility
GHG	Greenhouse gas
GMet	Ghana Meteorological Agency
GoG	Government of Ghana
GPRS I	Ghana Poverty Reduction Strategy I
GPRS II	Growth and Poverty Reduction Strategy II
GRGP	Ghana Rural Growth Programme
GSGDA	Ghana Shared Growth and Development Agenda

IFAD	International Fund for Agricultural Development
LI	Legislative Instrument
MDA	Ministries, Departments and Agencies
MDG	Millennium Development Goals
MESTI	Ministry of Environment, Science, Technology and Innovation
METASIP	Medium-Term Agriculture Sector Investment Plan
MLGRD	Ministry of Local Government and Rural Development
MMDAs	Metropolitan, Municipal and District Assemblies (or ‘DA’)
MMDCEs	Metropolitan, Municipal and District Chief Executives
MOF	Ministry of Finance (Ministry of Finance and Economic Planning)
MOFA	Ministry of Food and Agriculture
MOLNR	Ministry of Lands and Natural Resources
MP	Member of Parliament
MSIM	Multilevel Stakeholder Influence Mapping
MTDP	Medium-Term Development Plan
M&E	Monitoring and Evaluation
NADMO	National Disaster Management Organisation
NAP	National Adaptation Plan
NCCAS	National Climate Change Adaptation Strategy
NCCC	National Climate Change Council
NCCP	National Climate Change Policy
NDC	National Democratic Congress
NDPC	National Development Planning Commission
NEPAD	New Partnership for Africa’s Development
NPP	National Patriotic Party
NRGP	Northern Rural Growth Programme
PNDCL	Provisional National Defence Council Law
POCC	Potential, opportunities, concerns and challenges
PPMED	Policy, Planning, Monitoring and Evaluation Directorate
PPP	Public-Private Partnership
PSIA	Poverty and social impact analysis
RCC	Regional Coordinating Council

RPCU	Regional Planning Coordinating Unit
SADA	Savannah Accelerated Development Authority
SEA	Strategic Environmental Assessment
SIA	Systemic Integrated Adaptation
SNC	Second National Communication
SWAp	Sector-wide approach
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNFCCC	United Nations Framework Convention on Climate Change

Context

This document complements the work undertaken by CCAFS-West Africa regional programme in 2011 on the State of Climate Change Adaptation and Mitigation Efforts for Agriculture in Ghana. The work was produced based on field research conducted in Ghana's Lawra District, Upper West Region in March–June 2013 and April 2014 by a team of researchers within the Systemic Integrated Adaptation (SIA) project, an initiative of the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) under Theme 1: Adaptation to Progressive Climate Change, through the Environmental Change Institute (ECI), University of Oxford.

The SIA project aims to produce a truly integrated research programme, bringing together researchers with backgrounds in sociology (social differentiation), global environmental change, economics and finance, and politics—the four project lenses. The programme is investigating what conceptual, methodological and practical tools, and frameworks are required to support adaptation policy development that represents the interests of multiple groups (both human and non-human species), makes explicit tradeoffs in policy decisions, accounts for long-term resilience, addresses and challenges existing downfalls in the current development trajectories, and builds on the existing assets at the community level.

See ccafs.cgiar.org/blog/Integrating-sciences-find-tools-support-adaptation for more information on the Systemic Integrated Adaptation initiative.

Introduction

Agriculture remains at the heart of Ghana's economy and society. It is estimated that over 50% of the working population is engaged directly in agriculture, and that the sector historically contributes to approximately 40% of the country's gross domestic product (Government of Ghana 2007, 2010b). The bulk of agricultural production remains concentrated in the hands of smallholders, approximately with 2.75 million households engaged in the sector and approximately 90% of landholdings less than 2 hectares in size. The country is classified as generally food secure (although pockets of food insecurity exist in each of Ghana's regions), producing 51% of its cereal needs, 60% of fish requirements, 50% of meat needs and relying on imports to cater for the deficit (Government of Ghana 2007).

The country's medium-term planning framework, Ghana's Shared Growth and Development Agenda (GSGDA), places agriculture at the centre of the country's growth and structural

transformation strategy, calling particularly for private sector engagement—through public-private partnerships (PPP)—in the sector. As per the Maputo declaration, the country aims to achieve investment levels of 10% of national budget in the sector and agricultural GDP growth rate of 6% per year. Yet, falling sector budget allocations¹ parallel declines in agricultural sector growth (See Figure 1). The agriculture sector recorded a growth rate of only 2.8% in 2012 (against a 4.8% target) and 0.8% growth in 2011 (5.3% target), for example.

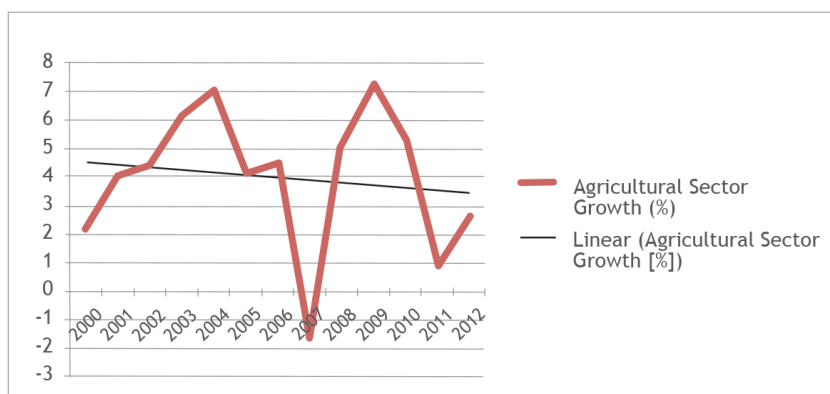


Figure 1. Ghana’s agricultural sector growth (%)

Source: GSGDA, 2011 Budget Statement, 2012 Budget Statement, 2013 Budget Statement, MOFA Website.

Given the sector’s poor growth performance, the share of the agricultural production in Ghana’s broader economy (historically near 45%) has declined in recent years as well (see Figure 2), due in part to the emergence of competing industries, like timber, mining and an emerging oil industry (Government of Ghana 2010c).

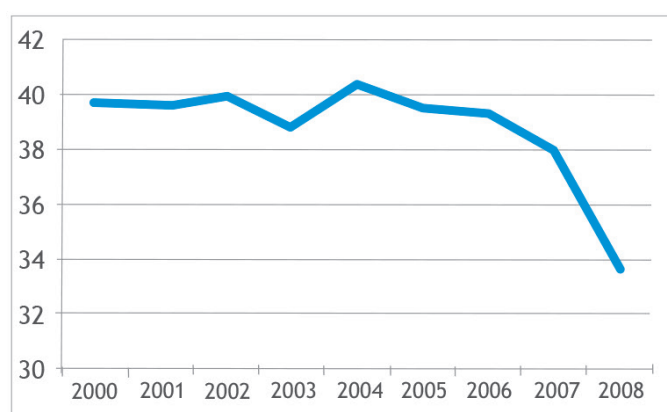


Figure 2. Agricultural sector contribution to GDP (% of total GDP)

Source: Government of Ghana 2010b.

¹ Agricultural budget allocations peaked at 9% of Ghana’s national budget (including the cocoa sector), or Ghana Cedi (GHS) 781.4 million.

Key to interpreting the performance measures of the agricultural sector is recognizing the central role that cocoa production, the country's principal cash crop, plays in the economy. Ghana is the second largest cocoa producer in the world (behind its neighbour Cote d'Ivoire), and has created a centralized and regulated market for cocoa beans managed by the Ghana Cocoa Board (COCOBOD) to market the nearly 1 million tonnes it produces annually (Oxford Business Group 2012).

Constraints to agricultural sector performance in Ghana include poor soil fertility (due, in part, to limited access to fertilizer and other inputs), limited access to credit, heavy reliance on rain-fed agriculture, minimal availability of tractors and mechanization, high post-harvest losses due to inadequate storage and marketing facilities, poor agricultural extension services, low performing livestock breeds, and climate variability and change (Government of Ghana 2010). Each of the challenges is magnified in the Ghana's northernmost regions given the particularly harsh climate and distance from the country's administrative centre.

An increase of 1 °C in mean temperatures across Ghana has been noted over the past 30 years. The country's second UNFCCC national communication cites one recent projection that estimates temperature increases in Ghana's northern savannah regions between 1.7 °C and 2.04 °C by the year 2030, with high temperatures peaking at 41 °C. The effects of climate change will vary across Ghana's five principal geographical zones: coastal plains (south), forest plateau (inland), evergreen rainforest (southwest), the hilly Akwapim-Togo Ranges (east), Volta River Basin (central) and high plains (north). Rainfall decreases in the country from south (2000 mm) to north (<1100 mm), providing the south with two distinct growing seasons and the north with a single season (May–October).

Political history

Ghana's political history, like many other facets of Ghanaian society, is considered a model of success throughout West and sub-Saharan Africa. The country has enjoyed over 55 years of independence from colonial occupation, and over two decades of stable democracy and free and open elections. The relative tranquillity of Ghana's political system has created an environment conducive to both domestic and foreign investment and the emergence of robust mineral, timber, cocoa and, most recently, oil industries. These events have bolstered Ghana's economy and secured its position among Africa's top economic and human development performers.

The country's political history is enshrined in its emblematic and recurrent portraits of five key individuals: Kwame Nkrumah, Jerry John Rawlings, John Kufuor, John Atta Mills and John Dramani Mahama.

Nkrumah, together with five other leaders ("The Big Six") of the United Gold Coast Convention, led Ghana to independence from colonial rule in 1957. European occupation of modern-day Ghana began in the 15th century with the arrival of Portuguese traders to be followed by Dutch and, more prominently, British colonials. Britain would eventually establish its "Gold Coast" colony, which persisted through the early 20th century. Ghana's pro-independence party, the Convention People's Party (CPP), won a parliamentary majority in 1957, paving the way for the establishment of Republican Constitution and the election of Nkrumah as Ghana's first President.

Ghana's early experience with democratic, independent governance was tumultuous. A series of military coups—initiated in 1966 following constitutional installation of a single party system and Nkrumah's confirmation as 'president for life' (1960 Republican Constitution)—would define the first two decades of Ghana's democratic experiment. Jerry John Rawlings would come to power in 1979 by way of military coup, momentarily handing power to an elected government, and then staging a second coup (1981) to terminate the country's Third Republic Constitution. Rawlings would establish the Provision National Defence Council (PNDC) and later the National Democratic Congress (NDC) and lead the way to Ghana's Fourth—and current—Republican Constitution in 1992. The 1992 Constitution is built on both American-style presidential elections (executive) and British first-past-the-post unicameral parliament (legislative branch). Having re-established a multiparty electoral system in the Fourth Republic, Rawlings and the NDC, a party based on socialist ideologies, would go on to win both 1992 and 1996 election contests.

John Agyekum Kufuor of the National Patriotic Party (NPP) would defeat Rawling's Vice President John Atta Mills in the 2000 elections, taking his free-market liberal conservative party to power in 2001. NPP would endure through to the 2008 elections where John Atta Mills (NDC), Ghana's fourth elected president, was instated. Atta Mills would die tragically in office in 2012 just prior to the next election cycle, with power transferring smoothly to then Vice President John Dramani Mahama. Mahama would later go on to win the 2012 elections (with 50.7% of the popular vote) for NDC, although the results were disputed and subject to judicial review in an election dispute case brought forward by the NPP opposition in which Mahama prevailed.

State of policy in Ghana

The analysis of climate change adaptation policies, programmes, and projects presented here is shaped by in-depth interviews with key informants related to agriculture, climate change and development sectors in Ghana (see Appendix 1 for a complete list of interviews). These interviews, along with document review, informed the selection of the key documents listed in Table 1 and referred to subsequently as “target documents” chosen for content analysis.

Table 1. Policies and projects selected for content analysis

Governance and institutional policies
The Constitution of the Republic of Ghana, 1992
Growth and Poverty Reduction Strategy II (GPRS II), 2005
Medium-Term National Development Policy Framework: Ghana Shared Growth and Development Agenda (GSGDA), 2010
Decentralisation Policy Framework, 2010
NDC 2012 Manifesto: Advancing the Better Ghana Agenda; Jobs. Stability. Development, 2012
NPP 2012 Manifesto: Transforming Lives, Transforming Ghana; Building a Free, Fair and Prosperous Society, 2012
Agricultural policies
Food and Agriculture Sector Development Policy (FASDEP), 2002
Food and Agriculture Sector Development Policy II (FASDEP II), 2007
ECOWAS Agricultural Policy (ECOWAP) and Comprehensive Africa Agriculture Development Programme (CAADP) Compact, 2009
Medium-Term Agriculture Sector Investment Plan (METASIP), 2010
G8 Cooperation Framework to Support the “New Alliance for Food Security and Nutrition” in Ghana, 2012
Northern Rural Growth Programme (NRGP), 2007
Climate change policies
Supporting Integrated and Comprehensive Approaches to Climate Change Adaptation in Africa (AfricaAdapt), 2009
Integrating Climate Change and Disaster Risk Reduction into National Development, Policies and Planning in Ghana, 2010
Ghana’s Second Communication to the UNFCCC, 2011
National Climate Change Adaptation Strategy (NCCAS), 2012
National Climate Change Policy (NCCP), 2013

Given the crosscutting nature of climate change adaptation, reviews concerning the current state of initiatives must go beyond policies, projects and initiatives that contain the explicit language for climate change adaptation in agriculture.

This analysis will first cover the general governing institutions (organizations and policies) in Ghana and then move to institutions in agriculture and climate change. For each section, relevant background information is provided, followed by the summary of the documents listed in the table above.

Governing institutions in Ghana

Ghana's 1992 Constitution calls for a system of government that recognizes an Executive (including a 25-member Council of State to advise the President), Legislative (Parliament) and Judicial branch. Key agencies within this structure relevant to the discussion of governing institutions that follows include the National Development Planning Commission (NDPC), Ministry of Local Government and Rural Development (MLGRD), Ministry of Chieftaincy and Traditional Affairs, Regional Coordinating Council (RCC) and Metropolitan, Municipal and District Assemblies (MMDAs).

Development initiatives in Ghana are coordinated by the MMDAs, the lowest unit of administrative governance in Ghana. The country currently has 216 districts established throughout its 10 regions. The MMDAs, a semi-autonomous body under the jurisdiction of the MLGRD, consists of approximately 25 members elected by the district or municipality (although some assembly members are appointed).² Metropolitan, Municipal and District Chief Executives (MMDCes) are appointed by the Office of the President (national level) and approved by the Assembly. The Chief Executive is a political appointment representing the ruling party at the district level, usually from the National Democratic Congress (NDC) or the National Patriotic Party (NPP), Ghana's principal political parties. A Member of Parliament (MP) is also elected at the Constituency level to serve in Ghana's unicameral 230-member parliament.³

The Chief Executive is responsible for administering the District Assemblies' Common Fund (DACF), which is intended to fund development priorities identified by the Assembly. Ghana is currently undertaking efforts at fiscal and administrative decentralisation (see Decentralisation Policy Framework below). The 2012 budget was the first attempt at a 'composite budget' in which the district assembly took on a more central role in coordinating ministerial activity at the district level. All funds previously distributed through ministerial line agencies (that is, Ministry of Food and Agriculture (MOFA) > MOFA Regional Office > MOFA District Office) are now distributed through the District Assembly Office.

The documents analysed in this section include the Constitution of the Republic of Ghana (Government of Ghana 1992), Growth and Poverty Reduction Strategy II (Government of Ghana 2005), Medium-Term National Development Policy Framework: Ghana Shared Growth

² The membership (numbers) of MMDA councils varies from place to place. Assembly members are elected directly and not chosen first by unit committees or zonal councils. Currently, members of the unit committees form the area and zonal councils. The Assembly members are only ex-officio members of the council.

³ A district could have one or more constituencies.

and Development Agenda (Government of Ghana 2010c), Decentralisation Policy Framework (Government of Ghana 2010a), NDC 2012 Election Manifesto: Advancing the Better Ghana Agenda (National Democratic Congress 2012), and the NPP 2012 Election Manifesto: Transforming Lives, Transforming Ghana; Building a free, fair and prosperous society (National Patriotic Party 2012).

Development planning in Ghana

The National Development Planning Commission (NDPC) is accounted for in the 1992 Constitution of the Republic of Ghana under Articles 86 and 87. Article 86 specifically calls for the establishment of the NDPC. This constitutional requirement was translated into an Act of Parliament, which was gazetted in September 1994 under the auspices of the NDPC, Act 479 of 1994, with the mission to advise the President of Ghana on development planning policy and strategy including making recommendations on national development plans and programmes for ensuring even development of the districts of Ghana by the effective utilisation of available resources. The National Development Planning Systems Act of 1994 (Act 480) established the NDPC as the lead coordinating body of the decentralised planning system (see Local Government Act – Act 462 of 1993). NDPC has led and coordinated each planning ‘cycle,’ beginning with the establishment of Ghana Vision 2020. A national medium-term development framework is established, on average, every 4 years in Ghana, and action plans (AAP) are produced by MMDAs and MDAs annually. Table 2 presents the entirety of Ghana’s historical development plans and strategies.

Table 2. History of development plans and strategies in Ghana

Plan title	Years	Plan title	Years
The Guggisberg Plan (the First Ten-Year Plan)	1920-30	The Rural Development Plan	1971-72
The Second Ten-Year Plan	1930-40	The Third Five-Year Plan	1975/76-1979/80
The Third Ten-Year Plan	1946-56	The Fourth Five-Year Plan	1981-86
The Fourth Ten-Year Plan	1951-61	The Economic Recovery Programme/ Structural Adjustment Programme	1983-1989
The Five-Year Plan	1951-56	The National Development Policy Framework: Long-term development objectives (Ghana Vision 2020)	1996-2020
The Consolidation Plan	1958-59	Ghana Vision 2020: The First Step	1996-2000
The Second Five-Year Plan	1959-64	Ghana Poverty Reduction Strategy I (GPRS I)	2003-05
The Seven-Year Plan (Work and Happiness)	1963/64-1969/70	Growth and Poverty Reduction Strategy II (GPRS II)	2006-09
Two-Year Development Plan “The Stabilization Plan”	1967/68-1968/69	Ghana Shared Growth And Development Agenda (GSGDA)	2010-2013
(continues) -->		Ghana Shared Growth And Development Agenda II	2014-2017

Source: Adapted from NDPC draft Long-Term National Development Plan (2008).

NDPC, then, leads a development planning process in Ghana that involves the following key agencies: (1) NDPC, (2) Ministry of Finance, (3) Regional Coordinating Council, and (4) Metropolitan, Municipal and District Assemblies and (5) Ministries Departments and Agencies (sectors). Table 3 has been developed to compare the duties of each institution against the three principal ‘phases’ of development planning in Ghana; planning, budgeting, and monitoring and evaluation (M&E). Key areas for climate policy integration (CPI) or mainstreaming can then be identified.

Table 3. Role of planning institutions in each development planning phase

Institution	Development Planning Phase		
	Planning	Budgeting	M&E
National Development Planning Commission	<p>The NDPC is the principal planning authority.</p> <p>Provides Planning Guidelines and guideline orientation for MMDAs and MDAs.</p>	<p>Works closely with the Ministry of Finance to ensure that the National Budgeting Process is informed by the Medium-Term Development Policy Framework, or Plan.</p>	<p>Produces an annual progress report on the Medium-Term Development Planning Framework (GSGDA I, II and so on)</p> <p>Coordinates evaluation of the implementation of National Development Policies and Plans.</p>
Ministry of Finance	<p>MOF is NOT a planning authority.</p> <p>Previously the “Ministry of Finance and Economic Planning,” “Economic Planning” has been removed to reduce mandate conflicts between NDPC and MOF.</p>	<p>Monitors and projects revenue (both domestic and donors).</p> <p>Provides Budget Ceilings for DACF and MDAs using set algorithms.</p> <p>“Produce and ensure that the budget Guidelines for the Financial Years 2014 to 2017 reflect only the priorities as indicated in the MTDP of the MDA” (MDA Planning Guidelines, 2013).</p> <p>Financial Administration Regulations (2004) of Act 656.</p>	<p>Financial monitoring and tracking of government loans, grants and so on.</p> <p>Provides information and data for the preparation of the annual progress report produced by NDPC.</p>
District Assembly (DA)	<p>The DA is a planning authority.</p> <p>The DA planning officer “Initiates and coordinates the preparation of district development plans in the manner prescribed by NDPC and ensures that the plans are prepared with full participation of the local community (Unit, Area Councils)” (Act 480).</p> <p>Annual action plans are produced by the planning officer.</p> <p>The Planning officer also works with development partners to identify common objectives and avoid duplication.</p>	<p>Operates within DACF funds.</p>	<p>Produces a mid-year review of district development plan.</p> <p>Coordinates with independent monitoring officials to produce FOAT score, which determines District Development Funds.</p>

(continues)

(continued)

<p>Regional Coordinating Council (RCC)</p>	<p>The RCC is NOT a planning authority.</p> <p>The RCC collates MMDA plans and monitors planning activity: “the proposed district development plan in a format prescribed by the Commission shall be submitted for consideration to the Commission through the Regional Coordinating Council” (Act 480).</p> <p>Co-ordinates the development plans and programmes of all District Assemblies within the region and harmonises these district plans and programmes with the national development objectives and priorities.</p>	<p>Tenders large contracts, and monitors implementation.</p>	<p>Monitors and evaluates the implementation of approved development plans, programmes and projects of the District Assemblies within the region and of such national programmes and projects in the region as NDPC may direct.</p> <p>Submits monitoring and evaluation reports on districts in the region.</p>
<p>Ministry of Agriculture</p>	<p>MDA falling under schedule two of Legislative Instrument 1961.</p> <p>District Department of Agriculture provides input to DA plan via the District Planning Coordinating Unit (DPCU).</p> <p>Regional Ministry of Food and provides input to the Regional Planning Coordinating Unit (RPCU).</p> <p>“A ministry shall undertake development planning functions in consultation with the Commission in accordance with the Civil Service Law, 1993.”</p>	<p>District Departments of Agriculture are provided a budget ceiling by MOF.</p>	<p>District Management Information Systems MIS officer works with Area Extension Agents to produce monthly performance reports to the Regional M&E officer, in line with FASDEP II performance indicators. Quarterly and annual reports are also produced.</p> <p>The Regional M&E officer collates monthly reports and sends to MOFA Accra.</p>

Some key entry points into planning process for the mainstreaming or integration of climate change in Ghana may include: (1) NDPC planning guidelines for MMDAs and MDAs, (2) MOF Budget guidelines for MMDAs and MDAs, (3) Medium-Term Planning Frameworks (GSGDA I), (4) annual functional operational assessment tool (FOAT) assessments of DA activity, (5) RCC training of DA Planners. Some initial work has been done in each of these areas as described below.

