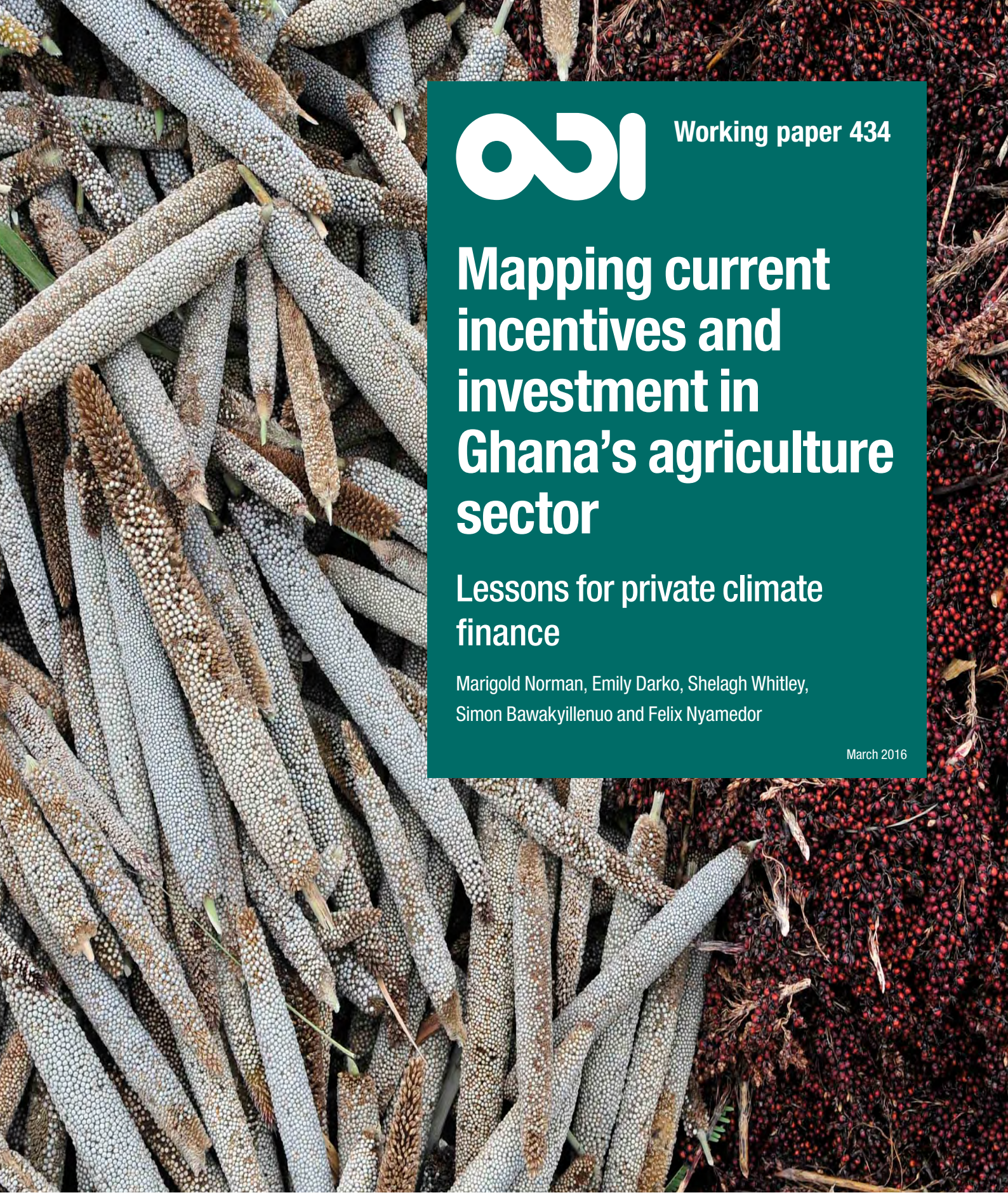