- (1) In the 2014–17 MDA planning guidelines, climate change is referenced on two occasions, stating broadly that the “2014–17 Guidelines have been designed to ensure that the medium-term development plan integrates cross-cutting issues (for example, Population, Gender, SEA, Climate Change, Vulnerability and so on) in development policies, programmes and projects (PPP) for sustainable development.”

(2) The budget guidelines provided by MOF contain one reference to ‘climate change.’ “In 2014–16, a new Local Climate Adaptation Living Facility (LoCAL) will be piloted to support activities within climate change in 3 MMDAs—Efutu Municipal, Fanteakwa District and Ada East District. The funds should be budgeted for taking into account the investment menu for LoCAL and linked to the DDF Operational Manual.”

(3) The GSGDA contains 62 references to climate change. Specific instances are discussed in detail in Table 10 below.

(4) FOAT is a tool to measure the annual performance of MMDAs, and determines whether a district or municipality will receive performance-based District Development Funds (DDFs). In the FOAT section “planning system,” there is an indicator for “climate change interventions.” The FOAT guidelines state “if 5% or more of the programme and/or physical projects in the Annual Action Plan focus specifically on climate change and disaster risk reduction (CC/DRR) issues, score 1, if not score 0.” The entire planning system section is valued at 18 points for the FOAT assessors.

(5) In the area of MMDA and RCC training, a mainstreaming guide has been developed and piloted in ten districts across Ghana. The document “Integrating Climate Change and Disaster Risk into National Development, Policies and Planning in Ghana” is described in the section “climate change institutions” below.

Constitution of the Republic of Ghana

The Constitution of the Republic of Ghana was signed into law on 28 April 1992, by Flt. Lt. Jerry John Rawlings, as Head of State and chairman of the Provisional National Defence Council. It (re)establishes Ghana as a parliamentary democracy (as intended in the 1957 independence constitution) with an executive presidency, following over a decade of military rule.

The Constitution serves as the fundamental law of Ghana. Apart from outlining the structure and responsibility of the executive, legislative and judicial branches (specifically president, parliament, cabinet, council of state and an independent judiciary) of government, and outlining the rights and duties of citizens, the document establishes the National Development Planning Commission (NDPC), and the district assemblies (DAs), two key bodies in the areas of development and adaptation planning.

While the Constitution makes no direct mention of climate change, the document does articulate explicit responsibility towards environmental protection. Namely that “in Chapter Six The Directive Principles of State Policy, Section 36, Article 9 suggests that “the State shall take appropriate measures needed to protect and safeguard the national environment for posterity; and shall seek cooperation with other states and bodies for purposes of protecting the wider international environment for mankind.” This obligation is installed within the NDPC’s responsibilities in Chapter Eight (The Executive), Section 87, Article 2(c), stating “[The NDPC shall] make proposals for the protection of the natural and physical environment.”

Similarly, Chapter Six, Section 36, Article 3 outlines similar responsibilities for the agricultural sector stating that “the State shall take appropriate measures to promote the development of agriculture and industry.”

The Constitution also paves the way for decentralisation policies currently building momentum in the country. Chapter 20, Section 240 (Decentralisation and Local Government), Article 1 states that “Ghana shall have a system of local government and administration which shall, as far as practicable, be decentralised.” Furthermore, Section 254 of the same Chapter states “Parliament shall enact laws and take steps necessary for further decentralisation of the administrative functions and projects of the Central Government but shall not exercise any control over the District Assemblies that is incompatible with their decentralised status, or otherwise contrary to law.”

Ghana’s Poverty Reduction Strategy II was established in 2005 by the National Development Planning Commission (NDPC). The document outlines Ghana’s medium-term development agenda for the period of 2006–2009. GPRS II introduced a shift in strategic focus away from poverty alleviation (GPRS I) and towards attaining the status of middle-income country (per capita income of at least USD 1000) by the year 2015.

The joint goal of wealth creation and poverty alleviation put forth by the GPRS II is anchored in the priority of continued macro-economic stability, accelerated private sector-led growth, vigorous human resource development and good governance and civic responsibility.

In pursuit of these priorities, it was envisioned that agricultural and industrial development would provide the backbone of Ghana’s policy framework for GPRS II. The private sector in particular would be engaged to achieve the following agricultural objectives: ensure proper integration of the nation’s production sectors into the domestic market; promote agroprocessing; improve agricultural marketing; enhance access to export marketing; increase industrial output

and improve the competitiveness of domestic industrial products; facilitate the development of commercially viable export and domestic market-oriented enterprises in the rural areas; promote industrial subcontracting and partnership exchange; promote development of the craft industry for export; and ensure the health, safety and economic interest of consumers.

The GPRS II mainstreams elements of gender, social protection and environmental protection. Climate change is referenced explicitly in the section entitled “Restoration of Degraded Environment and Natural Resource Management.” The document highlights the need to “Adopt [a] policy framework on climate change and mainstream of the national action programme to combat drought and desertification.”

Finance required to resource the GPRS II was USD 8.06 billion (2006–2009), consisting principally of service costs. Budget items included in forecasted expenditures for the period amounted to USD 6.27 billion, leaving a funding gap of approximately USD 1.79 billion, intended to be covered by development partners and other donor agencies.

Ghana Shared Growth and Development Agenda

The Ghana Shared Growth and Development Agenda (GSGDA) was prepared by the National Development Planning Commission (NDPC) in 2010. The document follows on its predecessors; namely the Vision 2020: The First Step, 1996–2000; the Ghana Poverty Reduction Strategy (GPRS I), 2003–2005; and the Growth and Poverty Reduction Strategy (GPRS II), 2006–2009 (See Table 2 for a history of Ghana’s development plans).

The 1992 Constitution and the Better Ghana Agenda both help to frame the principal ‘themes’ for medium-term (2010–2013) development planning that have been identified within the document. That is, Ensuring and sustaining macro-economic stability; Enhanced competitiveness of Ghana’s private sector; Accelerated agricultural modernisation and natural resource management; Oil and gas development; Infrastructure, energy and human settlements development; Human development, employment and productivity; and Transparent and Accountable Governance.

These themes then inform the prioritization of expenditure recommended in the document: Agriculture, Infrastructure (including transport, energy, housing, and so on), Water and sanitation, Health, Education (including ICT, Science, Technology and Innovation). The macro-level medium-term growth targets as outlined in the GSGDA is the achievement of a per-capita income rate of at least USD 1,035 by 2013, a projected non-oil average real GDP growth rate of

7% per year, and an oil average real GDP growth rate of at least 9%. The discovery of commercial quantities of crude oil occurred just prior to the writing of the GSGDA is a theme that is revisited throughout the document.

Despite achieving significant growth in its service sector and the projected earnings from crude oil exploitation, the GSGDA (as with GPRS I and GPRS II) places strong emphasis on the role of agriculture to lead growth and structural transformations of the economy. The theme “Accelerated Agricultural Modernisation and Sustainable Natural Resource Management” references the Food and Agriculture Sector Development Policy (FASDEP II) and the corresponding investment plan as detailed in the Medium-Term Agriculture Sector Investment Plan (METASIP) as the principal planning documents of the agriculture sector. As such, the GSGDA aims only to advance the implementation of the priorities outlined in those documents: Improved Agricultural Productivity; Increased Agricultural Competitiveness and Enhanced Integration into Domestic and International Markets; Reduced Production and Distribution Risks/Bottlenecks in Agriculture and Industry; Selected Crops Development; Livestock and Poultry Development; Promotion of Fisheries Development; and Improved Institutional Coordination. The GSGDA also places significant attention in its chapter on “New Public Sector Reform” on advancing public-private partnerships (PPPs), an emerging theme across all of Ghana’s sectoral policies (particularly agriculture).

Responsibility for the implementation and M&E of the GSGDA falls principally with the Policy, Planning, Monitoring and Evaluation Directorates (PPMEDs) of the various Ministries at the national level, the Regional Planning Coordinating Units (RPCUs) and the District Planning Coordinating Units (DPCUs), as well as the National Development Planning Commission and the Office of the President.

Decentralisation Policy Framework

In a process beginning as early as 1988, the legislative environment surrounding Ghana’s decentralisation effort is busy with policies, legislative instruments, and review/recommendation reports. In fact, nearly 40 such ‘institutions’ are identified with the Decentralisation Policy Framework (DPF), a document produced in 2010. The DPF was crafted by the Ministry of Local Government and Rural Development (MLGRD) in an effort to synthesise and coordinate this ever-expanding policy environment, with the ultimate intent of refocusing and accelerating the decentralisation process.

Decentralisation in Ghana finds its origins in Article 240 (1) (although first referenced in Article 35) of the Fourth Republican Constitution (1992), which provides that “Ghana shall have a

system of local government and administration which shall, as far as practicable, be decentralised.” This directive outlined in the Constitution is given a legal framework in the Local Government Act (1993), Act 462, and a legislative ‘vehicle’ in Legislative Instrument (LI) 1961 (2010). A complete list of ‘contextualizing’ decentralisation policies can be found in Table 4 below.

Table 4. Ghanaian decentralisation policy histogram

Provisional National Defence Council Law (PNDCL) 207 (1988)	“The assembly system of local governance was introduced in 1988 with the passage of PNDCL 207 bringing into being local authorities known as metropolitan, municipal and district assemblies.”
Fourth Republican Constitution (1992)	<p>“The Constitution identified political, administrative and financial decentralisation as a channel for fostering democracy and popular participation in governance. Article 34 section 5(d) of the 1992 Constitution enjoins the state to “make democracy a reality by decentralizing the administrative and financial machinery of government to the regions and districts and by affording all possible opportunities to the people to participate in decision making at every level in national life and in government.”</p> <p>“Chapter 20 of the Constitution devoted to Decentralisation and Local Governance provided broad guidelines on the institutional arrangements, functions of different entities in the decentralised administration, key actors, their roles and responsibilities as well as resources.”</p>
Local Government Act, Act 462 (1993)	“The passage of Act 462 provided a legal framework for operationalizing these constitutional provisions.”
District Assemblies’ Common Fund Act, Act 455 (1993)	“Other laws [beyond Act 462], including Act 455 (the District Assemblies’ Common Fund Act), Act 480 (the National Development Planning Systems Act), Act, 479 (the National Development Planning Commission Act), the legislative instrument 1589 and the establishing instruments of the different assemblies gradually rolled out the framework within which local authorities would work. Guidelines were developed to facilitate the conduct of business within the assembly system.”
National Development Planning Commission Act, Act 479 (1994)	Same as above
National Development Planning (System), Act 480 (1994)	Same as above
Establishment Instruments of the respective Assemblies and the Local Government (Urban, Town, Zonal Councils and Unit Committees), Legislative Instrument (LI) 1589 (1994)	Same as above
Legislative Instrument (LI) 1961 (2010)	<p>“LI 1961 seeks to operationalise the decentralised departments at the district level as the Departments of the District Assemblies (DAs). Under section 161 (1) of the Local Government Act, 1993 - Act 462 - 22 decentralised departments at the district level are to cease to exist in their present form and then reconstituted through a series of mergers into 16 Departments in the Metropolitan Assemblies, 13 in the Municipal Assemblies and 11 in the District Assemblies under section 38 of the Act.”</p> <p>“With the passage of LI 1961, the establishment of the district departments and transfer of staff have become major priorities of decentralisation implementation to government.”</p>
Decentralisation Policy Framework (2010)	“A comprehensive national policy framework is required to accelerate the decentralisation effort towards the ends envisaged in the Constitution and to give the process the clarity and consistency and certainty required to promote local-level governance and development.”
National Decentralisation Policy Action Plan II (2010)	Specific tasks and the assignment of responsibility for the Decentralisation Policy Framework is laid out in the Second National Decentralisation Policy Action Plan (Note: the first NDPAP was introduced in 2004).

Key problem areas addressed in the DPF include the need to develop and implement a composite budget for DAs (recently achieved), challenges in political appointment (particularly of District Chief Executives) that compromise total ‘devolution’ of responsibilities, ambiguous assignment of roles, particularly for Regional Coordinating Councils (RCCs), and inadequate popular participation in local governing institutions, including limited gender considerations and representation of minority interests, among others.

As such, the Decentralisation Policy Framework identifies broadly stated actions for ten key policy areas relating to the five pillars of the decentralisation vision (political decentralisation, administrative decentralisation, decentralised planning and fiscal decentralisation, and public-private partnerships). These policy objectives include Political decentralisation and legal issues; Administrative decentralisation; Decentralised development planning; Spatial planning; Local economic development; Fiscal decentralisation; Popular participation and accountability; The social agenda; Involvement of non-state actors in local governance; Institutional mechanism for policy coordination.”

MLGRD is the principal agency tasked with coordinating the decentralisation effort, however, the Office of the President, Ministry of Finance (MOF), the National Development Planning Commission (NDPC), the Inter-Ministerial Coordinating Council (IMCC), the Office of the Head of Civil Service (OHCS), and the Office of the Head of the Local Government Service (OHLGS) will also play central roles. Specific tasks and assignment of responsibility for the Decentralisation Policy Framework is laid out in a separate document entitled “National Ghana Decentralisation Action Plan”, which outlines these implementation details for the years 2010 through 2014.

National Democratic Congress Election Manifesto 2012

The National Democratic Congress (NDC) 2012 election Manifesto entitled “Advancing the Better Ghana Agenda; Jobs. Stability. Development.” was developed to build on its predecessor, the 2008 NDC “Better Ghana Agenda.” The Manifesto—divided into four principal themes (1) Putting People First, (2) A Strong and Resilient Economy, (3) Expanding Infrastructure and (4) Transparent and Good Governance—intended to propel the NDC candidate, John Mahama (Ghana’s current sitting President), to the Presidency and extend NDC government rule another 4 years. As stated in the document, the NDC Manifesto was developed first under the guidance of John Atta Mills until his death in July 2012, and later under the guidance of John Mahama. It reflects the vision of the NDC as a social democratic party.

The document places a strong focus on education, with this theme presented first in the body of the document, followed by health and later into the jobs-oriented second theme “A Strong and Resilient Economy.” Specifically, the document’s executive summary outlines the following NDC priorities: “Our economic performance will be deepened and diversified to provide a basis for the provision of the basic human needs of our people; Our governance will be more thoroughly decentralised to enable citizens to access resources and demand accountability for services; Our infrastructure development will be intensified to accelerate the transformation of Ghana into a full middle-income status; Our agriculture will be modernised to involve a strong partnership between private agricultural investors and peasant smallholders in a manner that introduces capital, technology and an expanded local and global market access; and above all, Our educational assets will be rapidly expanded to provide equitable access for every child to enter and complete basic education, enter and complete secondary school.”

The Modernisation of agriculture in Ghana is a priority area outlined in the party Manifesto and is carried forward by a two-pronged strategy. The first is the continued implementation of the FASDEP and corresponding METASIP documents. This marks a continuation of the NDC promise in its manifesto of 2008 “to accelerate agricultural modernization and the transformation of the rural economy. This was to quicken the pace towards full domestic food security, increased agricultural exports, improvement in farm incomes, production of raw materials for value addition through processing, generation of employment and alleviation of poverty.” Table 5 outlines the NDC priorities interpreted/selected from the FASDEP and METASIP documents. The second strategy is to expand the role of the National Service Scheme in the area of food security “Expand[ing] its food production programme to cover the establishment of demonstration farms across the various ecological zones.”

Beyond agriculture, the Manifesto places significant emphasis on “deepening” decentralisation, including the promotion of public-private partnerships (PPPs) Local Economic Development (LED) originating at the regional and district levels. The implementation of the composite budget system (fiscal decentralisation) was also a priority of the NDC in this regard and has subsequently been achieved.

Table 5. NDC 2012 Manifesto agricultural priorities relating to FASDEP II and METASIP

“The key elements of the strategy [strategy #1] include:

- Transformation of the agriculture sector from a resource-based to a technology-based industry;
- Provision of subsidies for improved seeds, grade breeders and stocks, pesticides, fertilizer, machinery and other inputs;
- Promotion of selected crops for food security and exports;
- Enhanced returns, particularly for small-scale farmers through equitable access to resources and services and promotion of high-value crops, value-added processing and agro-industrialization;
- Encouragement and support for farmers’ groups, such as co-operatives, farmer-based organizations (FBOs), nucleus-out grower schemes, block and contract farmers;
- Promotion of rural industrialization through the provision of incentives for the establishment of industries that have backward linkages to our agriculture resource base;
- Construction of storage facilities including silos and cold storage units at strategic locations to minimize post-harvest losses; and
- Implementation of the Ghana Commercial Agriculture Project (GCAP) particularly as it relates to strengthening investment promotion infrastructure, facilitating secure access to land, and securing public-private-partnerships and smallholder linkages in the Accra Plains and the savannah zone.”

New Patriotic Party Election Manifesto 2012

The 2012 New Patriotic Party Manifesto, Transforming Lives, Transforming Ghana; Building a Free, Fair and Prosperous Society outlines a “Programme of Transformation” for Ghana in the run up to the 2012 general elections. The document is built on six chapters outlining the principal themes prioritized by the NPP. This includes: (1) Building the foundations of a free and fair society, (2) Economic transformation for prosperity and job creation, (3) Public investment to provide basic amenities and support job creation (4) A disciplined and safe society, (5) Creating opportunities and promoting enterprise and (6) Ghana in a wider world.

The manifesto opens with its comments on ‘leadership’ and ‘good governance’ including strong criticisms of the sitting NDC government, followed by sections on education and health, as is the case with the NDC manifesto. The NPP have placed emphasis on the free market economy as an ideological and economic driver of the Ghanaian society. The Manifesto suggests thus “government will put its weight behind our private sector and make it the bedrock of our economy.”

Specific to the agricultural sector, the NPP proposes a modernisation effort that helps the country improve its self-sufficiency in food production and increase its cash crop potential. This will be accomplished in part by supporting key agricultural private sector change agents in large-scale production schemes to support small-scale subsistence producers. Specifically, the NPP proposes the following measures: encouraging the adoption of new technologies and improved varieties by smallholders, providing irrigation to reduce reliance on rain-fed agriculture, providing affordable and quality fertilizer, improving land access and tenure,

encouraging private sector investment in large-scale commercial agriculture, restructuring land title registration, establishing an Agricultural Technology Fund, reorienting the Agricultural Development Bank (ADB) to better support agricultural finance, developing access roads, constructing post-production storage, improving market spaces, developing adult education and literacy programmes, assisting the adopting of mechanized farming and establishing 250 mechanization centres, encouraging agro-processing, restructuring agricultural research institutions to build high-yielding crop varieties, improving fertilizer distribution and streamlining the subsidy programme. The NPP also envisions supporting cocoa production and reinvigorating the poultry industry in Ghana.

The NPP Manifesto references, albeit briefly, its support to the National Decentralisation Framework.

Agricultural institutions

The Ministry of Food and Agriculture (MOFA) oversees agricultural development in Ghana. MOFA consists of central-level policy-oriented technical directorates (crop services, plant protection and regulatory services, animal production services, veterinary services, fisheries services, agricultural engineering services, agricultural extension services, and women in agricultural development), regional-level coordinating agencies (that is, the Regional Director in collaboration with the Regional Coordinating Council), and district-level agencies (that is, the District Director in collaboration with district assemblies). MOFA works in close collaboration with related ministries, such as the Ministry of Lands and Natural Resources (Forestry Commission), Ministry of Communication (Ghana Meteorological Agency), Ministry of Water, and the Council for Scientific and Industrial Research (CSIR). The agricultural sector working group, which meets monthly, serves to link development partners with government, NGOs and civil society organizations (CSO) in the country.

Documents comprising Ghana's portfolio of agricultural plans and programmes include: Food and Agriculture Sector Development Policy (Government of Ghana 2002), Food and Agriculture Sector Development Policy II (Government of Ghana 2007), ECOWAS Agricultural Policy (ECOWAP) and Comprehensive Africa Agriculture Development Programme (CAADP) Compact (ECOWAS and CAADP 2009), Medium-Term Agriculture Sector Investment Plan (Government of Ghana 2010b), G8 Cooperation Framework to Support the "New Alliance for Food Security and Nutrition" (Group of 8 2012).

Food and Agriculture Sector Development Policy

The Food and Agriculture Sector Development Policy (FASDEP) was adopted by the Ministry of Food and Agriculture (MOFA) in 2002. The document builds on the five key elements outlined in the 1996 Accelerated Agricultural Growth and Development Strategy (AAGDS). That is, (1) Promotion of selected products through improved access to markets, (2) Development of, and improved access to, technology for sustainable natural resource management, (3) Improved access to agricultural financial services, (4) Improved infrastructure and (5) Enhanced human resource and institutional capacity.”

FASDEP is built on six principal objectives: (1) Ensure food security, (2) Facilitate the production of agricultural raw materials for industry, (3) Facilitate the production of agricultural commodities for export, (4) Facilitate effective and efficient input supply and distribution systems, (5) Facilitate effective and efficient output processing and marketing system and (6) Formulate and co-ordinate the implementation of policies and programmes for the food and agricultural sector.

Table 6 outlines the evolution of agricultural sector policy in Ghana from AAGDS principles to the current FASDEP II document. This is discussed in further detail in the “Document analysis” section below.

Table 6. Policy objectives across AAGDS (1996), FASDEP I (2002) and FASDEP II (2007)

Accelerated Agricultural Growth and Development Strategy (AAGDS), 1996	Food and Agriculture Sector Development Policy (FASDEP), 2002	Food and Agriculture Sector Development Policy (FASDEP II), 2007
(1) Promotion of selected products through improved access to markets	(1) <i>Enhanced human resource development and institutional capacity building</i>	<u>(1) Food security and emergency preparedness</u>
(2) Development of, and improved access to, technology for sustainable natural resource management	(2) <i>Improved financial services delivery</i>	<u>(2) Increased growth in incomes</u>
(3) Improved access to agricultural financial services	(3) Development, dissemination and adoption of appropriate technology	(3) Increased competitiveness and enhanced integration into domestic and international markets
(4) Improved infrastructure	(4) <i>Infrastructure development</i>	<i>(4) Sustainable management of land and environment</i>
(5) <i>Enhanced human resource and institutional capacity</i>	(5) Promotion of selected commodities and improved access to markets	(5) Science and technology applied in food and agriculture development
		<u>(6) Improved institutional coordination</u>

Key: **Bold** = shared across all documents; *Italics* = shared across two documents; Underline = unique to one policy.

Food and Agriculture Sector Development Policy II

The Food and Agriculture Sector Development Policy (FASDEP II) is a document produced by the Ministry of Food and Agriculture (MOFA) in 2007. FASDEP II is best described as a ‘revision’ of the original FASDEP I document, published in 2002 and built on the goals and objectives outlined in the 1996 Accelerated Agricultural Growth and Development Strategy. A poverty and social impact analysis (PSIA) of the FASDEP I combined with other political-economic considerations led to a strategic “new direction” within the FASDEP II document. Specifically, the revised FASDEP II reduces the number of agricultural commodities for targeting by Ministries, Departments, and Agencies (MDAs), encourages a value chain approach to agricultural development, focuses on standards for and access to domestic and international markets, aims for improved coordination between MDAs and private sector actors through a sector-wide approach (SWAp) and, finally, seeks to promote sustainable land use strategies. FASDEP II presents over 50 unique policy ‘strategies’ to achieve this strategic direction, grouped according to the document’s six principal policy objectives of Improved Food Security and Emergency Preparedness; Increased Growth in Incomes; Increased Competitiveness and Enhanced Integration into Domestic and International Markets; Sustainable Management of Land and Environment; Science and Technology Applied in Food and Agriculture Development; and Improved Institutional Coordination.

The Ministry of Food and Agriculture (MOFA) is the responsible agency for the implementation and monitoring of the FASDEP II with the National Development Planning Commission (NDPC) providing oversight and the District offices establishing strategic partnerships for the implementation of their prioritized FASDEP II objectives and reporting on impact.

Medium-Term Agriculture Sector Investment Plan

While the FASDEP II is merely a statement of intent, the Medium-Term Agriculture Sector Investment Plan (METASIP) sets out an investment framework for the implementation of the broad FASDEP II medium-term policy objectives (2011–2015). The METASIP document is structured according to the six strategic policy objectives outlined in FASDEP II, but further delineates these objectives into ‘development themes.’ Through a process of potential, opportunities, constraints and challenges (POCC) analysis, actions pertaining to programmes 1 and 2 of FASDEP II (and actions from the remaining four programmes that directly support programmes 1 and 2) have been prioritized (“Programme 1: Food security and emergency preparedness” and “Programme 2: Increased growth in incomes”).

Specifically, the following ‘development themes’ have been prioritized for investment: Productivity improvement; Support to improved nutrition; Support for diversification of livelihood options for the poor with off-farm activities linked to agriculture; Early warning systems and emergency preparedness; Irrigation and water management; Mechanization services; Promotion of cash crop, livestock and fish production for income in all ecological zones; Development of pilot value chains for two selected commodities in each agro-ecological zone; Awareness and use of sustainable land management technologies by men and women farmers; Uptake of technology along the value chain and application of biotechnology in agriculture.

The METASIP outlines an investment portfolio valued at Ghana Cedis (GHS) 1,532.4 million over the life of the plan, with GHC 516.9 million secured from domestic sources. It is envisioned that the funding gap of GHC 1015.5 million will be procured from “international sources,” including Ghana’s 13 principal development partners.

Like FASEP II, METASIP adopts a “sector-wide approach” (SWAp) with explicit private-sector engagement, and aligns itself closely with international and regional accords, including the Comprehensive Africa Agriculture Development Programme (CAADP), and ECOWAS Agricultural Policy (ECOWAP). Alignment with these programmes fortifies commitments to “growth of at least 6% annually, halving poverty by 2015 in consonance with MDG 1 and based on government expenditure allocation in the national budget of at least 10% within the Plan’s period.”

MOFA will play a key role in coordinating METASIP implementation, with oversight from the Office of the President and NDPC. Four additional levels of implementation support will be provided by a METASIP Steering Committee, Policy Dialogue Fora, National Strategic Analysis and Knowledge Support System (SAKSS) and a Secretariat.

ECOWAS Agricultural Policy (ECOWAP) and Comprehensive Africa Agriculture Development Programme (CAADP)

The ECOWAS Agricultural Policy (ECOWAP) and Comprehensive Africa Agriculture Development Programme (CAADP) Compact to support the successful implementation of the Ghana Food and Agriculture Sector Development Policy (FASDEP II) was signed in October of 2009. The document marks the convergence of several national, regional, and continental policies and accords, including FASDEP II, the Accra Agenda for Action, ECOWAP, NEPAD-CAADP (New Partnership for Africa’s Development-Comprehensive Africa Agriculture Development Programme), and the Maputo Declaration.

As suggested in the Compact title, the ultimate purpose of the document is to support Ghana’s FASDEP II (See Table 7) and related METASIP by “(i) increasing the effectiveness of planning and execution of government efforts; (ii) increasing the effectiveness and delivery of external assistance in the agricultural sector with coordinated donor support and limited transaction costs; and thereby (iii) providing a solid framework under which assistance can be scaled up to help meet the short- and long-term investment needs in the sector.” This is accomplished by (a) setting the parameters for long-term partnership in the agricultural sector; (b) specifying key commitments on the part of government and partners; and (c) clarifying expectations with respect to the agribusiness and farming communities in order to ensure successful implementation of the FASDEP II agenda.”

Table 7. ECOWAP/CAADP Compact interpretation of FASDEP II objectives

“The strategic orientations guiding the pursuit of the above goal and related objectives are defined in the FASDEP as follows:

- Value chain concept as a tool to develop commodities
- Focus on selected commodities for food security
- Emergency preparedness
- Diversification of income generation and stability
- Use of modern technology to enhance productivity
- Irrigation to remove over reliance on rainfall
- Meeting the challenge of quality standards and safety
- Transforming smallholders to embrace modernisation
- Promoting public-private partnerships
- Inclusivity whereby all operators (youth, vulnerable, women and men) are reached with services
- Enhanced institutional coordination and harmonisation”

CAADP is a component of the Africa Union’s (AU) New Partnership for Africa’s Development (NEPAD), established in 2003. CAADP aims to improve food security, nutrition and increase incomes in African agricultural economies by raising agricultural productivity by at least 6% per year and increasing public investment in agriculture to 10% of national budgets per year (NEPAD-CAADP website). CAADP is built on four ‘pillars,’ which include: ‘Sustainable Land and Water Management;’ ‘Market Access;’ ‘Food Supply and Hunger;’ and ‘Agricultural Research.’

ECOWAP, in turn, was established in 2005 and has the following priority themes: Increasing the productivity and competitiveness of West African agriculture; Implementing a trade regime within West Africa; Adapting the trade regime vis-à-vis countries outside the region. In the same year, a regional action plan was established for the joint implementation of ECOWAP and NEPAD-CAADP. This action plan revolved around six priority areas: (1) Improved water management, (2) Improved management of other natural resources, (3) Sustainable agricultural development at the farm level, (4) Development of agricultural supply chains and market

promotion, (5) Prevention and management of food crises, and (6) Institution building (capacity, funding, communication, and monitoring and evaluation) (ECOWAS/CAADP 2009).

The ECOWAP/CAADP Compact for Ghana outlines the policy areas of ECOWAP/CAADP (and the regional action plan) that support FASDEP II/METASIP's six objectives. The document is signed by the Minister of Food and Agriculture, the Minister of Finance and Economic Planning and representatives from the African Union/NEPAD, ECOWAS, Development Partners, Civil Society, Farmers/Agricultural Associations, the Private Sector, General Agricultural Workers Union (GAWU), Agricultural Select Committee of Parliament, and Traditional Rulers. Each of these groups is assigned responsibilities within the document in upholding the compact.

The G8 Cooperation Framework to Support the “New Alliance for Food Security and Nutrition”

The G8 Cooperation Framework to Support the “New Alliance for Food Security and Nutrition” in Ghana was established in 2012 following the launch of the “New Alliance” initiative at the Camp David Summit. The New Alliance, building on the G8 L’Aquila commitment to improve food security efforts within the G8, aims “to generate greater private investment in agricultural development, scale innovation, achieve sustainable food security outcomes, reduce poverty and end hunger.” To date, Burkina Faso, Côte d’Ivoire, Ethiopia, Ghana, Mozambique, Tanzania, Benin, Malawi and Nigeria have signed on to the programme, each establishing a cooperation framework. According to the New Alliance’s most recent factsheet, the programme has leveraged (as of June 2013) more than USD 3.7 billion in private investment in African agriculture.

The cooperation framework for Ghana includes G8 funding commitments, specific policy actions (conditions), and statements of intent from the private sector. Specifically, three key policy commitment areas have been established:

(1) Establish policy that enables the private sector to develop, commercialize, and use improved inputs to increase smallholder productivity and incomes; (2) Create a secure investment climate for investors by reducing transaction costs and risks; (3) Support transparent, inclusive, evidence-based policy formulation process based on quality data and sound evidence that leads to increased investment in agriculture. Specific initiatives include the establishment of a seed registration system, protocols for variety testing, standards for seed certification, establishment of a new agricultural input policy for fertilizer and certified seeds, creation of a database of

suitable land for private investment, and implementation of an agricultural production survey, among others.

The G8 has committed USD 542 million between 2012 and 2015 to begin implementation, of which USD 138 million has been distributed to date (April 2013). Six Ghanaian private-sector companies and nine international companies have issued “letters of intent” that outline potential areas of collaboration between themselves and GoG in support of the country’s CAADP National Investment Plan for Agriculture and Food Security (the “METASIP”).

Northern Rural Growth Programme

The Northern Rural Growth Programme (NRGP), a six-year programme initiated in 2008, is a joint funding initiative of the African Development Bank (AfDB), the International Fund for Agricultural Development (IFAD) and the Government of Ghana. The overall goal of the programme is to contribute to sustainable development, poverty reduction and food security among rural households in Northern Ghana. The project seeks to address broad disparities between Ghana’s North and South regions in terms of economic development and well-being. As such, the NRGP covers 32 districts located in Ghana northern regions, namely Northern Region, Upper East Region, and Upper West Region.

The NRGP consists of four components: (1) Commodity Chain Development; (2) Rural Infrastructure Development; (3) Access to Rural Finance; and (4) Programme Coordination. The ‘Commodity Chain Development’ component focuses on establishing market-oriented producers organizations and establishes commodity business plans (CBPs) and a commodity development fund. The ‘Rural Infrastructure Development’ component, in turn, focuses on small-scale irrigation development including communal or public owned water distribution and drainage systems, the establishment of water users associations, and promotes improved rainwater productivity. It also addresses marketing infrastructure development, including rural feeder roads and group transport facilities. NRGP’s ‘Access to Rural Finance’ focuses on institutional strengthening of Participating Financial Institutions (PFIs) and interdisciplinary bodies in the programme. This includes capacity building for loan officers in the area of credit approval and logistical support including motorbikes and bicycles for community agents. The last component, ‘Programme Coordination,’ addresses capacity building for NRGP’s implementation agents, including MOFA and MOF.

Although not explicitly branded as a climate change programme, the NRGP does make reference to climate integration throughout the project, citing the diffusion of drought-resistant

varieties (Component 1), and irrigation development, soil and water conservation and market infrastructure enhancements (Component 2) as examples of such adaptation measures. Additionally, the programme calls for two Strategic Environmental Assessments (SEA), one for the NRGP itself and another for FASDEP to be undertaken.

The Ministry of Food and Agriculture (MOFA) serves as the NRGP's executing agency, supported by a National Programme Steering Committee (NPSC) and a Programme Implementing Team (PIT). The total project budget is estimated at USD 103 million.

While the NRGP was slated to close in 2012, the project will be followed by the Ghana Rural Growth Programme (GRGP), due for launch in mid-2014. The GRGP will extend the life and geographic scope of the NRGP and incorporate components of IFAD's ongoing Root and Tuber Improvement and Marketing Programme (RTIMP). The GRGP will incorporate climate change-specific activities through an Adaptation for Smallholder Agriculture Programme of USD 10 million. "The GRGP is built along four (4) strategic axes: (i) public-private partnerships (PPP) to enhance pro-poor rural growth; (ii) innovative approaches and scaling-up of achievements of IFAD co-funded initiatives in Ghana, (iii) integration of climate change adaptation and resilience, in particular in the northern regions of Ghana which are most vulnerable; and (iv) policy dialogue, partnerships and knowledge management."

Climate change institutions

The Environmental Protection Agency (EPA)—technical implementing agency of the Ministry of Environment, Science, Technology and Innovation (MESTI)—serves as Ghana's focal point for regional and international UNFCCC climate change conventions and initiatives. MESTI, in turn, houses Ghana's National Climate Change Council (NCCC), which is responsible for leading the inter-ministerial process of developing Ghana's National Climate Change Policy (NCCP). The Ghana Environmental Conventions Coordinating Authority (GECCA), established to coordinate the Rio Conventions (desertification, climate change, and biological diversity), is also responsible for managing the nearly 35 international environmental conventions to which Ghana is signatory to ensure synergy. In addition to these formal government agencies, two principal multistakeholder platforms exist in Ghana and promote climate change advocacy and integration into development planning. This includes the Ghana Climate Adaptation Network (G-CAN), and the Ghana Climate Change, Agriculture and Food Security Platform.

Documents comprising Ghana's portfolio of climate plans and programmes include: Supporting Integrated and Comprehensive Approaches to Climate Change Adaptation in Africa (UNDP 2009), Integrating Climate Change and Disaster Risk Reduction into National Development

(Nelson et al. 2010), Ghana's Second Communication to the UNFCCC (Government of Ghana 2011), National Climate Change Adaptation Strategy (Government of Ghana 2012) and the National Climate Change Policy (Government of Ghana 2013).

Africa Adaptation Programme

The Africa Adaptation Programme in Ghana intends to promote systemic change for a more integrated and holistic approach to climate change adaptation, through providing inputs to a comprehensive programme that will develop early warning systems in the country, as well as by supporting strategic policy dialogue and capacity development approaches. These actions are intended to assist the country to better mainstream pro-poor and gender-sensitive climate change adaptation into its national and subnational development processes, and to leverage additional adaptation funding and use this effectively. Concrete measures and policy-level support are to be linked through integration of disaster risk reduction and climate change adaptation in development (adapted from www.undp-aap.org).

Specific outputs include: (1) Dynamic, long-term planning mechanisms to cope with the inherent uncertainties of climate change introduced; (2) Leadership and institutional frameworks to manage climate change risks and opportunities in an integrated manner at the local and national levels strengthened; (3) Climate-resilient policies and measures implemented in priority sectors; (4) Financing options to meet national adaptation costs expanded at the local, national, sub-regional and regional levels; and (5) Knowledge on adjusting national development processes to fully incorporate climate change risks and opportunities generated and shared across all levels.

The principal implementing agency of the Africa Adaptation Programme initiatives is the EPA, under the executing supervision of the Ministry of Environment, Science, Technology and Innovation (MESTI), and technical backstopping by the UNDP Country Office and Regional Technical Advisor. The project was funded by the Government of Japan in the sum of nearly USD 2.7 million for a period of 3 years (2009–2011).

Progress reports and annual reports serve as the main vehicles for project M&E, although it is envisioned that some findings and results (for example, best practices, lessons learned and conditions for success) will be included in the Adaptation Learning Mechanism (ALM).

Integrating climate change and disaster risk into national development, policies and planning in Ghana

The Environmental Protection Agency (EPA) developed a book on integrating climate change and disaster risk into national development, policies and planning in Ghana, with support from NADMO, NDPC, The Netherlands Development Organisation (SNV) and the Integrated Social Development Centre (ISODEC). Financial support was provided by UNDP.

The document “seeks to achieve mainstreaming climate resilience and disaster risk reduction strategies into the national budget, Medium-Term Expenditure Framework and MMDAs developmental plans and subsequent implementation. Specifically, it aims to create and build awareness about the critical role of climate change and disasters in national development efforts, ensure that climate change and disaster issues are fully integrated and sustained in the national planning processes, assist pilot districts to integrate climate change and disaster risk in their District Medium-Term Development Plans, and to take up adaptation and mitigation measures.

The mainstreaming effort of Climate Change and Disaster Risk Reduction (CC/DRR) is distinct from Strategic Environmental Assessments (SEA) or poverty and social impact analysis (PSIA). Its need arises from Article 3.4 of the UNFCCC and the Hyogo Framework for Action (HFA), which states that “the [UNFCCC] parties have a right to, and should, promote sustainable development policies and measures to protect climate system... should be integrated within national development programmes taking into account that the economic development is essential for adopting measures to address climate change.”

The CC/DRR mainstreaming process follows national and district planning procedures. This includes policy formulation, planning, budgeting and implementation, and monitoring and evaluation, each occurring at the district, sector and national (central) level. A five-step process of CC/DRR integration is envisioned within this broader planning framework: (1) district profile and current situation, (2) district development priorities, (3) district development goals, objectives and strategies, (4) development of Plans of Action (PoA) and Annual Action Plans (AAP), and (5) Implementation and Monitoring of AAPs.

At the policy formulation stage (wider process) in particular, it is envisioned that each cross-sectoral planning group (CSPG) should include a specialist in the field of CC/DRR. This will facilitate a CC/DRR situational analysis at the district level (**step 1**: District profile and current situation) that reflects the CC/DRR objectives, analysis of Potentials, Opportunities, Constraints and Challenges (POCC) and Strengths, Weaknesses, Opportunities and Threats (SWOT) for CC/DRR prioritization (**steps 2 and 3**), improvement of capacity of district planning

coordinating units to integrate CC/DRR into district plans (**step 4**) and the establishment of a performance review (**step 5**) with appropriate indicators. Examples of planning tables outlining all of these processes are found within the document.

An annex to the CC/DRR mainstreaming document suggests some climate change adaptation strategies that could be undertaken in the agricultural sector, reflecting the documents objective of taking up adaptation and mitigation options. These include: development of drought-tolerant and flood-resistant varieties; breeding of early or extra early maturing genotypes; developing food insurance schemes; educating farmers to plan in low population densities so as to reduce competition for scarce or limited soil moisture; encourage farm-level adaptation, such as a shift in planting dates and modifying the amount and timing of fertilizer application; shifts in natural production centres from various food crops to areas where comparative advantage can be obtained; and enhancing food security measures by storing food in national banks.

UNFCCC Second Communication

The Annex to UNFCCC Decision 17/CP.8 outlines the guideline for the Initial National Communication (INC) and Second National Communication (SNC) for non-Annex 1 countries. This includes a summary of national circumstances, national greenhouse gas inventory, steps taken to implement the convention (including programmes to facilitate adaptation), other information (including technology transfer, research, education, training, capacity building and awareness), constraints and gaps, and related financial, technical and capacity needs.

Ghana's initial national communication covered the period between 1996 and 2000, and the second communication covered the six-year period between 2000 and 2006. Included in this second national communication is a new methodology for calculating emissions for the entire 1999–2006 period.

Six thematic working groups were carried over from the INC to undertake this second assessment, with the addition of two groups. This includes: Fisheries production, Root, tuber and cocoa production, Linkages with poverty, Gender and women's livelihoods, Health, Climate scenarios, Land-use management, Impact assessment on waters and coastal resources. These groups operated under the supervision of a Project Advisory Committee (PAC) and a Project Steering Committee.

The SNC estimates that agricultural GHG emissions in Ghana represent 36% of total emissions, the greater portion of which comes from nitrogen (followed by methane) from soils and

increasing use of artificial fertilizers, and expansion of pasture and grazing lands. The report estimates that the adaptation in the agricultural sector in Ghana will require USD 334.24 million in 2020 and USD 336.30 million by 2050. Currently, farmers are reacting to climate change and variability through early maturing crop varieties, cultivation of maize, cassava and, where possible, vegetable farming by irrigation in the dry season. They also rear goats, which are less demanding in terms of feeding than sheep or cattle. Chemical fertilizer (mainly nitrogen) application is the measure largely used by farmers to improve yields on their degraded land. This is combined with various soil and water conservation practices.

National Climate Change Adaptation Strategy

The National Climate Change Adaptation Strategy (NCCAS) was developed in a joint partnership between the United Nations Environmental Programme (UNEP) and the United Nations Development Programme (UNDP), through the Climate Change and Development – Adapting by Reducing Vulnerability (CC-DARE) programme, with funding support from the Danish Ministry of Foreign Affairs. The document, published in 2012, seeks to outline a multi-sector (livelihoods, energy, agriculture, health, early warning, fisheries management, land use, and water) adaptation strategy, divided into ten principal working programmes. The NCCAS is jointly managed at the central level by MESTI and the National Climate Change Committee, with the latter charged with the strategy’s day-to-day operation. The District Assemblies, with assistance from decentralised agencies, assume local-level responsibility in NCCAS programme selection and development, a process supported by strengthening the DA’s Environmental Committee to collate priorities emerging from the subdistrict authorities (town/area councils and Unit Committees). Through existing cross-level agencies, the programme will be mainstreamed into Ghana’s existing national development structures.

Specific to the agricultural sector, the NCCAS identifies the following strategies—implemented across several of the Strategy’s programmes, but mainly within programme #3 (Adaptation through land-use planning) and #7 (Adaptation through agricultural diversification): (1) Build and strengthen capacity of local farmers to increase agricultural productivity and awareness of climate issues; (2) Build and strengthen capacity of extension officers in new farming technologies in order to enhance their support for farmers; (3) Enhance the living standards of vulnerable groups through acquisition of alternative livelihood skills; (4) Protect the environment through the promotion of agricultural biodiversity; (5) Promote cultivation of crops and rearing of animals adapted to harsh climatic conditions; (6) Document existing indigenous knowledge and best practices and (7) Train trainers to promote post-harvest technologies to minimize losses of farm produce.

National Climate Change Policy

The National Climate Change Policy (NCCP) was developed under the auspices of the National Climate Change Committee (NCCC), with technical leadership from MESTI and the EPA. The final document was preceded by the National Climate Change Policy Framework (NCCPF): Ghana Goes for Green Growth (G4) discussion document, prepared with support from the Climate and Development Knowledge Network (CDKN). The NCCP was approved by the GoG Cabinet in 2013 and was officially launched by the President in 2014. The “NCCP complements and enhances the overall strategic objectives of national development strategies, including the GSGDA 2011–2013, which is to foster high and equitable levels of growth going towards enhanced middle income status as well as the National Budget-setting process.”

The NCCP “presents the policy, analyses the current situation and gives the broad policy vision and objectives” with respect to effective adaptation, social development and mitigation in Ghana. It does so for five unique focus areas including: (1) agriculture and food security, (2) disaster preparedness and response, (3) natural resource management, (4) equitable social development and (5) energy, industrial and infrastructural development.

Within Focus Area 1, agriculture and food security, the NCCP identifies further eight “programme areas.” They include: (1) Institutional capacity development for research and dissemination, (2) Development and promotion of climate-resilient cropping systems, (3) Adaptation of livestock production systems, (4) Support to adaptation in the fisheries subsector, (5) Support to water conservation and irrigation systems, (6) Risk transfer and alternative livelihood systems, (7) improved post-harvest management and (8) improved marketing policies. Specific agricultural policy actions can be found in Table 8 below.

The Ministry of Environment, Science, Technology and Innovation will be tasked with monitoring the implementation of the NCCP and the associated programmes and plans. It is envisioned that a secretariat of appropriate technical and professional competence be established and allocated its own cost centre within MESTI. The National Environmental and Natural Resources Council, which is chaired by Ghana’s Vice President, will also play an oversight role in this regard. Finally, the document also mentions the need for a “statutory coordination unit” or “national climate change body” to coordinate activities from a growing body of climate-related policies and policy areas.

While (1) phase one NCCP process yielded the document currently being analysed, (2) phase two will present in greater detail the initiatives and programmes identified in the NCCP in the form of an action programme for implementation. Finally, (3) phase three of the NCCP will

detail how climate change programmes and actions identified in phase two can be mainstreamed and embedded, in a time-bound and budgeted manner, in the annual work plans of implementing units. Phases two and three are currently underway. As of April 2014, a draft six-year implementation schedule for the NCCP has been established.

Document analysis

Having provided an overview of the relevant institutional and project environments around governance, agriculture and climate change policies in Ghana, we move now into content analysis of those same policies. Below, objectives and priorities for each of the policies are outlined for the agricultural (including key development policies) and climate change ‘sectors.’ The evolution of policy objectives over time are captured, followed by a section on policy interplay between and within these thematic areas.

Agricultural objectives and priorities

Table 8 summarizes the key objectives and priorities outlined in this section on agricultural policies. In addition to those plans specific to the agricultural sector, objectives/priorities related to agriculture within the Ghana’s Poverty Reduction Strategy, Ghana Shared Growth and Development Agenda, and both NDC and NPP 2012 election manifestos have been included as they represent the country’s principal medium-term planning frameworks. Both ‘objectives’ and ‘priorities’ (where applicable) have been listed in these planning documents, given that the terms are applied differently (interchangeably) between documents.

Table 8. Agricultural objectives and priorities by document

Growth and Poverty Reduction Strategy II, 2005	Medium-Term National Development Policy Framework: Ghana Shared Growth and Development Agenda (GSGDA), 2010	NDC 2012 Manifesto: Advancing The Better Ghana Agenda; Jobs; Stability; Development, 2012	NPP 2012 Manifesto: Transforming Lives, Building a Free, Fair and Prosperous Society, 2012	Accelerated Agricultural Growth and Development Strategy (AAGDS), 1996	Food and Agriculture Sector Development Policy (FASDEP), 2002	Food and Agriculture Sector Policy II (FASDEP II), 2007	Medium-Term Agriculture Sector Investment Plan (METASIP), 2010
<p>(1) Ensure proper integration of the nation's production sectors into the domestic market</p> <p>(2) Promote agro-processing</p> <p>(3) Improve agricultural marketing</p> <p>(4) Enhance access to export markets</p> <p>(5) Increase industrial output and improve the competitiveness of domestic industrial products</p> <p>(6) Facilitate the development of commercially viable export and domestic market-oriented enterprises in the rural areas</p>	<p>(1) Improved agricultural productivity</p> <p>(2) Increased agricultural competitiveness and enhanced integration into domestic and international markets</p> <p>(3) Reduced production and distribution risks/bottlenecks in agriculture and industry</p> <p>(4) Promote selected crop development for food security, export and industry</p> <p>(5) Promote livestock and poultry development for food security and income</p> <p>(6) Promote fisheries development for food security and income</p>	<p>(1) Transformation of the agriculture sector from a resource-based to a technology-based industry</p> <p>(2) Provision of subsidies for improved seeds, grade breeders and stocks, pesticides, fertilizer, machinery and other inputs</p> <p>(3) Promotion of selected crops for food security and exports</p> <p>(4) Enhanced returns, particularly for small-scale farmers through equitable access to resources and services and promotion of high-value crops, value-added processing and agro-industrialization</p> <p>(5) Encouragement and support for farmers groups, such as co-operatives, farmer-based organizations (FBOs), nucleus-out grower schemes, block and contract farmers</p> <p>(6) Promotion of rural industrialization through the provision of incentives for the establishment of industries that have backward linkages to our agriculture resource base</p>	<p>(1) Encourage smallholder farmers to adopt new and improved technologies, provide irrigation and quality and affordable fertilizer</p> <p>(2) Promote private-sector investment into large-scale commercial agriculture which supports out-grower farmers</p> <p>(3) Restructuring of land title registration and land administration projects to facilitate the efficient transfer of title and use of agricultural lands</p> <p>(4) Establishment of an Agricultural Technology Fund, extension of micro-lending to small-scale producers, and repositioning of the agricultural development bank (ADB) to fulfil its agricultural mandate</p> <p>(5) Creation of access roads to farm-gates, improvement of marketplaces and warehouse storage facilities to reduce post-harvest losses</p> <p>(6) Achieve a ratio of one extension officer to 500 farmers to enhance technical knowledge transfer</p>	<p>[MOFA Objectives]</p> <p>(1) Ensure food security</p> <p>(2) Facilitate production of agricultural raw materials for industry</p> <p>(3) Facilitate production of agricultural commodities for export</p> <p>(4) Facilitate effective and efficient input supply and distribution systems</p> <p>(5) Facilitate effective and efficient output processing and marketing system</p> <p>(6) Formulate and co-ordinate implementation of policies and programmes for the food and agricultural sector</p>	<p>(1) Food security and emergency preparedness</p> <p>(2) Increased growth in incomes</p> <p>(3) Increased competitiveness and enhanced integration into domestic and international markets</p> <p>(4) Sustainable management of land and environment</p> <p>(5) Science and technology applied in food and agriculture development</p> <p>(6) Improved institutional coordination</p>	<p>(1) Food security and emergency preparedness</p> <p>(2) Increased growth in incomes</p> <p>(3) Increased competitiveness and enhanced integration into domestic and international markets</p> <p>(4) Sustainable management of land and environment</p> <p>(5) Science and technology applied in food and agriculture development</p> <p>(6) Improved institutional coordination</p>	<p>(1) Food security and emergency preparedness</p> <p>(2) Increased growth in incomes</p> <p>(3) Increased competitiveness and enhanced integration into domestic and international markets</p> <p>(4) Sustainable management of land and environment</p> <p>(5) Science and technology applied in food and agriculture development</p> <p>(6) Improved institutional coordination</p>
Objectives							

(continues)

(continued)

<p>Growth and Poverty Reduction Strategy II, 2005</p>	<p>Medium-Term National Development Policy Framework: Ghana Shared Growth and Development Agenda (GSGDA), 2010</p>	<p>NDC 2012 Manifesto: Advancing The Better Ghana Agenda; Jobs; Stability; Development, 2012</p>	<p>NPP 2012 Manifesto: Transforming Lives, Building Ghana; a Free, Fair and Prosperous Society, 2012</p>	<p>Accelerated Agricultural Growth and Development Strategy (AAGDS), 1996</p>	<p>Food and Agriculture Sector Development Policy (FASDEP), 2002</p>	<p>Food and Agriculture Sector Development Policy II (FASDEP II), 2007</p>	<p>Medium-Term Agriculture Sector Investment Plan (METASIP), 2010</p>
<p>7) Promote industrial subcontracting and partnership exchange</p> <p>(8) Promote the development of the craft industry for export</p> <p>(9) Ensure the health, safety and economic interest of consumers</p>	<p>(7) Improved institutional coordination for agricultural development</p>	<p>(7) Construction of storage facilities including silos and cold storage units at strategic locations to minimize post-harvest losses</p> <p>(8) Implementation of the Ghana Commercial Agriculture Project (GCAP), particularly as it relates to strengthening investment promotion infrastructure, facilitating secure access to land, and securing public-private partnerships and smallholder linkages in the Accra Plains and the savannah zone</p> <p>(9) Expansion of the National Service Scheme to support food production programmes across the various ecological zones</p>	<p>(7) Support agro-processing to bolster domestic production from micro-, small-, and medium-scale producers with the aim of replacing imports over time</p> <p>(8) Establishment of 250 mechanization centres across the country and supply power tillers and other appropriate technologies to smallholders annually</p> <p>(9) Restructure agricultural research institutions to build on high-yielding crop varieties and technologies already developed</p> <p>(10) Restore and improve the fertilizer distribution system and streamline the fertilizer subsidy system</p>	<p>[FASDEP Strategic Thrusts]</p> <p>(1) Enhanced human resource development and institutional capacity building</p> <p>(2) Improved financial services delivery</p> <p>(3) Development, dissemination and adoption of appropriate technology</p> <p>(4) Infrastructure development</p> <p>(5) Promotion of selected commodities and improved access to markets</p>	<p>(1) Enhanced human resource development and institutional capacity building</p> <p>(2) Improved financial services delivery</p> <p>(3) Development, dissemination and adoption of appropriate technology</p> <p>(4) Infrastructure development</p> <p>(5) Promotion of selected commodities and improved access to markets</p>	<p>(1) Enhanced human resource development and institutional capacity building</p> <p>(2) Improved financial services delivery</p> <p>(3) Development, dissemination and adoption of appropriate technology</p> <p>(4) Infrastructure development</p> <p>(5) Promotion of selected commodities and improved access to markets</p>	<p>(1) Enhanced human resource development and institutional capacity building</p> <p>(2) Improved financial services delivery</p> <p>(3) Development, dissemination and adoption of appropriate technology</p> <p>(4) Infrastructure development</p> <p>(5) Promotion of selected commodities and improved access to markets</p>
<p>Priority areas</p>							
<p>(1) Reform to land acquisition and property rights</p> <p>(2) Accelerating the provision of irrigation infrastructure</p>	<p>(1) Promotion of selected staple crops in each ecological zone, with the Savannah Accelerated Development Authority (SADA) and MOFA embarking on an aggressive promotion of rice, maize, sorghum and soya bean production through commercial and out-grower partnerships</p>	<p>(1) Promotion of selected products through improved access to markets</p> <p>(2) Development of, and improved access to, technology for sustainable natural resource management</p>	<p>(1) Promotion of selected products through improved access to markets</p> <p>(2) Development of, and improved access to, technology for sustainable natural resource management</p>	<p>(1) Promotion of selected products through improved access to markets</p> <p>(2) Development of, and improved access to, technology for sustainable natural resource management</p>	<p>(1) Promotion of selected products through improved access to markets</p> <p>(2) Development of, and improved access to, technology for sustainable natural resource management</p>	<p>(1) Promotion of selected products through improved access to markets</p> <p>(2) Development of, and improved access to, technology for sustainable natural resource management</p>	<p>(1) Productivity improvement</p> <p>(2) Support to improved nutrition</p> <p>(3) Support for diversification of livelihood options for the poor with off-farm activities linked to agriculture</p>

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<p>Growth and Poverty Reduction Strategy II, 2005</p>	<p>Medium-Term National Development Policy Framework: Ghana Shared Growth and Development Agenda (GSGDA), 2010</p>	<p>NDC 2012 Manifesto: Advancing The Better Ghana Agenda; Jobs; Stability; Development, 2012</p>	<p>NPP 2012 Manifesto: Transforming Lives, Transforming Ghana; Building a Free, Fair and Prosperous Society, 2012</p>	<p>Accelerated Agricultural Growth and Development Strategy (AAGDS), 1996</p>	<p>Food and Agriculture Sector Development Policy (FASDEP), 2002</p>	<p>Food and Agriculture Sector Development Policy II (FASDEP II), 2007</p>	<p>Medium-Term Agriculture Sector Investment Plan (METASIP), 2010</p>
<p>(3) Enhancing access to credit and inputs for agriculture (4) Promoting selective crop development (5) Modernising livestock development (6) Improving access to mechanised agriculture (7) Increasing access to extension services (8) Provision of infrastructure for aquaculture (9) Restoration of degraded land and environment</p>	<p>(2) Promotion of selected traditional and exotic vegetables for exports, including mango, cashew and shea-nuts (3) Extension of the concept of nucleus-out grower and block-farming schemes and contract farming to cover staples and cash crops (4) Modernization of agriculture involving the expanded involvement of the National Service Scheme in agricultural activities (5) Promotion of small-holder productivity in partnership with large-scale nuclear-farm production (6) Facilitation in the training of out grower farmers in all processes required under Good Agricultural Practices (GAP) with emphasis on the harvesting and handling of horticultural crops and exotic vegetables</p>			<p>(3) Improved access to agricultural financial services (4) Improved infrastructure (5) Enhanced human resource and institutional capacity</p>			<p>(4) Early warning systems and emergency preparedness (5) Irrigation and water management (6) Mechanization services (7) Promotion of cash crops (8) Livestock and fish production for income in all ecological zones (9) Development of pilot value chain for two selected commodities in each agro-ecological zone (10) Awareness and use of sustainable land management technologies by men and women farmers (11) Uptake of technology along the value chain and application of biotechnology in agriculture</p>

Evolution of agricultural objectives and priorities

Agricultural objectives and priorities have been assessed over a 15-year period in this analysis, beginning with the AAGDS in 1996 and continuing through to Ghana's most recent Agricultural sector Plan (METASIP) in 2010.

It is worth reflecting on how objectives and priorities in the agricultural sector have evolved over this period. Perhaps most notably, two of the AAGDS objectives of 1996 have persisted through to the most recent agricultural sector medium-term plan, namely (1) improved access to domestic and internal agricultural markets and (2) improved technology development and dissemination. The focus on "accelerated growth depend[ing] on rapid technological changes, private sector development and export-oriented agriculture" has led to persistent tensions between a 'poverty alleviation' versus 'commercialization' approaches to agriculture sectoral development.

"In Ghana, although the central government poverty reduction strategy recognised the important role of agriculture, this concern was not shared by the Ministry of Food and Agriculture. As a result, the Accelerated Agricultural Growth and Development Strategy (AAGDS) was primarily focused on economic growth with little mention of poverty which left donors and government contending the issue of why AgSSIP should be funded. Consensus was never reached on this and differences of opinion have therefore continued throughout the process, and adversely affected implementation." (Foster et al. 2000).

Ghana's policy environment has increasingly favoured efforts toward value chain promotion and public private partnerships (PPP) in the agricultural sector and in the broader economy. Advances in this regard have logically followed Ghana's transition from Least Developed Country (LDC) to Highly Indebted Poor Country (HIPC) status. The subsequent cancellation of much of the country's Official Development Assistance (ODA) debt and the influx in foreign direct investment has undoubtedly contributed to this focus.

The FASDEP II, for example identifies 'value-chain' development in its introductory section entitled "The New Direction":

"The Government of Ghana now wants to have a focus in its efforts for greater effectiveness, sustainability and equity in impacts. In particular, a few commodities will be targeted for support. A value chain approach to agricultural development will be adopted with value addition and market access given more attention.

Efforts will be intensified to build capacity towards meeting challenges of quality standards in the international market, with focus on increasing productivity along the value chain” (2007).

If Table 8 is examined more systematically, the following insights are produced. In total, 39 unique ‘objectives’ and ‘priorities’ were listed within the agricultural planning documents (and agricultural sections of general planning documents) reviewed here. Each of these 39 objectives was tested for its inclusion in all of the documents analysed. While no single objective proved consistent across all policy documents, improved domestic marketing and improved access to external markets were both common to seven of the eight documents. These objectives were followed by ‘investment in technology,’ common to six policy documents. Table 9 displays objectives and priorities common to four or more of the documents under analysis. The complete table can be found in Appendix 2. An ‘X’ at the intersection of a row and column indicates the presence of a given policy objective within a policy document.

Table 9. Objectives and priorities between agricultural policy documents

	GPRS II, 2005	GSGDA, 2010	NDC 2012 Manifesto, 2012	NPP 2012 Manifesto, 2012	Accelerated Agricultural Growth and Development Strategy (AAGDS), 1996	Food and Agriculture Sector Development Policy (FASDEP), 2002	Food and Agriculture Sector Development Policy II (FASDEP II), 2007	Medium-Term Agriculture Sector Investment Plan (METASIP), 2010	Frequency Identified as Objective / Priority
Improve agricultural marketing (domestic)	x	x		x	x	x	x	x	7
Improved access to external markets	x	x	x		x	x	x	x	7
Transformation of the agriculture sector from a resource-based to a technology-based industry (investment in technology)			x	x	x	x	x	x	6
Accelerating the provision of irrigation infrastructure	x			x		x		x	4
Improving institutional coordination		x				x	x	x	4
Promoting selective crop development	x	x	x			x			4
Promotion of agro-processing	x		x	x		x			4
Promotion of industrial sub-contracting and partnership exchange (including PPPs)	x		x	x				x	4

Climate change in national planning and agricultural documents

Before moving on to discuss climate change-specific policies and programmes, it is worth analysing the evolution of the inclusion of climate change within key agricultural planning and project documents. Table 10 lists relevant planning documents in chronological order, together with a description of any references to “climate change” within the document. We see that climate change, although referenced as early as 2005, does not receive substantial mainstreaming until the release of the METASIP and GSGDA documents in 2010.

Table 10. Climate change inclusion in key agricultural sector plans

Constitution, 1992	No reference made to “climate change”
FASDEP, 2002	No reference made to “climate change”
GPRS II, 2005	<p>[Count: 4]</p> <p>[Key area of focus > (c) Restoration of degraded environment and natural resource management > Issues]</p> <p>“Lack of awareness on climate change and its impact”</p> <p>[Key area of focus > (c) Restoration of degraded environment and natural resource management > Issues > Strategies]</p> <p>“1.7 Initiate measures toward minimizing the impact of climate change/variability”</p> <p>[Key area of focus > Environment-related factors in vulnerability and exclusion > Policies]</p> <p>“1. Deal with the effect of climate change especially drought and desertification”</p> <p>[Key area of focus > Environment-related factors in vulnerability and exclusion > Strategies]</p> <p>“1.5 Adopt policy framework on climate change and mainstream of the national action programme to combat drought and desertification”</p>
FASDEP II, 2007	<p>[Count: 1]</p> <p>[Section: 4.5 Sustainable management of land and environment]</p> <p>“In addition to addressing issues (barriers or opportunities) of productivity in both agriculture and in environmental services, this objective will serve as entry point in addressing the interactions between agriculture and climate change and biodiversity loss. Strategic Environmental Assessment of FASDEP II will ensure that the policy is consistent with all regional and sub-regional conventions on natural resource management.”</p>
NRGP, 2007	<p>[Count: 8]</p> <p>[Origin and history of the programme]</p> <p>“Despite efforts to increase access to irrigated agriculture, the region’s agriculture remains strongly dependent on rainfed cultivation, making it highly vulnerable to climate change risks. Agricultural growth will thus have to rely on increasing both rainfed and irrigated production and promoting processing and marketing of agricultural produces of the three northern regions. Marketing improvement will require building food and commodity chains to connect northern producers to southern markets.”</p> <p>[Programme concept and rationale]</p> <p>“The diffusion of drought-resistant varieties (Component A), irrigation development and soil and water conservation (Component B) will contribute to mitigating climate change.”</p> <p>[4.5.9 Marketing infrastructure development]</p> <p>“Appropriate specifications including enhanced soil binders will be used to withstand extreme weather events due to climate change.”</p>

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	<p>[4.5.9 Marketing infrastructure development]</p> <p>“Appropriate specifications including enhanced soil binders will be used to withstand extreme weather events due to climate change.”</p> <p>[4.7 Environmental and social impacts]</p> <p>“4.7.3 Four main mitigation/enhancement measures are being proposed within the scope of this programme: (i) preparation of two Strategic Environmental Assessment (SEA) studies (one for FASDEP and another one for NRGD); the scope of these SEA studies will encompass key policy objectives, including the implementation of the Multilateral Environmental Agreements (for example, Biodiversity, Climate Change, Desertification and Persistent Organic Pollutions Conventions), food security and emergency preparedness, watershed management and enhanced institutional coordination.”</p>
ECOWAP/CAADP Compact, 2009	No reference made to “climate change”
Decentralisation Policy Framework, 2010	No reference made to “climate change”
METASIP, 2010	<p>[Count: 8]</p> <p>[Chapter 3: Description of programmes and justification of priorities, Programme 1: Food security and emergency preparedness]</p> <p>“FASDEP II defines emergency preparedness as the assessment of the country’s readiness to respond to the needs of victims of natural hazards and other calamities, including climate change impacts.”</p> <p>[Programme 4: Sustainable management of land and environment]</p> <p>“Efforts should not only be to assist farmers to adapt to climate change impacts but should also encourage them to undertake mitigation measures.”</p> <p>[Output 4.1.2: Institutional capacity at all levels within the food and agriculture sector built to support the promotion of SLM by 2015]</p> <p>“Enhance the capacities of private extension service providers in approaches to climate change adaptation and mitigation processes.”</p> <p>[Climate change and FASDEP II]</p> <p>“Climate change is not only an environmental problem but also a developmental issue. Since the climate change impacts will be felt now and in the future, the implementation of all policies and strategies under FASDEP II should seriously give consideration to these impacts.”</p> <p>“The Strategic Environmental Assessment of FASDEP II provided an important vehicle for mainstreaming environmental issues within the Agricultural Sector policy, plans and programmes.”</p> <p>“Climate change is not only an environmental problem but also a developmental issue. Since the climate change impacts will be felt now and in the future, the implementation of all policies strategies under FASDEP II should seriously give consideration to these impacts. Appropriate adaptation and mitigation measures should be given serious consideration during the formulation and implementation of future sector policies. In order to ensure sustainability of projects to meet national goals, it is strongly recommended that national projects should take advantage of the benefits of the Clean Development Mechanism.”</p>
GSGDA, 2010	<p>[Count: 62]</p> <p>[3.3.2.6. Make private sector work for Ghana; Share the benefits of growth and transformation > v) Protect the environment, mitigate the effects of, and adapt to climate change]</p> <p>“It will be important for the Environmental Protection Agency (EPA) in the medium term to enforce environmental standards. Ghana shall also endorse and implement international conventions that seek to protect the environment and respond to climate change risks. Companies operating in Ghana shall be expected to respect environmental standards no lower than what their parent companies insist on in the developed world.”</p>

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	<p>[4.2 Sustainable natural resource management > The key issues and challenges]</p> <p>“The state of Ghana’s natural resources and environment are rapidly changing due to global issues like climate change and biodiversity conservation.”</p> <p>“Improved cross-sectoral environmental management, including the consideration of global issues such as climate change and loss of biodiversity, as well as the opportunities of initiatives such as REDD+, VPA/Flegt”</p> <p>[4.2.3 Investing in the Natural Capital for Development]</p> <p>“Key policy objectives to effectively cope with the threats of climate change include: adapting to the impacts of and reduce vulnerability to climate variability and change; ”</p> <p>“mitigating the impacts of climate variability and change; and a low-carbon growth strategy. Several Development Partners have indicated the need for a Centre of Excellence for Climate to be established, and this can be done within the University of Ghana Institute of Environment and Sanitation Studies.”</p> <p>“Strategies identified to achieve [adaptation] include the following: increase resilience to climate change impacts, identifying and enhancing early warning systems; alternative livelihoods: minimizing impacts of climate change for the poor and vulnerable, enhance national capacity to adapt to climate change through improved land-use management; adapt to climate change through enhanced research and awareness creation; development and implementation of environmental sanitation strategies to adapt to climate change; manage water resources as climate change adaptation to enhance productivity and livelihoods; minimize climate change impacts on socio-economic development through agricultural diversification; minimize climate change impacts on human health through improved access to healthcare; demand and supply side measures on adapting the national energy system to impacts of climate change; and adapt to climate change: sustain livelihoods through enhanced fisheries resource management.”</p> <p>[Logframe Key Focus Area > Accelerated modernization of agriculture > Strategies > Promote sustainable management of land and environment]</p> <p>“3.23 Integrate/mainstream impact of climate change into sectoral and district plans.”</p> <p>[Logframe Key Focus Area > Natural resources > Climate variability and change > Strategies > Adaptation]</p> <p>“1.1 Increase resilience to climate change impacts: through early warning systems 1.2 Alternative livelihoods: minimizing impacts of climate change for the poor and vulnerable 1.3 Enhance national capacity to respond to climate change through creation of a Climate Centre at the Institute of Environment and Sanitation Studies, Legon. 1.4 Adapt to climate change through enhanced research and awareness creation 1.5 Development and implementation of environmental sanitation strategies to adapt to climate change 1.6 Manage water resources as a climate change adaptation strategy to enhance productivity and livelihoods 1.7 Minimize climate change impacts on socioeconomic development through agricultural diversification 1.8 Minimize climate change impacts on human health through improved access to healthcare 1.9 Adopt demand- and supply-side measures for adapting the national energy system to impacts of climate change 1.10 Adapt to climate change: sustaining livelihoods through enhanced fisheries resource management”</p>
<p>NDC Manifesto, 2012</p>	<p>[Count: 5]</p> <p>[Savannah Accelerated Development Authority (SADA)] “In the next term of the NDC, SADA will expand its programmes in climate-change mitigation by expanding its economic tree stock from 5 million to 10 million”</p> <p>[Seed Production] “Support the development and introduction of climate change-resilient, high-yielding, disease- and pest-resistant and short-duration seed varieties, taking into account consumer health and safety”</p> <p>[Road Infrastructure] “Cause a review of the standards and specifications of the country’s different road categories and ensure that they meet the standards comparable to those in middle-income countries. In particular, the review will ensure that the impact of climate change is factored in the new specifications”</p>

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	<p>[ICT: Entering the Knowledge Revolution] “Use of the platform of the annual “Ghana Science Congress” to share appropriate technologies to support agriculture, climate change mitigation, and micro-, small- and medium-scale enterprises.”</p> <p>[Water Resource Management] “Promotion of climate change adaptation measures”</p>
NPP Manifesto, 2012	No reference made to “climate change”
G8, 2012	No reference made to “climate change”

Climate change objectives and priorities

Table 11 summarizes the key objectives and priorities outlined in this section on climate change policies. Both ‘objectives’ and ‘priorities’ (where applicable) have been listed from these planning documents, given that the terms are applied differently (interchangeably) between documents. In the case of Ghana’s UNFCCC Second National Communication, “priorities” have been derived from section “5.2.4 Climate Change Impacts, Vulnerability, Adaptation and Land Management in Ghana,” which lists ‘coping strategies’ currently being implemented by farmers. For the NCCAS, priorities refer to section 3.2 ‘Strategies’ for the agricultural sector. Meanwhile, the NCCP’s ‘objectives’ reflect the document’s ten programme areas, while the ‘priorities’ refer to ‘key actions’ under section 4.1 “Agriculture and Food Security.”

Table 11. Climate change objectives and priorities by document

Supporting Integrated and Comprehensive Approaches to Climate Change Adaptation in Africa (AfricaAdapt), 2009	Integrating Climate Change and Disaster Risk Reduction into National Development, Policies and Planning in Ghana, 2010	Ghana's Second Communication to the UNFCCC, 2011	National Climate Change Adaptation Strategy (NCCAS), 2012	Forthcoming National Climate Change Policy (NCCP), 2013
Objectives				
<p>(1) Introduce dynamic, long-term planning mechanisms to cope with the inherent uncertainties of climate change</p> <p>(2) Strengthen leadership and institutional frameworks to manage climate change risks and opportunities in an integrated manner at the local and national levels</p> <p>(3) Implement climate-resilient policies and measures implemented in priority sectors</p> <p>(4) Expand financing options to meet national adaptation costs at the local, national, sub-regional and regional levels</p> <p>(5) Generate and share knowledge on adjusting national development processes to fully incorporate climate change risks and opportunities across all levels</p>	<p>(1) Create and deepen awareness about the critical role of climate change and disasters in national development efforts</p> <p>(2) Ensure that climate change and disaster issues are fully integrated and sustained in the national planning process</p> <p>(3) Assist pilot districts to integrate climate change and disaster risk in their District Medium-Term Development Plans</p> <p>(4) Take up adaptation and mitigation measures</p>	<p>[From the development of the national adaptation strategy]</p> <p>(1) Increase resilience to climate change impacts by identifying and enhancing early warning systems</p> <p>(2) Promote alternative livelihoods for minimizing the impacts of climate change for the poor and vulnerable</p> <p>(3) Enhance national capacity to adapt to climate change through improved land use management</p> <p>(4) Enhance research and awareness creation</p> <p>(5) Develop and implement environmental sanitation strategies</p> <p>(6) Manage water resources to enhance productivity and livelihoods</p> <p>(7) Promote agricultural diversification</p> <p>(8) Improve access to healthcare</p> <p>(9) Implement demand- and supply-side national energy system alternatives</p> <p>(10) Promote fisheries resource management</p>	<p>(1) Improve societal awareness and preparedness for future climate change</p> <p>(2) Enhance the mainstreaming of climate change into national development to reduce climate change risks</p> <p>(3) Increase the robustness of infrastructure development and long-term investments</p> <p>(4) Enhance the adaptability of vulnerable ecological and social systems by increasing the flexibility and resilience of these systems</p> <p>(5) Foster competitiveness and promote technological innovation</p>	<p>[Programme areas]</p> <p>(1) Develop climate-resilient agriculture and food security systems</p> <p>(2) Build climate-resilient infrastructure</p> <p>(3) Increase resilience of vulnerable communities to climate-related risks</p> <p>(4) Increase carbon sinks</p> <p>(5) Improve management and resilience of terrestrial, aquatic and marine ecosystems</p> <p>(6) Address impacts of climate change on human health</p> <p>(7) Minimize impacts of climate change on access to water and sanitation</p> <p>(8) Address gender issues in climate change</p> <p>(9) Address climate change and migration</p> <p>(10) Minimize greenhouse gas emissions</p>

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Supporting Integrated and Comprehensive Approaches to Climate Change Adaptation in Africa (AfricaAdapt), 2009	Integrating Climate Change and Disaster Risk Reduction into National Development, Policies and Planning in Ghana, 2010	Ghana's Second Communication to the UNFCCC, 2011	National Climate Change Adaptation Strategy (NCCAS), 2012	Forthcoming National Climate Change Policy (NCCP), 2013
Priority areas				
<ul style="list-style-type: none"> (1) Develop drought-tolerant and flood-resistant varieties (2) Breeding early or extra early maturing genotypes (3) Develop food insurance schemes (4) Educate farmers to plant in low population densities so as to reduce competition for scarce or limited soil moisture (5) Encourage farm-level adaptation such as shift in planting dates and modifying the amount and timing of fertilizer application (6) Shifts in natural production centres for various food crops to areas where comparative advantage can be obtained (7) Enhancing food security measure by storing food in national banks 	<p>[List of what farmers are already doing]</p> <ul style="list-style-type: none"> (1) Promotion of livestock integration (that is, mixed farming) (2) Focusing on rearing more goats than sheep and cattle, as goats are harder and can survive harsh conditions (3) Adopting early yielding and drought-tolerant crop varieties, crop rotation, water conservation practices, agroforestry, post-harvest storage systems, integrated pest and disease management (4) Promoting moisture conservation, mulching in particular (5) Focusing on erosion control (6) Planting and conservation of trees (7) Promotion of chemical fertilizer in severely underproducing areas (8) Emphasis on cassava and vegetables (9) Land-use intensification (10) Farm extension into marginal lands (11) Cropping moist valley bottoms (12) Changing diets (13) Out-migration of people (14) Promotion of alternative, off-farm jobs, notably small-scale gold mining 	<ul style="list-style-type: none"> (1) Build and strengthen capacity of local farmers to increase agricultural productivity and awareness of climate issues (2) Build and strengthen capacity of extension officers on new farming technologies in order to enhance their support for farmers (3) Enhance the living standards of vulnerable groups through acquisition of alternative livelihoods skills (4) Protect the environment through the promotion of agricultural biodiversity (5) Promote cultivation of crops and rearing of animals adapted to harsh climatic conditions (6) Document existing indigenous knowledge and best practices (7) Train trainers to promote post-harvest technologies to minimize losses of farm produce 	<ul style="list-style-type: none"> (1) Improve and harmonize research activities in climate-smart agriculture (2) Build and strengthen the capacity of extension officers in climate smart-agriculture to enhance support to farmers and fishermen (3) Promote capacity building for farmers and fisherfolks and build awareness on climate change issues (4) Build capacity for community-level weather data collection, analysis and dissemination for agricultural planning (5) Document and promote appropriate indigenous knowledge and best practices (6) Develop climate-resilient cropping and livestock systems as well as crop varieties and livestock breeds tolerant to flooding, drought and salinity (7) Promote diversified land-use practices, including agroforestry, dry-land farming, urban/backyard vegetable production, to reduce risk and increase the capacity of farmers to cope with droughts and floods (8) Prepare and enforce spatial plans to address conflicts between peri-urban agriculture and human settlements (9) Improve productivity through improved farming technologies and practices, such as the integration of trees into farming systems, integrated nutrient management under various crops, green/organic farming, and so on 	

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Supporting Integrated and Comprehensive Approaches to Climate Change Adaptation in Africa (AfricaAdapt), 2009	Integrating Climate Change and Disaster Risk Reduction into National Development Policies and Planning in Ghana, 2010	Ghana's Second Communication to the UNFCCC, 2011	National Climate Change Adaptation Strategy (NCCAS), 2012	Forthcoming National Climate Change Policy (NCCP), 2013
Priority areas				
<p>(10) Promote and support agricultural diversification (livestock-crop integration as well as management practices) as a coping strategy and for income generation</p> <p>(11) Design and implement programmes on fisheries management and disease control, which integrate climatic and hydrological parameters</p> <p>(12) Provide sustained support in the use of simple agronomic soil and water conservation measures (for example, agro-forestry, crop rotation, tied ridging, mulching, contour earth mounds, vegetative barriers and improved fallow)</p> <p>(13) Promote appropriate technologies for small-scale irrigation, water re-use and water harvesting (for example, waste/water recycling), rainwater harvesting, and so on</p> <p>(14) Improve efficiency of farming practices through secure land tenure, effective pricing policies and access to credit</p> <p>(15) Institute risk transfer schemes (for example, insurance) against local supply changes, harvest failure or weather risk</p> <p>(16) Promote alternative livelihood systems to diversify incomes, such as beekeeping, poultry production, piggyery, snail rearing, mushroom cultivation, sustainable aquaculture, and so on</p> <p>(17) Improve post-harvest capacity, for example, storage and processing facilities and infrastructure</p> <p>(18) Build capacity for recycling and conversion of agricultural waste</p> <p>(19) Improve marketing policies that increase competitiveness for the domestic and international market</p>				

Evolution of climate change objectives and priorities

In total, 53 unique ‘objectives’ and ‘priorities’ were listed within the climate change planning documents (and agricultural sections of general planning documents) reviewed here. Each of these 53 objectives was tested for its inclusion in all of the documents analysed. While no single objective proved consistent across all policy documents, ‘awareness creation and capacity building,’ ‘Improved land management’ and ‘development of improved varieties’ were consistently found across four of the six policies. Table 12 displays objectives and priorities common to 3 or more of the documents under analysis. The complete table can be found in Appendix 3. An ‘X’ at the intersection of a row and column indicates the presence of a given policy objective within a policy document.

Table 12. Objectives and priorities between climate change policy documents

	Supporting Integrated and Comprehensive Approaches to Climate Change Adaptation in Africa (AfricaAdapt), 2009	Integrating Climate Change and Disaster Risk Reduction into National Development, Policies and Planning in Ghana, 2010	Ghana's Second Communication to the UNFCCC, 2011	National Climate Change Adaptation Strategy (NCCAS), 2012	National Climate Change Policy (NCCP), 2013	Frequency Identified as Objective / Priority
Awareness creation and capacity building		x	x	x	x	4
Improved land use management		x	x	x	x	4
Develop drought-, flood-, pest-, disease-tolerant varieties, and climate-resilient livestock breeds		x	x	x	x	4
Promote research (*in climate-smart agriculture)			x	x	x*	3
Establish environmental sanitation strategies			x	x	x	3
Improve water resource management			x	x	x	3
Promote agricultural diversification			x	x	x	3
Improve access to healthcare			x	x	x	3
Promote fisheries resource management			x	x	x	3
Invest in post-harvest storage systems			x	x	x	3
Promotion of alternative livelihoods			x	x	x	3

Policy interplay

To this point, the policy/project documents relevant to governing institutions, agriculture and climate change in Ghana have been introduced; and the principal objectives and priorities indicated in those documents outlined, together with their evolution over time. What remains is to analyse the interplay between these documents and between other key policies, projects and institutions relevant to climate change adaptation in agriculture in Ghana. To this end, the Document Analysis Protocol (DAP) (Appendix 4) contains a section entitled “Policy Context.”

In this section, references made to existing (or forthcoming) legislation, policies, projects, frameworks, conventions, and so on, were recorded, together with a brief description of the relationship (interplay). An example of the policy context section of the DAP (for the National Climate Change Policy, 2014) can be found in Table 13.

Table 13. Example policy context section from the National Climate Change Policy

Policy title (pg #)	Notes (relationship)
“Constitution of the Republic of Ghana”	“The provisions in the Directive Principles of State Policy (Article 36[9]) of the 1992 Constitution of the Republic of Ghana further puts legislative powers behind our determination to pursue sustainable and equitable economic growth”
Ghana Shared Growth and Development Agenda	<p>“Climate change has, therefore, been on top of the national development priorities to the extent that it has been amply reflected in the Ghana Shared Growth and Development Agenda, which is the blueprint of the development strategy for Ghana”</p> <p>“Adaptation to climate change is crucial to help communities and nations cope with its impact and are a key objective within the Ghana Shared Growth and Development Agenda (GSGDA)”</p>
Savannah Accelerated Development Authority (SADA)	<p>“The Savannah Accelerated Development Authority (SADA) has the vision of creating a forested and green North by 2030, doubling the incomes of Northern Ghanaians and reducing the incidence of poverty in the Northern Savannah Ecological Belt to less than 20% within 20 years”</p> <p>SADA promises to be instrumental in mobilizing private sector businesses to take advantage of the investment incentives and opportunities offered by SADA to get involved in a new orientation of the value-chain. Investments in agriculture, agroprocessing, tourism, mining and services are expected to ensure that more than 90% of the jobs created will be long-term, sustainable employment, especially for the youth. Northern Ghana has been noted for poverty-induced violent conflict for many years. The SADA strategy makes peace and conflict avoidance a cardinal pre-condition for sustainable development in the area”</p>
National Climate Change Policy Framework (NCCPF)	“The National Climate Change Policy (NCCP) was developed from the National Climate Change Policy Framework (NCCPF): Ghana Goes for Green Growth (G4) discussion document. The G4 document has already been accepted by the Cabinet and has been subjected to extensive stakeholder consultation in both the northern and southern sectors of the country over a two-year period”

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Policy title (pg #)	Notes (relationship)
National Climate Change Adaptation Strategy (NCCAS)	<p>“Climate change actions must be institutionalised and integrated into mainstream development policies, plans and programmes at the national level. Priority areas for action have now been established by the National Climate Change Adaptation Strategy, and there has been progress in planning processes that look beyond the short term to the need for medium-term strategies”</p> <p>“The preparation of the adaptation strategy has been principally influenced, among other factors, by (1) Ghana’s commitments under the UNFCCC to ensure that climate change issues are adequately considered in national development planning, (2) the country’s responsiveness to the Hyogo Framework for Action (HFA) 2005-2015 (comprehensive and action-oriented response to international concern about the growing impact of disaster on individuals, communities and national development, which aims to reduce substantially loss of life as well as the social, economic and environmental losses caused to communities), (3) the extent of added vulnerability to the Ghanaian economy, attributed to the current and expected impacts of climate change on the entire society, makes the preparation of the NCCAS important”</p>
National Science, Technology and Innovation Policy	<p>“The National Science, Technology and Innovation Policy seeks to create the national capacity to exploit opportunities for innovation addressing climate change”</p>
Ghana Aid Policy	<p>“Ghana will need to call on a mix of public and private, international and domestic sources, and the Government is keen to ensure a coordinated approach that reinforces existing practices in national planning and public financial management. This is in line with the principles of Ghana’s Aid Policy for development. Key roles for government include mobilisation and allocation of funding, and tracking of progress to ensure proper accounting and cost-effective use of resources in an efficient manner”</p>
Economic Community of West African States (ECOWAS)	<p>In 2012, for example, the Economic Community of West African States (ECOWAS) meeting on sub-regional adaptation and mitigation strategies was hosted by Ghana. Ghana has actively contributed to many other international negotiation processes, in addition to hosting the 2008 UNFCCC meeting”</p>
Copenhagen Accord	<p>“Ghana has helped to structure the new Finance Mechanisms for Adaptation and was one of the first to submit its programme under the Copenhagen Accord.”</p>
Natural Resources and Environmental Governance Initiative (NREG)	<p>“In addition, climate change is among various thematic areas receiving support under the “Natural Resources and Environmental Governance” initiative (NREG), from key development partners and the World Bank”</p>
Act of Parliament 521	<p>“CSIR was established by National Liberation Council (NLC) Decree 293 of October 10, 1968, amended by NLC Decree 329 of 1969, and re-established in its present form by Act of Parliament 521 (CSIR Act 521) on November 26, 1996. Currently, the Council exercises control over 13 research institutes nationwide”</p> <p>“The Council plays a key role in climate change-related research in various sectors of the economy. Nine of the CSIR research institutions focus on agriculture, one of the key areas expected to be affected by climate change. Climate-related-research undertaken by the Council includes water and its related resources, forestry, technologies for climate change adaptation and mitigation, and other equally critical sectors of the economy”</p>

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Policy title (pg #)	Notes (relationship)
First (2002) and Second (2006) National Communications to the UNFCCC	“A national climate change focal point is in place under the Conventions and Projects Implementation Department to act as the “desk” for the implementation of climate change-related issues. The “desk” coordinates the activities of working groups and climate change study teams to support the implementation of Climate Change Project activities. Some activities include: Ghana’s First (2002) and Second (2006) National Communications to the UNFCCC; Climate Change Technology Needs Assessment (2003); The Clean Development Mechanism (EPA designated National Authority); and most notable, the Green Facility Phase 1 project; Ghana Climate Change Impacts, Vulnerability and Adaptation Assessments (2008)”
Climate Change Technology Needs Assessment (2003)	“ ”
Ghana Climate Change Impacts, Vulnerability and Adaptation Assessments (2008)	“ ”
Acts 479 and 480 (1994)	“The National Development Planning Commission (NDPC) is a body created by Articles 86 and 87 of the 1992 Constitution of the Republic of Ghana and established by Acts 479 and 480 (1994) of Parliament.”
Ghana Meteorological Agency Act	“The Ghana Meteorological Services Agency (GMet) was set up in December 2004 by the Ghana Meteorological Agency Act (Act 682) to replace the former Ghana Meteorological Services Department.”
Food and Agriculture Sector Development Policy (FASDEP II)	“MOFA is currently leading the implementation of a national Food and Agriculture Development Policy (FASDEP II) and its investment plan, Medium-Term Agriculture Sector Investment Plan (METASIP). The FASDEP and METASIP are the main drivers for achieving the accelerated modernisation of agriculture envisaged within the GSGDA. The FASDEP and METASIP have six policy/programme areas as follows; food security and emergency preparedness; increased growth in incomes; increased competitiveness and enhanced integration into domestic and international markets; sustainable management of land and environment; application of science and technology in food and agriculture development; and effective institutional coordination.
Medium-Term Agriculture Sector Investment Plan (METASIP)	“ ”
National Water Policy	“The National Water Policy of Ghana is intended to provide a framework for the sustainable development of Ghana’s water resources. It is targeted at all water users, water managers and investors, decision makers and policy makers within the central government and decentralised (District Assemblies) structures, NGOs and international agencies. The policy also recognises the various cross-sectoral issues related to water-use and the links to other relevant sectoral policies, such as those on sanitation, agriculture, transport, energy, and so on.”
Ghana’s National Environmental Sanitation Policy (ESP)	“Ghana’s National Environmental Sanitation Policy (ESP) was developed in 1999 in consultation with a variety of stakeholders and covers the broad spectrum of environmental sanitation, including solid and liquid waste, industrial and hazardous wastes, storm water drainage, environmental and hygiene education, vectors of disease, and disposal of the dead (Republic of Ghana, 1999). The policy identifies many of the major problems and constraints in environmental sanitation, including the lack of assigned roles for governmental bodies, the lack of capacity and skilled professionals at all levels, and the problems associated with the transfer of responsibilities for environmental sanitation without the corresponding budget, personnel and equipment transfers. The policy then lays out its strategy to deal with these problems.”

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Policy title (pg #)	Notes (relationship)
Ghana Plan of Action for Disaster Risk Reduction and Climate Change Adaptation (2011-2015)	“Several Ministries, Departments and Agencies (MDAs) have produced plans for climate change response, for example, the Ghana Plan of Action for Disaster Risk Reduction and Climate Change Adaptation (2011-2015) by NADMO. Where relevant, these plans have been taken into account in the NCCP.”

The policy context sections for each of the 16 central documents have been compiled to produce Table 14 below. In total, 192 separate policies, programmes, acts or conventions were listed within the target documents (See Appendix 5 for the complete list).

The most frequently cited policies (> 25% coverage) include: (1) Ghana Poverty Reduction Strategy I; (2) New Partnership for Africa’s Development; (3) Millennium Development Goals; (4) Ghana Poverty Reduction Strategy II; and (5) Food and Agriculture Sector Development Policy (FASDEP II)

Table 14. Policies, programmes and legal documents most frequently cited within target documents

Policy title	Frequency counted (from 16 policy documents)
Ghana Poverty Reduction Strategy (GPRS I)	8
New Partnership for Africa’s Development (NEPAD)	8
Millennium Development Goals (MDGs)	8
Growth and Poverty Reduction Strategy II (GPRS II), 2006	6
Food and Agriculture Sector Development Policy (FASDEP II)	6
Poverty and Social Impact Analysis (PSIA)	4
Comprehensive Africa Agriculture Development Programme (CAADP)	4
Maputo Declaration	4
National Trade Policy	4
Local Government Act, 1993 Act 462	4
The National Decentralisation Action Plan I, 2004	4
Medium-Term Agricultural Sector Investment Plan (METASIP)	4
Savannah Accelerated Development Authority (SADA)	4
Public Procurement Act, 2003	4
Natural Resources and Environmental Governance (NREG) Programme	4

Power and influence

The aforementioned policy and project documents involve a huge number of actors in the policy design, development, implementation, and monitoring and evaluation stages. Therefore, to complement this objective analysis of Ghana’s policy initiatives, an assessment of the actors and actor groups that populate this environment, as well as their relative power and influence over the outcome of adaptation decision making is warranted. The following section puts forth the

results of a Multilevel Stakeholder Influence Mapping (MSIM) exercise conducted with relevant stakeholders in Ghana’s adaptation regime. The MSIM methodology is outlined in detail in CCAFS Working Paper 46 (Sova et al. 2013) and Sova et al. (2014).

Stakeholder influence mapping is a “simple visual tool to examine and display the relative influence that different individuals and groups have over decision making.” It was developed by James Mayers and Sonja Vermeulen at the International Institute for Environment and Development (IIED) and adapted here to serve in multilevel analyses instead of traditional focus group settings.

The tool uses circles to represent different actor groups and individuals, placed within a pyramid where the policy/legislation (or broad scenario) in question serves as the pyramid cap or apex. Influence is shown in the relative closeness of the circles to the policy apex, while relationships (degree of cooperation/conflict, and so on) are indicated by relative proximity and overlap of the circles. Different colour and size circles can be used to represent stakeholder groups during the mapping activity (for example, individuals, government and civil society) and the analysis can be conducted for different time periods to track policy evolution over time.

MSIM was conducted with 30 separate respondents using rational subgrouping sampling and representing a cross-section of actors within Ghana’s agricultural adaptation regime, including government actors, INGOs, donors and so on. A total of 15 respondents were chosen from the central level (interviewed in Accra), seven from the regional level (interview in Wa, Upper West) and eight from the local level (interviewed in Lawra District, Upper West). The complete distribution of actors and subclassifications can be found in Figure 3. Interviews were conducted in May of 2013.

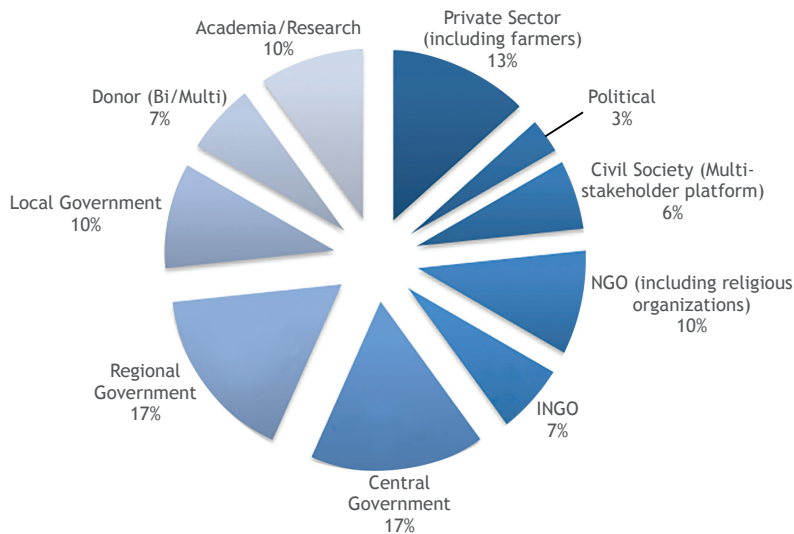


Figure 3. MSIM sample composition (n=30)

Participants in the influence-mapping exercise—interviewed individually—were asked to study a detailed stakeholder list containing approximately 75 different groups. They then indicated individuals or organizations “highly relevant” to the policy apex in question by placing a ‘tic’ next to the actor name. Table 15 outlines those actor groups most frequently selected by respondents as “highly relevant” to the policy apex. Note that “highly relevant” refers not to “highly influential” at this point. Instead, this first step seeks to provide a smaller, more manageable list of actors for mapping that could either be instrumental in developing policy or affected by that policy.

Table 15. Actors most frequently identified as ‘highly relevant’ to adaptation policy by respondents (n=30)

Actor/actor group	Frequency identified as ‘highly relevant’
Ministry of Food and Agriculture (MOFA)	29
Farmers	26
Ministry of Environment, Science, Technology and Innovation (MESTI)	24
District Assembly (DA)	24
Environmental Protection Agency (EPA)	23
Council for Scientific and Industrial Research (CSIR) [ARI, SARI, STEPRI and so on]	22
World Bank	22
INGOs (CARE, Plan, IDE and so on)	21
MOFA District Office (DoFA)	20
CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)	20

The respondent then visually ranked each of the actors (on average 20 actors) deemed “highly relevant” one by one on the influence mapping board, drawing—in the form of a circle—the ‘most influential’ actor/actor group at the top, or apex of the pyramid, and the least influential at the bottom. The policy apex was adjusted according to the respondent group as follows: (a) Climate change adaptation policy in agriculture (Central Level), (b) The design and implementation of climate change adaptation initiatives or strategies in agriculture (Regional Level) and (c) The ability to produce food, earn income or subsist when the weather changes (Local Level). This adjustment was necessary given that we often use different language to refer to the same concepts at different actor levels. While the apex title “climate change adaptation policy in agriculture,” for example, may suffice for mapping by actors at the Central (or National) Level, this concept means very little to small-scale agricultural producers at the operational level. The influence maps produced by the entire sample can be found in Figure 4.

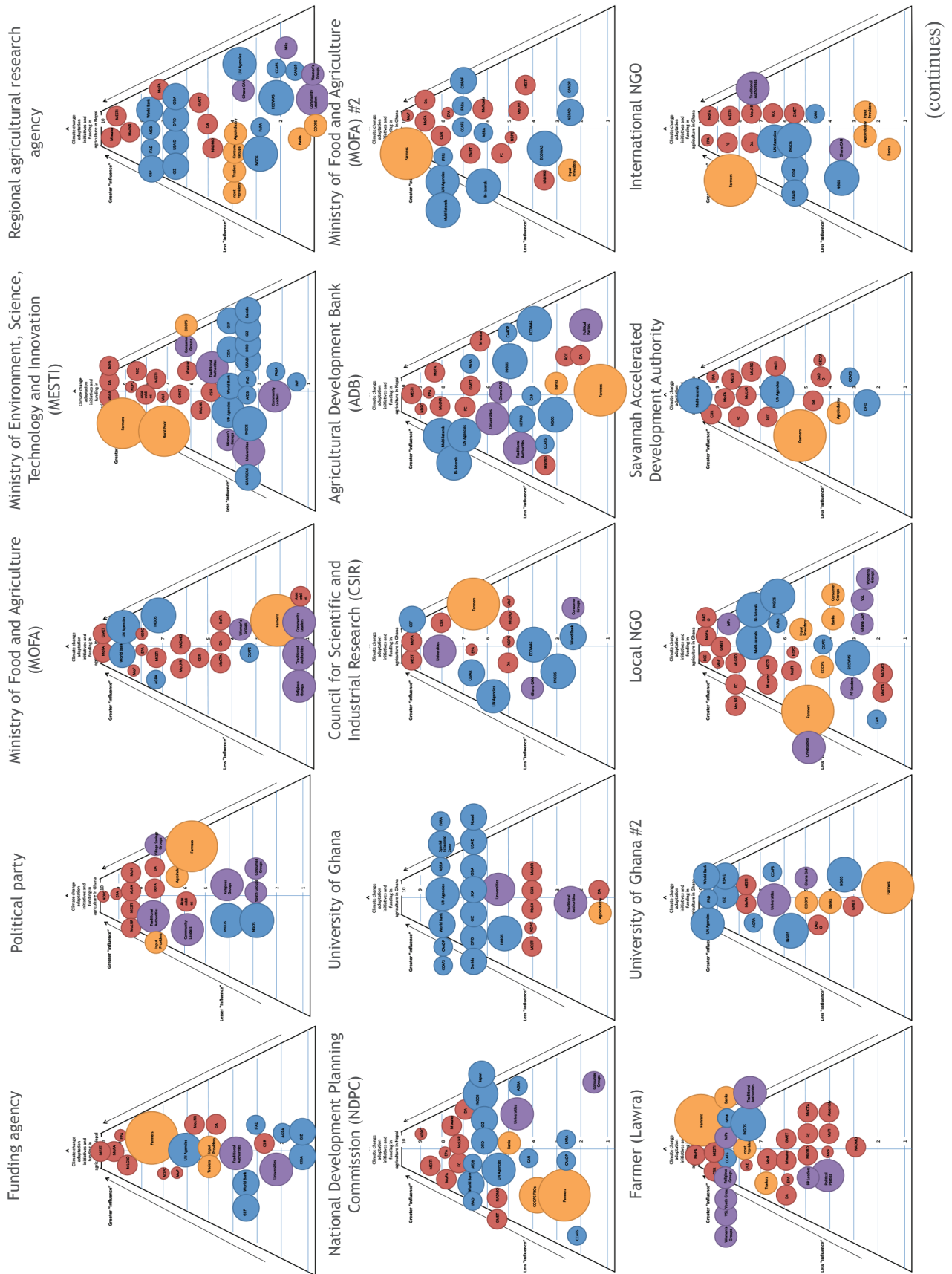
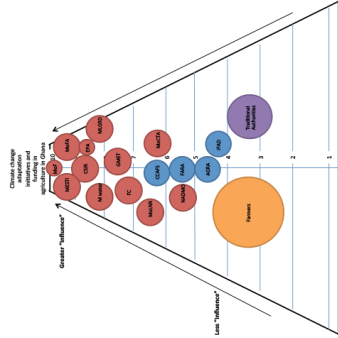


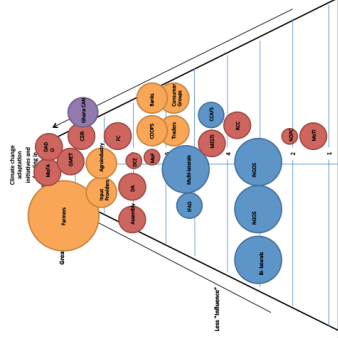
Figure 4. Influence maps from respondents in Ghana's agricultural climate change adaptation policy regime

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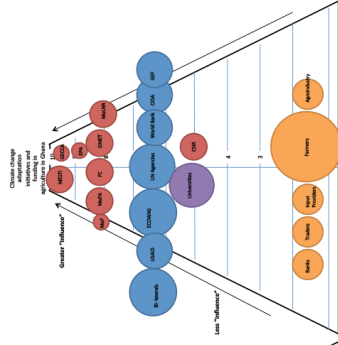
Council for Scientific and Industrial Research (CSIR) #2



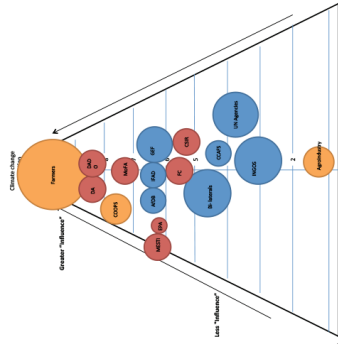
Regional Coordinating Council (RCC)



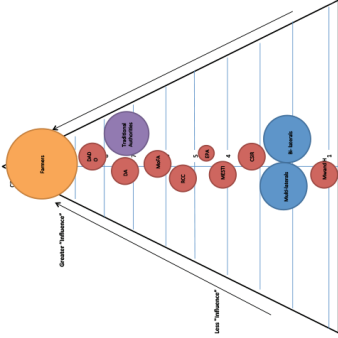
Regional Environmental Protection Agency (EPA)



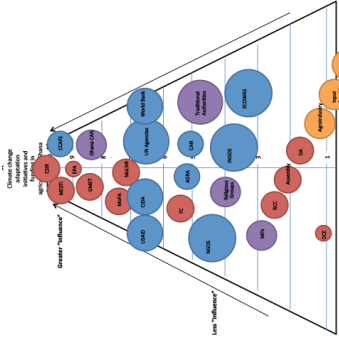
Ghana Social Opportunities Project (GSOP)



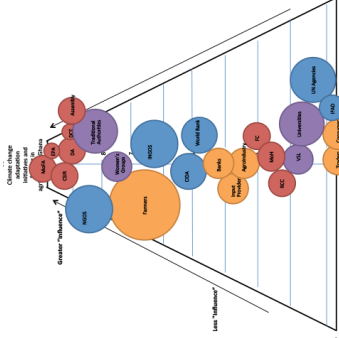
MOFA Regional Office



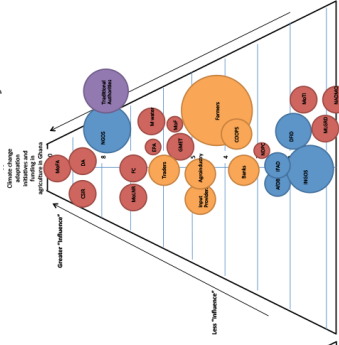
MOFA District Office



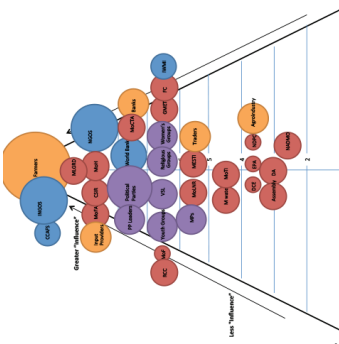
Local NGO



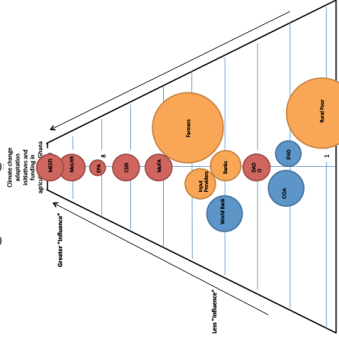
District Assembly



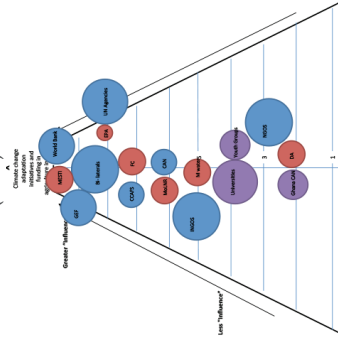
Traditional leader



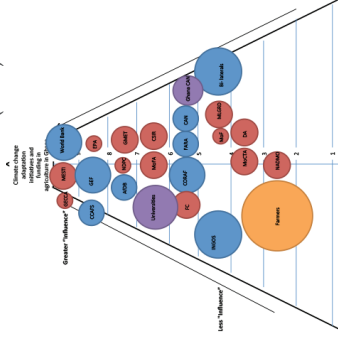
Religious organization



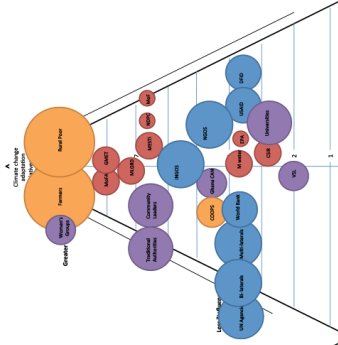
Climate Adaptation Network (CAN)



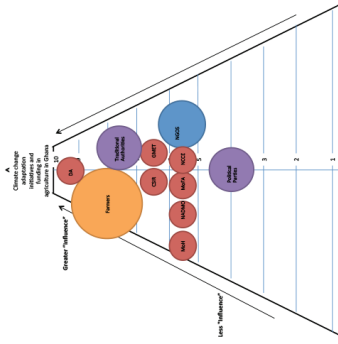
Council for Scientific and Industrial Research (CSIR) #3



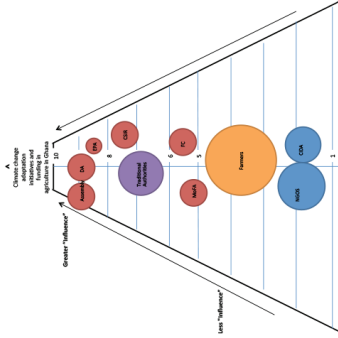
Multistakeholder platform



Farmer



District Assembly #2



To create an influence score derived from multiple interviews and maps, the frequency that actors were deemed “relevant” by interviewees was combined with their relative ranked position compared to other actors. The relative ranking score was established by counting actors/actor groups upwards from the bottom of each influence map and assigning the counted value as a ranking score. That is, the actor placed lowest on the influence map received a ranking score of 1, the second lowest a score of 2, the third lowest a score of 3, and so on. Actors/actor groups placed on the same level received the same ranking score (for example, “farmers” and “rural poor” placed side by side at the bottom of an influence pyramid would both receive a ranking score of 1). CCAFS WP 46 (Sova et al. 2013) explains in further detail the production of an influence score.

Table 16 contains a list of actors with the highest influence scores (frequency plus average ranking) according to the perceptions of the entire 30-actor sample, which includes respondents from the central, regional and local levels combined.

Table 16. Highest influence score, entire sample (n=30)

Actor/Actor Group	Frequency (“Highly Relevant”)	Average Adjusted Ranking	Composite Score (2)
Ministry of Food and Agriculture (MOFA)	28	10.6	9.9
Ministry of Environment, Science, Technology and Innovation (MESTI)	26	10.0	8.6
Environmental Protection Agency (EPA)	23	9.9	7.6
Farmers	27	7.3	6.5
World Bank	22	8.4	6.2
District Assembly (DA)	24	7.6	6.1
Council for Scientific and Industrial Research (CSIR) [ARI, SARI, STEPRI and so on]	21	8.2	5.8
Ghana Meteorological Agency (GMet)	19	8.5	5.4
Ministry of Lands and Natural Resources (MOLNR)	19	8.4	5.3
Forestry Commission (FC)	18	8.1	4.9
UN Agencies	18	7.6	4.6

The data in Table 16 above can be converted into a visual representation, producing a composite map of the top ranked actors from all 30 visual maps combined. This can be found in Figure 5 below.

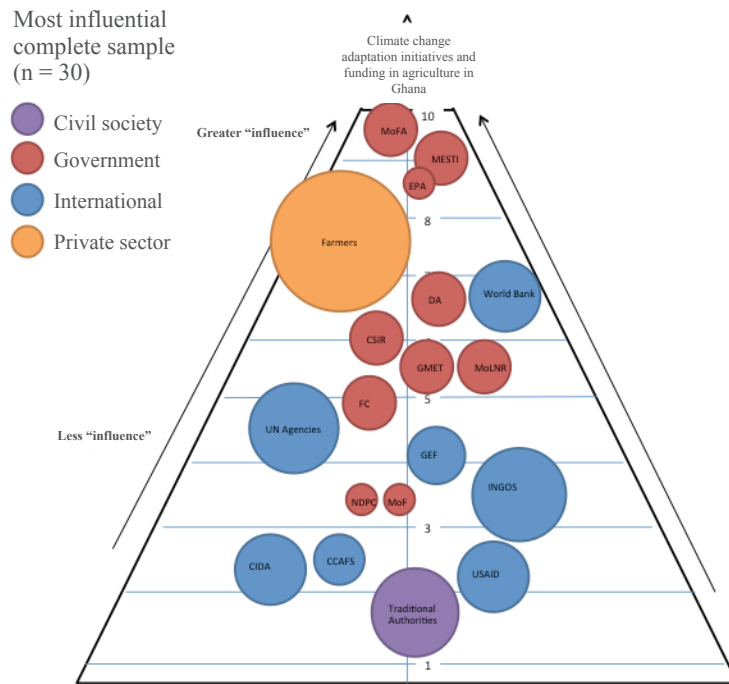


Figure 5. Combined map of highly influential actors for Ghana's agricultural adaptation regime (n=30)

We see both in Table 16 and Figure 5 that the Ministry of Food and Agriculture (MOFA) is deemed most influential with regards to agricultural climate change adaptation policy development and implementation in Ghana. Respondents cite the agency's mandate for agricultural development [**Authority and Positionality**] and its extensive network of Regional and District offices as the key factors in MOFA's influence [**Proximity**] in this regard. The Ministry of Environment, Science, Technology and Innovation (MESTI) and its implementing agency, the Environmental Protection Agency (EPA), are deemed nearly as influential as MOFA, given MESTI's mandate [**Authority and Positionality**] in steering national climate change initiatives in Ghana, as well as both agencies' association with international agencies (UNFCCC, for example) and to mobilizing climate change resources [**Resources and Knowledge**]. Farmers are also considered highly influential in Ghana's adaptation regime; although this influence is mainly derived from respondents at the regional and local levels ranking farmers as highly influential (farmers appear further down the list of influential actors among central-level respondents). They describe farmers as the 'front lines' [**Proximity**] of adaptation policy and "the implementers" without which there is no action [**Implementation**]. Below farmers, we see a host of government agencies including the District Assemblies, Council for Scientific and Industrial Research (CSIR), Ghana Meteorological Agency (GMet), Ministry of Lands and Natural Resources (MOLNR) and the Forestry Commission, all ranked for their authority and mandates on climate change-related issues [**Authority**]. Still highly

influential, but less so than those aforementioned government agencies, is the group of international organizations, including UN Agencies, Global Environment Facility, CIDA, CCAFS and USAID, among others. These international agencies are frequently cited as having access to significant financial resources [**Resources**], well-trained staff [**Knowledge**], and maintain significant autonomy in their programming from the central government [**Autonomy**]. Placed within the international agencies is the National Development Planning Commission (NDPC) and the Ministry of Finance (MOF). NDPC and MOF are deemed influential by respondents because of their central role in development planning and budget allocation [**Authority and Resources**]. Finally, traditional authorities (Chiefs and Paramount Chiefs, for example) are the last to be placed in Figure 5. This highly influential group is cited for their custodianship of lands [**Authority and tradition**], ability to enact traditional decrees (against bush burning for example) [**Legislative**] and their position in the central government through the Ministry of Chieftaincy and Traditional Affairs [**Authority**].

Equally informative are those actors deemed least influential in the adaptation regime. Table 17 contains a list of actors deemed “highly relevant” by at least 10 respondents (33% of respondents) but with the lowest composite influence scores when using data from the complete sample (n=30).

Table 17. Lowest influence score, entire sample (n=30)

Actor/Actor Group	Frequency	Average Adjusted Ranking	Composite Score (2)
National Disaster Management Organisation (NADMO)	11	3.3	1.2
Agro-industries	12	4.3	1.7
Banks (ADB, ECOBANK and so on)	13	4.9	2.1
Ghana Climate Adaptation Network (G-CAN)	12	5.5	2.2
Universities [UG, UDS]	13	5.5	2.4
NGOs	14	5.1	2.4
Bi-lateral donor #1	11	6.6	2.4
Multi-lateral donor #1	10	7.3	2.4
Bi-lateral donor #2	12	6.3	2.5
Input providers	14	5.6	2.6
Ministry of Local Government and Rural Development (MOLGRD)	11	7.3	2.7

Table 17 suggests that many private sector actors (input providers, agro-industries, and rural banks, for example) are frequently identified by respondents as highly relevant, but yet do not appear to be active or influential in decision making around climate change adaptation. This mapping result reflects anecdotal and interview data suggesting the same trend. Respondents cite the challenges in distributing new and improved seed varieties without the support of Ghana’s network of input providers, and similar difficulties in reducing post-harvest losses and

improving market access for smallholder farmers without engagement from agro-industries. The presence of the Ministry of Local Government and Rural Development (MOLGRD) in this table reflects Ghana’s slow-moving advances in fiscal and administrative decentralisation, an effort to move Ghana’s decision-making power centre from the capital, Accra, to District Assemblies throughout the country. Respondents cite obstruction on the part of central-level actors, and limited capacity of staff at the district level as key factors in MOLGRD’s minimal influence at present.

Influence across levels

Research in adaptation policy must take into account multilevel dimensions of the policy process (Adger 2001, Adger et al. 2005), commonly considered by the following “stage heuristic:” (1) problem identification, (2) agenda setting, (3) formulation, (4) adoption and (5) evaluation (Sabatier and Jenkins-Smit 1993). Each of these stages involves different actor sets, knowledge and information, and resources. As such, the MSIM maps can be combined to reflect these distinct groupings and levels of operation. Table 18, for example, contains the results of the most influential actors as determined by respondents operating at the central level (n=15).

Table 18. Highest influence scores among central-level respondents (n=15)

	Frequency	Average Adjusted Ranking	Composite Score (2)
Ministry of Environment, Science, Technology and Innovation (MESTI)	15	10.1	10.1
Ministry of Food and Agriculture (MOFA)	13	10.9	9.4
World Bank	14	9.1	8.5
National Development Planning Commission (NDPC)	12	9.2	7.4
UN Agencies	12	8.5	6.8
Environmental Protection Agency (EPA)	10	10.1	6.7
Global Environment Facility (GEF)	10	8.9	6.0
GIZ	12	7.4	5.9
Ministry of Lands and Natural Resources (MOLNR)	11	8.0	5.9
Ghana Meteorological Agency (GMet)	10	8.6	5.7
USAID	10	8.1	5.4

Table 18 of central-level respondents displays a change of most influential actor/actor group with respect to agricultural adaptation policy from MOFA to MESTI, with central-level respondents citing MESTI’s access to climate change resources and national mandate and UNFCCC focal point as key contributors to the agency’s influence in this regard. This sample also sees an elevation of the perceived influence in the Global Environment Facility (GEF) for this same reason (access to finance) as well as other donor and funding agencies, such as the

World Bank, GIZ and USAID. The National Development Planning Commission (NDPC) is also accredited more influence among central-level actors, with respondents citing the critical role that the NDPC plays in establishing budget and planning guidelines and monitoring development activities.

Table 19 provides a comparison of the top-ranked influential actors from the perspective of each principal actor grouping. Note that these groups (central, regional and local) are not perfect delineations. Some actors, particularly between the central and regional levels, see themselves as operating between these two ‘realms.’ This will be addressed in further detail in the next section on bridging actors.

Table 19. Most influential actors as perceived by respondents at the central, regional and local levels

Central level (n=15)	Regional level (n=7)	Local level (n=8)
Ministry of Environment, Science, Technology and Innovation (MESTI)	Ministry of Food and Agriculture (MOFA)	Council for Scientific and Industrial Research (CSIR) [ARI, SARI, STEPRI and so on]
Ministry of Food and Agriculture (MOFA)	Ministry of Environment, Science, Technology and Innovation (MESTI)	Ministry of Food and Agriculture (MOFA)
World Bank	Environmental Protection Agency (EPA)	Environmental Protection Agency (EPA)
National Development Planning Commission (NDPC)	Farmers	Farmers
UN Agencies	Forestry Commission (FC)	District Assembly (DA)
Environmental Protection Agency (EPA)	Council for Scientific and Industrial Research (CSIR) [ARI, SARI, STEPRI and so on]	Traditional Authorities (Paramount Chief, sub-Chief and Chiefs)
Global Environment Facility (GEF)	District Assembly (DA)	NGOs
GIZ	MOFA District Office (DoFA)	Forestry Commission (FC)
Ministry of Lands and Natural Resources (MOLNR)	Ghana Meteorological Agency (GMet)	Ministry of Environment, Science, Technology and Innovation (MESTI)
Ghana Meteorological Agency (GMet)	Global Environment Facility (GEF)	Ministry of Lands and Natural Resources (MOLNR)
USAID	International Fund for Agricultural Development (IFAD)	Ghana Meteorological Agency (GMet)

Not unexpectedly, the actors and actor groups deemed highly influential by actors operating on different ‘levels’ from one another vary considerably. Most notably, we see among regional and local respondents that farmers have appeared among the highest ranking actor/actor groups. This reflects a common challenge in central adaptation planning; mainly that the physical distance between policy makers and those farming communities affected by climate change impacts limits the integration of these marginalized groups in decision making. This administrative gap at the local level has also been filled by ‘traditional authorities’ and ‘local NGOs,’ which appear as highly influential only among local-level respondents. The District Assemblies (DAs) also emerge on the regional- and local-respondent lists, with respondents citing the fiscal

decentralisation policy (initiated in 2012) which channels all local-agency budgets through the District Assembly offices for distribution according to district-level plans as the key reason for DA influence. The Council for Scientific and Industrial Research (CSIR) also appears on both regional and local lists. This is likely attributed to the location of the CSIR - Savanna Agricultural Research Institute (SARI), which is located in the three regions of northern Ghana.

Grouping respondents according to their operational level, as done here, is only one of several potential grouping strategies. Respondents could be grouped according to their agency classification (government, NGO, donor, and so on) to reveal power and influence dynamics from the perspectives of each of those groups, for example. A gender lens could also be applied with maps created for male and female respondents. The more delineations and potential world views are explored through the MSIM-mapping process, the richer and more informative the results may be.

Bridging agents

Power is often maintained through networks of actors, reinforced (or undermined) through the formation (or dissolution) of alliances between actors wielding various competing or complementary resource bases. The volatility (and strength) of these networks is dictated by several innate characteristics of complex, multi-level/scale systems. Mainly, as suggested by Cash et al. (2006), that “knowledge is often held, stored and perceived differently at different levels, resulting from differences across levels about what is perceived as salient, credible and legitimate knowledge, or what is perceived as the important scale or level of the problem, for example, the plurality challenge” (Cash et al. 2006). MSIM, then, can play an important role in elucidating potential boundary or bridging agents (Guston 2001) who play intermediary roles in brokering relations in the co-production of knowledge (ibid). Figure 6 depicts key, influential bridging agents between actor levels in Ghana’s adaptation regime. That is, this figure is composed of actors that are deemed highly influential by more than one actor level (and sometimes by all actor levels). This figure includes an expanded actor list (top 20 most influential actors from the perspective of each level) so as to increase the depth of the analysis (note that previous tables include only the ten most influential actors).

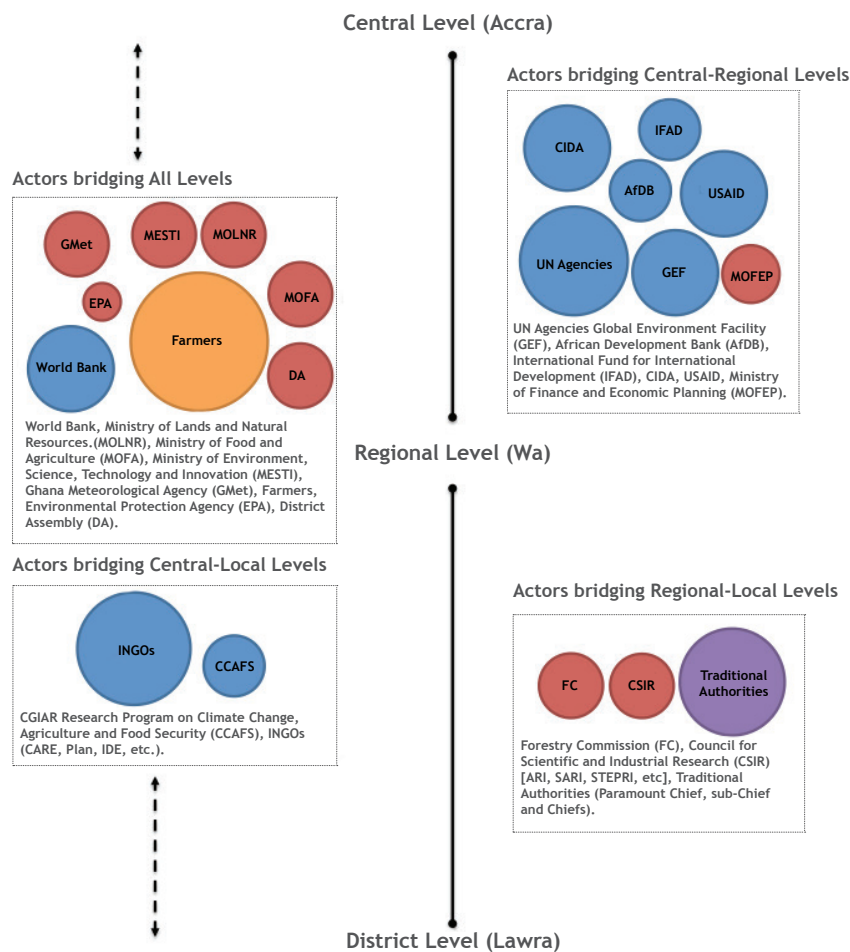


Figure 6. Influential bridging agents between actor levels in Ghana's adaptation regime

The actor circles used during the mapping exercise have been included in this figure so as to demonstrate the agency classifications responsible for bridging between actor levels. We see, for example, that nearly all agencies deemed as bridging agents between the central and regional levels are considered international agencies (UN agencies, development partners and financing institutions) with the exception of the Ministry of Finance (MOF). CCAFS and some international NGOs are considered influential agents in bridging decision making and exerting influence across the central- and local-level gap. CCAFS presence on the local list, in particular, is likely due to its consistent research presence (since 2010) in Lawra and nearby Jirapa Districts, and at the central level through the Ghana Climate Change Agriculture and Food Security Platform. Traditional authorities are deemed key bridging agents between the regional and local levels, but fail to extend their influence across all levels, as they are not present on central-level influence rankings. This suggests that the Ministry of Chieftaincy and Local Affairs is perhaps not exerting sufficient influence on climate change decision-making processes in Accra. Table 20 contains the extended high-influence list in table format.

Table 20. Extended high-influence list and bridging agents for central-, regional- and local-level respondents

Central Level	Regional Level	Local Level
Ministry of Environment, Science, Technology and Innovation (MESTI)	Ministry of Food and Agriculture (MOFA)	Council for Scientific and Industrial Research (CSIR) [ARI, SARI, STEPRI and so on]
Ministry of Food and Agriculture (MOFA)	Ministry of Environment, Science, Technology and Innovation (MESTI)	Ministry of Food and Agriculture (MOFA)
World Bank	Environmental Protection Agency (EPA)	Environmental Protection Agency (EPA)
National Development Planning Commission (NDPC)	Farmers	Farmers
<u>UN Agencies</u>	<i>Forestry Commission (FC)</i>	District Assembly (DA)
Environmental Protection Agency (EPA)	<i>Council for Scientific and Industrial Research (CSIR) [ARI, SARI, STEPRI and so on]</i>	<i>Traditional Authorities (Paramount Chief, sub-Chief and Chiefs)</i>
<u>Global Environment Facility (GEF)</u>	District Assembly (DA)	NGOs
GIZ	MOFA District Office (DoFA)	<i>Forestry Commission (FC)</i>
Ministry of Lands and Natural Resources (MOLNR)	Ghana Meteorological Agency (GMet)	Ministry of Environment, Science, Technology and Innovation (MESTI)
Ghana Meteorological Agency (GMet)	<u>Global Environment Facility (GEF)</u>	Ministry of Lands and Natural Resources (MOLNR)
<u>USAID</u>	<u>International Fund for Agricultural Development (IFAD)</u>	Ghana Meteorological Agency (GMet)
Farmers	Ministry of Lands and Natural Resources (MOLNR)	Input providers
District Assembly (DA)	AfDB	INGOs (CARE, Plan, IDE and so on)
DfID	<u>Ministry of Finance (MOF)</u>	Banks (ADB, ECOBANK and so on)
<u>International Fund for Agricultural Development (IFAD)</u>	World Bank	CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)
<u>Ministry of Finance (MOF)</u>	Regional Coordinating Council (RCC)	Assemblypersons
INGOs (CARE, Plan, IDE and so on)	<u>UN Agencies</u>	World Bank
<u>CIDA</u>	<u>CIDA</u>	Women's groups
CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)	<u>USAID</u>	Ministry of Health
AfDB	International Monetary Fund (IMF)	District Chief Executive (DCE)
Universities [UG, UDS]	<i>Traditional Authorities (Paramount Chief, sub-Chief and Chiefs)</i>	Traders

Key (“Bridging agent across”): **Bold** - All Levels; Underline - Central and Regional; *Italics* - Regional and Local; **Blue** - Central and Local; Normal text - No connection across levels.

While the bridging agent analysis is highly informative, there is also value in exploring those highly influential actors that appear on the list of only one of the three actor levels. For example, ‘Universities’ appears on the central-level high-influence list, but is not repeated on regional and local-level lists. There is potential then to explore options for extending university research presence at the regional and community levels or improving the communication of research

outputs, for example. The Regional Coordinating Council (RCC), similarly, appears only on the regional actor list despite its important role in coordinating development planning between Accra and the Upper West District Assemblies. Most importantly, there are several unique, highly influential groups at the local level that could perhaps be engaged more thoroughly by central- and regional-level actors to improve policy impact. These include ‘traders,’ District Chief Executives (DCE),’ ‘Ministry of Health,’ ‘Assemblypersons,’ ‘rural banks,’ ‘input providers,’ and ‘local NGOs.’

Discussion

Having introduced the 16 target documents in detail, including their objectives and priorities, evolution over time, interplay with other relevant policies, along with an analysis of power and influence dynamics within actor networks, we can make a few claims concerning the major trends in Ghanaian agricultural climate change adaptation policies.

These trends and recommendations have emerged, in part, through discussions with the Ghana Climate Change, Agriculture and Food Security Platform (formally launched on 30 July 2013). Discussed here are the following topics: (1) Communication and assigning responsibilities; (2) Need for localized adaptation responses; (3) Decentralisation and its challenges and opportunities; (4) Partisanship and politics in Ghana’s adaptation regime; (5) Public-private partnerships and value chain approaches to climate change adaptation; (6) Engaging development partners; (7) Traditional authorities and modern democratic institutions; (8) Access to knowledge for informed mitigation and adaptation; (9) Moving beyond “environment as sanitation.”

Communication and assigning responsibilities: As a cross-cutting force, appropriate climate change adaptation responses will require unprecedented planning, implementation, and monitoring and evaluation coordination between sectors. As the UNFCCC focal point, the Ministry of Environment, Science, Technology and Innovation (MESTI) is positioned to take on this leadership role, yet several other bodies and platforms have emerged to assist in coordination efforts. For instance, Ghana’s Climate Change Committee, which has fulfilled its ad-hoc mandate by getting cabinet approval for the National Climate Change Policy (NCCP), and Ghana Environmental Conventions Coordinating Authority (GECCA), responsible for coordinating activity concerning Rio Conventions (desertification, climate change, and biological diversity). The Ministry of Food and Agriculture (MOFA) has recently launched an internal climate change task force, which draws representatives from MOFA’s multiple technical directorates. Finally, multistakeholder platforms, such as the Ghana Climate Adaptation

Network (G-CAN), have also emerged with the aim of bringing Ghana's strong civil society population into the discussion. Yet all of these climate change coordinating activities are happening in isolation from one another. The decisions taken by each group, their lobbying/advocacy efforts, and the projects/policies/programmes they implement are their own and not shared with other relevant agencies. The lack of coordination between actors engaged in climate change has been cited as the principal reason for Ghana's failure to access funds from the UNFCCC Adaptation Fund.

Need for localized adaptation responses: More importantly, however, the mandate of Ghana's multitude of coordinating bodies remains fixed at the central (national level), despite the localized nature of many adaptation responses, particularly in the agricultural sector. Projects and programmes that work directly with rural communities at the district and village level, especially in Ghana's northern regions, are not captured by central-level coordination units and are thus not reflected in Ghana's adaptation portfolio. The reporting structures for community-level activities that foresee the District Assembly (DA) communicating to the Regional Coordinating Council (RCC) and RCCs to relevant central-level agencies have not been properly carried out. This challenge will continue to evolve as both administrative and fiscal decentralisation in Ghana continues. The Ministry of Local Government and Rural Development (MLGRD) must thus be adequately engaged in the adaptation planning process so that climate change concerns are properly mainstreamed into Ghana's decentralisation policies from the very beginning.

Decentralisation and its challenges and opportunities: Of all prevailing factors, decentralisation offers perhaps the greatest challenge and opportunity for Ghana's climate change adaptation regime. Decentralising and devolving responsibilities to local autonomous institutions provides an opportunity to build ownership over local development initiatives and to improve community participation in the resulting planning and implementation processes. Given the diversity of Ghana's agro-ecological zones and the localized nature of weather patterns, local-level planning processes will offer the kind of site-specific adaptation responses required to successfully protect rural livelihoods in the face of climate change. This, however, will depend on how effectively decentralisation is carried out, particularly the fiscal variety. Ghana's new composite budget has theoretically fortified the district assembly's central planning and coordinating role by transferring funds directly through the DAs for subsequent distribution to agencies falling under the purview of the assembly as per Legislative Instrument 1961. Yet significant delays in the release of central-level funds to the DAs and limited capacity for DAs to produce internally generated funds (that is, district taxation) have challenged confidence in the system. Decentralisation will lead to improved local adaptive capacity only when financing keeps pace with the administrative and institutional changes happening across Ghana. This process can be

initiated through active engagement of Ministry of Finance's newly placed Climate Change Unit. This Unit can support MOFA by petitioning for and defending the budget additionalities required for the sector in the face of climate change during annual budget hearings. MOF should also continue efforts to trace climate funding in the country and work with NDPC to ensure thorough monitoring and evaluation.

Increased efforts should also be made to improve the position of climate change and climate-smart agricultural practices within Ghana's District Development Fund (DDF) Functional and Organisational Assessment Tool (FOAT). The currently weight of 1% assigned to climate change within this scoring metric is a positive achievement, but more could be done to incentivize the adoption of sustainable agricultural practices. Finally, decentralisation offers hope for Ghana's agricultural extension service, which has been seen in deteriorating conditions in recent years due to funding cuts and freeze on staff hiring. The transmission of new technologies between researchers and end users depends on robust extension linkages. A greater recognition at the district level of the valuable role of extension services would then be a valuable outcome of the decentralisation process.

Partisanship and politics in Ghana's adaptation regime: Political influences are hugely visible across Ghana today. Perhaps simply growing pains attributed to a maturing democracy, political partisanship among Ghanaians is pervasive. The impact of political groups is as apparent at the community level as it is in Accra. At the district level, political parties engage in service delivery directly to communities in blatant vote-getting attempts, and assemblies and traditional authorities—intended as apolitical institutions—are frequently being drawn into the political foray. At the central level, ministerial appointees and national budget allocation and approval become the principal tools of political gamesmanship. Given the pervasiveness of politics in Ghana, party manifestos become important documents in framing the development agenda of the country. Manifestos are frequently referenced in GoG planning processes led by the National Development Planning Commission (NDPC) as a supplement to Ghana's long-term Shared Growth and Development Agenda (GSGDA). District Chief Executives (DCEs) appointed by the ruling party are another such example of political influence, fulfilling the role of party politics at the local level. As such, building awareness and improving climate change capacity of political parties, both in office and in opposition, is a key step in ensuring climate change mainstreaming in Ghana.

Public-private partnerships and value chain approaches to climate change adaptation: Public-private partnership (PPP) and value chain development has dominated Ghana's national development discourse in recent years. Engaging the private sector in areas of mutual interest allows the government to fulfill its development objectives, grow its private economy and gain

access to capital in ways never before possible. The growing private sector in Ghana has been dominated, however, by a few key industries including cocoa, palm oil, gold and an emerging oil market. As such, agricultural input providers and postproduction agribusinesses have not been engaged by GoG with the same level of urgency. Access to quality inputs and markets are key adaptation strategies for Ghana and would benefit from agricultural sector engagement in PPP and value chain development approaches. Additionally, climate change adaptation must be framed in national discourse as linked with livelihood improvements and not simply a return to baseline conditions for rural producers. This framing would provide incentive and potential returns for private sector engagement in a sector currently dominated by international aid.

Engaging development partners: Development partners (DPs) in Ghana play a central role in the country's development agenda. Nearly 40% of Ghana's National budget is supplied by multi and bilateral agencies. These actors have also been largely responsible for introducing the country's first climate change adaptation initiatives, which, over time, has led to increased participation from GoG itself. But this trend poses serious questions of ownership and sustainability of Ghana's climate change adaptation regime. To ensure that climate change adaptation initiatives are widely and uniformly adopted in Ghana, adaptation planning must be adopted into official government planning institutions, ensuring their existence beyond DP project sites. Yet, localized projects will still have an important role to play in the identification of adaptation responses. Experimentation and piloting will be necessary to develop strategies worthy of scaling up, and DPs and research organizations, with access to international knowledge generation and sharing, are best placed to engage in these practices.

Traditional authorities and modern democratic institutions: Engaging traditional authorities such as paramount chiefs, sub-chiefs and village chiefs will be key to success in climate change adaptation. Local governance in Ghana is characterized by a fusion of traditional tribal structures and modern democratic institutions, a convergence not always void of conflict. For the agricultural sector, engaging traditional leaders must go beyond the typical pleasantries of announcing one's arrival and introducing projects in a particular community. Rather, the active participation of traditional leaders in adaptation project design and implementation must be encouraged. This will allow District Assemblies to leverage the influence of traditional rulers over land and land use, a key resource for management-based adaptations to climate change. These two strands of local governance can work together, for example, to strengthen by-laws against bush burning and other environmentally degrading practices.

Access to knowledge for informed mitigation and adaptation: Access to knowledge and information regarding the likely impacts of climate change in Ghana is key to crafting efficient

and effective adaptation strategies. While no forecasted data is without uncertainty, access to this information can help to inform policy and project decisions. As such, the Ghana Meteorological Agency, together with universities and other relevant research institutions, should be further engaged as a key knowledge partner in adaptation planning. Additionally, linear extrapolation of existing time series data should not serve as a valid proxy for modelling conducted using global climate models (GCM) or regional circulation models (RCM), as the latter reflect more closely the potentially radical and non-linear climate responses that can be expected. Modelling and improved forecasting should be priority capacity advancements within these knowledge centres.

Moving beyond “environment as sanitation:” The prevailing discourse in Ghana around the environment and environmental change are closely linked with sanitation. This has led to positive developments particularly in urban contexts through initiatives such as Zoom Lion. The narrative around the environment, however, would benefit from increased attention to biodiversity loss and sustainable land management (that is, a strategic shift towards natural resource management and commons management). This shift would allow wider awareness around the issues of bush burning, riverside garden sedimentation, deforestation and other key natural resource management issues.

Appendix 1. Informant interviews

Organization	Category
Accra	
ADB	Private sector
AGI	Private sector
AGRA	Regional Body
CAN International/HATOF Foundation	INGO
CARE - International	INGO
CIDA	Donor (Bi/Multi)
CSIR	Government
CSIR - Animal Research Institute	Academia/Research
EPA	Government
Forum for Agricultural Research in Africa (FARA)	Regional body
Ghana Cocoa Board	Government
Ghana Wildlife Society	Government
GIZ	INGO
GMet	Government
IDE (Respondent 1)	INGO
IDE (Respondent 2)	INGO
IFAD	Donor (Bi/Multi)
Japan International Cooperation Agency (JICA)	INGO
MESTI (Respondent 1)	Government
MESTI (Respondent 2)	Government
MESTI (Respondent 3)	Government
Ministry of Finance (MOF)	Government
Ministry of Local Government and Rural Development (MLGRD)	Government
MOFA (Respondent 1)	Government
MOFA (Respondent 2)	Government
NADMO	Government
NDC	Political
NDPC (Respondent 1)	Government
NDPC (Respondent 2)	Government
NPP	Political
Peasant Farmers Association of Ghana	Private sector
Religious Bodies Network on Climate Change (RELBONET)	NGO
SGP - Small Grants Programme	Donor (Bi/Multi)
SNV	INGO
Solidaridad	INGO
Syngenta	Private sector
The Development Institute	NGO
UG - Legon/WACCI	Academia/Research
UG - WACCI	Academia/Research
UNDP	Donor (Bi/Multi)
University of Ghana - (UG) Legon	Academia/Research
WIENCO Agriculture (IWAD)	Private sector
World Bank	Donor (bi/multi)

(continues)

(continued)

Organization	Category
Wa, Upper West Region	
14 th April Input Provider	Private Sector
AIC/ SADA	Private Sector
Antika Providers	Private Sector
EPA	Government
Ghana Social Opportunities Project (GSOP)	Government
GMet	Government
MOFA (Respondent 1)	Government
MOFA (Respondent 2)	Government
NADMO	Government
Plan Ghana	INGO
RCC (Respondent 1)	Government
RCC (Respondent 2)	Government
RCC (Respondent 3)	Government
RCC (Respondent 4)	Government
Lawra District	
Business Advisory Service (Trade Ministry)	Government
Chieftaincy	Traditional Authority
Cooperative	Government
DA	Government
Farmer/Consultant	Private Sector
Forestry Commission	Government
Greening Ghana	Government
IDE Ghana	INGO
Methodist Mission (Respondent 1)	Religious Body
Methodist Mission (Respondent 2)	Religious Body
MOFA (Respondent 1)	Government
MOFA (Respondent 2)	Government
MOFA (Respondent 3)	Government
MOFA (Respondent 4)	Government
MOFA (Respondent 5)	Government
National Commission for Civic Education (NCCE)	Government
NDC	Political Party
NDC Youth Delegation	Political Party
Peace Corps	INGO
Shop Owner	Private Sector

Appendix 2. Objectives and priorities between agricultural policy documents

	GPRS II, 2005	GSGDA, 2010	NDC Manifesto, 2012	NPP Manifesto, 2012	Accelerated Agricultural Growth and Development Strategy (AAGDS), 1996	Food and Agriculture Sector Development Policy (FASDEP), 2002	Food and Agriculture Sector Development Policy II (FASDEP II), 2007	Medium-Term Agriculture Sector Investment Plan (METASIP), 2010	Frequency Identified as Objective / Priority
Improve agricultural marketing (domestic)	x	x		x	x	x	x	x	7
Improved access to external markets	x	x	x		x	x	x	x	7
Transformation of the agriculture sector from a resource-based to a technology-based industry (investment in technology)			x	x	x	x	x	x	6
Accelerating the provision of irrigation infrastructure	x			x		x		x	4
Improving institutional coordination		x				x	x	x	4
Promoting selective crop development	x	x	x			x			4
Promotion of agro-processing	x		x	x		x			4
Promotion of industrial sub-contracting and partnership exchange (including PPPs)	x		x	x				x	4
Construction of storage facilities (silos and cold storage) to reduce post-harvest losses			x	x		x			3
Encouraging the formation of FBOs (cooperatives, nucleus out-grower, and block and contract)			x	x		x			3
Ensuring food security						x	x	x	3
Improving access to mechanised agriculture	x			x				x	3
Increased industrial output (rural industrialization)	x		x			x			3
Investment in agricultural research				x			x	x	3
Modernising livestock and poultry development	x	x						x	3
Promotion of high value crops			x			x		x	3

(continues)

Appendix 3. Objectives and priorities between climate change policy documents

	Supporting Integrated and Comprehensive Approaches to Climate Change Adaptation in Africa (AfricaAdapt), 2009	Integrating Climate Change and Disaster Risk Reduction into National Development, Policies and Planning in Ghana, 2010	Ghana's Second Communication to the UNFCCC, 2011	National Climate Change Adaptation Strategy (NCCAS), 2012	National Climate Change Policy (NCCP), 2013	Frequency Identified as Objective / Priority
Awareness creation and capacity building		x	x	x	x	4
Improved land-use management		x	x	x	x	4
Develop drought-, flood-, pest-, disease-tolerant varieties, and climate-resilient livestock breeds		x	x	x	x	4
Promote research (*in climate-smart agriculture)			x	x	x*	3
Establish environmental sanitation strategies			x	x	x	3
Improve water resource management			x	x	x	3
Promote agricultural diversification			x	x	x	3
Improve access to healthcare			x	x	x	3
Promote fisheries resource management			x	x	x	3
Invest in post-harvest storage systems			x	x	x	3
Promotion of alternative livelihoods			x	x	x	3
Climate policy integration	x			x		2
Establishing early warning systems			x	x		2
Establish alternative energy systems			x	x		2
Focusing on rearing more goats than sheep and cattle			x	x		2
Land-use intensification			x	x		2

(continues)

(continued)

	Supporting Integrated and Comprehensive Approaches to Climate Change Adaptation in Africa (AfricaAdapt), 2009	Integrating Climate Change and Disaster Risk Reduction into National Development, Policies and Planning in Ghana, 2010	Ghana's Second Communication to the UNFCCC, 2011	National Climate Change Adaptation Strategy (NCCAS), 2012	National Climate Change Policy (NCCP), 2013	Frequency Identified as Objective/ Priority
Develop insurance schemes		x			x	2
Agro-forestry			x		x	2
Emphasis on planting cassava and vegetables*			x		x*	2
Migration			x		x	2
Infrastructure development				x	x	2
Enhance resilience				x	x	2
Promote technological innovation				x	x	2
Biodiversity conservation				x	x	2
Institutional strengthening	x					1
Identification of priority sectors	x					1
Expand climate-financing opportunities	x					1
Knowledge generation and sharing		x				1
Integration of disaster risk management		x				1
Piloting CC and DRR measures		x				1
Breeding early maturing genotypes		x				1
Promote shifts in planting dates		x				1

(continues)

(continued)

	Supporting Integrated and Comprehensive Approaches to Climate Change Adaptation in Africa (AfricaAdapt), 2009	Integrating Climate Change and Disaster Risk Reduction into National Development, Policies and Planning in Ghana, 2010	Ghana's Second Communication to the UNFCCC, 2011	National Climate Change Adaptation Strategy (NCCAS), 2012	National Climate Change Policy (NCCP), 2013	Frequency Identified as Objective/ Priority
Shift natural production centers to areas with emerging comparative advantages		x				1
Establish national food banks		x				1
Promote livestock integration (mixed farming)			x			1
Promote moisture conservation (mulching)			x			1
Crop rotation			x			1
Integrated pest and disease management			x			1
Focus on erosion control			x			1
Promotion of chemical fertilizer in severely underproducing areas			x			1
Prompting sustainable diets			x			1
Document indigenous knowledge				x		1
Increase carbon sinks/reduce GHG emissions					x	1
Address gender issues in climate change					x	1
Build and strengthen the capacity of extension officers in climate-smart agriculture				x		2
Build capacity for community-level weather data collection, analysis and dissemination for agricultural planning					x	1
Dry-land farming techniques					x	1
Prepare and enforce spatial plans to address conflicts between peri-urban agriculture and human settlements					x	1

(continues)

(continued)

	Supporting Integrated and Comprehensive Approaches to Climate Change Adaptation in Africa (AfricaAdapt), 2009	Integrating Climate Change and Disaster Risk Reduction into National Development, Policies and Planning in Ghana, 2010	Ghana's Second Communication to the UNFCCC, 2011	National Climate Change Adaptation Strategy (NCCAS), 2012	National Climate Change Policy (NCCP), 2013	Frequency Identified as Objective/ Priority
Soil conservation (for example, agro-forestry, crop rotation, tied ridging, mulching, contour earth mounds, vegetative barriers and improved fallow)					x	1
Improve efficiency of farming practices through secure land tenure					x	1
Improve access to credit					x	1
Build capacity for recycling and conversion of agricultural waste					x	1
Improved access to domestic and international markets					x	1

Appendix 4. Document analysis protocol

Note: This document has been formatted for integration with qualitative data analysis software and Microsoft Excel. Do not alter/add sections, tables, headers, and so on.

Doc#:	
Doc name:	
Recorder name:	
Date:	

1. Relevance

This section is intended to identify (quantitatively) the relevance of the document under analysis as it pertains to key concepts of the SIA Political Lens. Use “Ctrl + F” to search the document for each of the terms below and indicate the frequency (#) of occurrences within the second column. Note that a brief reading of the context surrounding each occurrence may be necessary for some terms so as to ensure the appropriate meaning has been captured (for example, environment as an earth-systems characteristic as opposed to “a policy environment”). Use notes to highlight common misinterpretations of the term when relevant.

Term	Frequency	Notes
Agriculture		
Climate change		
Adaptation		
Decentralisation		
Devolution		
Food security		
Environment (nature)		
Sustainability (of resources)		
Rural development		
Vulnerability		
Forest		
Livestock		
Crop(s, -ping)		
We [discourse analysis]		
Them [discourse analysis]		
Autonomous		
Donor		
Other [Specify]		

2. Key data

Document name:	
Author (if listed):	
Publishing date:	
Document type: (1=Policy; 2=White Paper (policy statement); 3=Working Paper; 4=Project document; 5=Legal document)	
# of pages	
Translated by:	
Sourced from (1=Internet; 2=Direct source (that is, Author); 3=Key informant)	

3. Summary and context

The summary and context section should highlight (1) who developed the policy, (2) the key objectives (in paragraph form), (3) who is responsible for implementing, (4) the timeline for implementation / duration of the policy and (5) the anticipated funding structure and allocation. Apart from this basic summary, this section should contain information to place the policy within the broader policy context. This may include, for example, the reason for the development of the policy, its relationship to other policies (explored in greater detail in section 5 below), historical and other considerations. Links to key sources to help contextualize the policy can be placed in the following table (approximately 300 words).

Context links

4. Common data capture

This section is designed to capture information that will likely be found in every document under analysis. It includes the document objectives, goals, challenges (context), priorities/objectives/ key activities envisioned (climate change, agriculture, land-use change), implementation arrangements, and monitoring and evaluation schemes.

Document objectives:

Challenges (context):

Priorities/objectives/activities:

Implementation arrangements:

Monitoring and evaluation schemes:

5. Additional data capture

This section is an extension of Section 4, Common data capture. It is designed to collect information that is likely not included in every document under analysis, including Acknowledgements, Rationale, Results indicators, Risk assessment, Implementation period, Funding (source + quantity), Areas for further research. (copy-paste relevant information from document). Indicate the page number in parentheses following the entry.

Acknowledgements:

Rationale:

Results indicators:

Risk assessment:

Implementation period:

Funding:

Total funding:	
-----------------------	--

Areas for further research:

Definition of adaptation:

6. Policy context

This section lists the policies referenced in the document under analysis. It aims to demonstrate interplay (positive and negative) between policies. The Notes section can be used to indicate a specific relationship between policies (for example, “policy X replaced policy Y” or “X in conflict with Y”) [Use Ctrl + F to search “act, policy, law, framework, clause, guidelines, mandate, programme, project” or read through manually and identify policies].

Policy title (pg #)	Notes (relationship)

7. References

This section is designed to highlight the sources of information used to inform policy. If the document under analysis has a reference list, it should be loaded into this section.

8. Actor network

This final section addresses the main actor/actor network relationships identified in the document. That is, any actors/actor groups that are key in drafting, implementing, or monitoring and evaluation.

Actor / Actor group	Relationship

Extracts related to actor network:

Appendix 5. Policies listed within 16 target documents

Policy title	Frequency counted (from 16 policy documents)
Ghana Poverty Reduction Strategy (GPRS I)	8
New Partnership for Africa's Development (NEPAD)	8
Millennium Development Goals (MDGs)	8
Growth and Poverty Reduction Strategy II (GPRS II), 2006	6
Food and Agriculture Sector Development Policy (FASDEP II)	6
Poverty and Social Impact Analysis (PSIA)	4
Comprehensive Africa Agriculture Development Programme (CAADP)	4
Maputo Declaration	4
National Trade Policy	4
Local Government Act, 1993 Act 462	4
The National Decentralisation Action Plan I, 2004	4
Medium-Term Agricultural Sector Investment Plan (METASIP)	4
Savannah Accelerated Development Authority (SADA)	4
Public Procurement Act, 2003	4
Natural Resources and Environmental Governance (NREG) Programme	4
Hyogo Framework for Action, 2005	3
Food and Agriculture Sector Development Policy (FASDEP 1), 2002	3
ECOWAS Agricultural Policy (ECOWAP)	3
National Water Policy	3
National Development Planning (System) Act, 1994, Act 480	3
The National Environmental Sanitation Policy	3
Economic Community of West African States (ECOWAS)	3
Private Sector Development Strategy (PSDS) II	3
Export Development and Investment Fund (EDIF)	3
UNFCCC Initial National Communication (INC)	3
National Science, Technology and Innovation Policy	3
Strategic Environmental Assessment (SEA)	3
Accelerated Agricultural Growth and Development Strategy (AAGDS), 1996	2
African Growth and Opportunity Act (AGOA)	2
Fourth Republican Constitution, 1992	2
Civil Service Law, 1993, PNDCL 327	2
District Assemblies' Common Fund Act, 1993, Act 455	2
Local Government Service Act, 2003, Act 656.	2
LI 1589 (Councils and Unit Councils)	2
Paris Declaration on Aid Effectiveness (2005)	2
Accra Agenda for Action, 2009	2
Ghana Shared Growth and Development Agenda I (GSGDA), 2010-2013	2
Agricultural Services Sub-Sector Investment Programme (AgSSIP)	2
Better Ghana Agenda	2
The Ghana Investment Promotion Centre (GIPC) Act, 1994,	2
Petroleum Revenue Management Bill	2
National Decentralisation Policy and Plan	2
National Development Planning Commission Act, 1994 (Act 479)	2
Ghana Commercial Agriculture Project (GCAP)	2

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Policy title	Frequency counted (from 16 policy documents)
Freedom of Information Act	2
Financial Administration Act	2
Mainstreaming Climate Change and Disaster Risk Reduction Guide, 2010	2
Ghana National Sectoral Climate Change Vulnerability and Adaptation Assessment, 2008	2
Technology Needs Assessment (TNA)	2
Netherlands Climate Assistance Programme (NCAP)	2
Adaptation Fund	2
Climate Change Adaptation and Development Initiative (CCDARE)	2
CSIR Act, 1996, Act 521	2
National Climate Change Adaptation Strategy (NCCAS)	2
The Ghana - Joint Assistance Strategy (2007)	2
United Nations Framework Convention on Climate Change (UNFCCC)	1
National Climate Change Policy	1
Ghana Strategy Support Programme (GSSP)	1
Medium-Term Agricultural Development Programme (1990s)	1
Gender and Agricultural Development Strategy (GADS)	1
Crop Development Policy	1
Cocoa Strategy	1
Livestock Development Policy	1
Fisheries Policy	1
Prevention and Control of Pests and Diseases of Plants Act (Act 307, 1965)	1
NRCD 100 of 1972	1
Decree and the Pesticides Control and Management Act (Act 528, 1996)	1
Private Sector Development Policy	1
National Transport Policy	1
Land Policy	1
HIV/AIDS Policy	1
Government's Harmonisation Action Plan	1
Multi-Donor Budgetary Support (MDBS) in 2003	1
Medium-Term Expenditure Framework	1
Presidential Special Initiatives (PSI) Programme	1
Legislative Instrument 1961	1
Victoria Falls Declaration (1999) on an African Vision on Decentralisation	1
The Kigali Declaration (2005) on Leadership Capacity Building for Decentralised Governance and Poverty Reduction in Sub-Saharan Africa	1
Governance and Poverty Reduction in Sub-Saharan Africa	1
Commonwealth Local Governance Forum	1
Institute of Local Government Studies Act, 2003, Act 647	1
The Electoral Commission Memorandum on Changes to the Legal and Institutional Framework for District-Level Elections to the Minister for Local Government and Rural Development for Onward Transmission to Cabinet, 2010	1
National Council on Women and Development (Repeal) Act 693, 2005	1
Education Act, Act 776, 2008	1
National Medium-Term Development Policy Framework, 2010-13	1
The Joint Government of Ghana and Development Partner Decentralisation Policy Review Document (2007)	1

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Policy title	Frequency counted (from 16 policy documents)
The Draft Comprehensive Decentralisation Policy	1
Intergovernmental Fiscal Policy Framework	1
The Draft Rural Development Policy	1
The National Sanitation Policy Strategy Plan	1
The Draft Urban Development Policy	1
Guidelines for the preparation of Composite Budgets	1
Draft Guidelines on the Municipal Finance Initiative	1
The Concept Paper on Capacity Building, Training and Education in the Local Government Sector (2010)	1
Draft Guidelines for Managing Relationships between Local and Traditional Authorities	1
Development Plan (2010 to 2013) “Building Vibrant District Assemblies for Economic Growth and Development”	1
The Local Government Service Medium-Term Development Plan	1
The Institute of Local Government Studies Strategic Plan (2011 to 2016)	1
PNDC 207	1
Competitive Agriculture Research Grant Scheme (CARGS)	1
World Bank Development Policy Operation (DPO)	1
Northern Rural Growth Programme (NRGP) 2008	1
Ghana Vision 2020: The First Step (1996-2000)	1
First Medium-Term Plan (1997-2000)	1
Venture Capital Trust Fund (VCTF)	1
The Ghana Investment Act, 1994, Act 478	1
National Nutrition and Food Security Policy	1
Danish Support for District Assemblies (DSDA II)	1
Legal Aid Act, 1997, Act 542	1
Ten-Year Development Plan, 1920	1
Seven-Year Development Plan (1963-1970)	1
National Development Planning (System) Act, 1994 (Act 480)	1
District Medium-Term Development Plans (DMTDPs)	1
The Ghana Statistical Development Plan (GSDP)	1
NDC Social Compact	1
Plants and Fertilizer Act, 2010, Act 803	1
Industrial Sector Support Programme (ISSP)	1
Presidential Transition Bill	1
Petroleum Revenue Management Act	1
Fiscal Responsibility Act	1
Petroleum Commission Act 821, 2011	1
Agricultural Technology Fund	1
Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (“the Voluntary Guidelines”)	1
Principles for Responsible Agricultural Investment (PRAI)	1
National Climate Change Policy Framework, 2011	1
Poverty Reduction and Growth Facility (PRGF)	1
National Capacity Self-Assessment for Global Environmental Management	1
Multilateral Debt Relief Initiative (MDRI)	1

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Policy title	Frequency counted (from 16 policy documents)
Social Investment Fund	1
Community-Based Rural Development Project (CBRDP)	1
Northern Regional Poverty Reduction Programme	1
DACF Poverty Alleviation Fund	1
Livelihood Empowerment Against Poverty Programme (LEAP)	1
National Social Protection Strategy	1
Forest Investment Programme	1
Kyoto Protocol	1
Clean Development Mechanism	1
UN Convention on Biological Diversity (UNCBD)	1
UN Convention to Combat Desertification (UNCCD)	1
Environmental Impact Assessment (EIA)	1
National Biodiversity Strategy	1
Africa Adaptation Programme (AAP)	1
National Environmental, Economic and Development Study (NEEDS)	1
Low-Carbon Growth Strategy (LCGS)	1
Nationally Appropriate Mitigation Action (NAMA)	1
Reducing Emissions from Deforestation and Forest Degradation (REDD+)	1
National Environmental Action Plan	1
The Environmental Protection Agency Act, 1994, Act 490	1
The Energy Commission Act, 1997, Act 541	1
Technology Transfer Regulations, 1992, LI 1547	1
Standards Decree 1973, NRC 173	1
Free Zone Act, 1995	1
Public Utilities Regulatory Commission Act, 1997	1
Customs, Excise and Preventive Service Act, 1994	1
Public Financial Management Reform Programme (MTEF)	1
Community Land-Use Responses to Climate Change (CLURCC) in Northern Ghana	1
Northern Recovery Project	1
Climate Risk Management (CRM) Technical Assistance Project of the Bureau for Crisis Prevention and Recovery (BCPR)	1
Adaptation Learning Mechanism (ALM)	1
Economics of Adaptation to Climate Change (EACC)	1
Global Facility for Disaster Reduction and Recovery (GFDRR)	1
Special Climate Change Fund (SCCF)	1
Climate for Development in Africa Programme	1
Medium-Term Agricultural Development Programme (MTADP)	1
Agricultural Development Fund (ADF)	1
National Soil Fertility Management Action Plan	1
General Agreement on Agriculture Trade (GAAT)	1
Lomé IV Agreement	1
Millennium Challenge Account Compact	1
Ghana Educational Trust Fund	1
Women's Development Fund	1
National Gender and Children Policy	1

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Policy title	Frequency counted (from 16 policy documents)
Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW)	1
African and Beijing Platforms for Action	1
Information and Communication Technology (ICT) Strategy or “Connectivity Agenda”	1
National Employment Policy	1
Draft National Youth Policy	1
Draft National Disability Policy	1
Draft National Ageing Policy	1
Educational Sector Reform Programme	1
Public Financial Management Law	1
Financial Administration Act, 2003, (Act 654)	1
Road Sector Development Programme (RSDP)	1
Bank Group Policy for Agriculture and Rural Development	1
Environmental Protection Act, 1994	1
Environmental Assessment Regulations (1999)	1
National Climate Change Policy Framework (NCCPF)	1
Ghana Aid Policy	1
Copenhagen Accord	1
Second National Communication (SNC)	1
Ghana Meteorological Agency Act	1

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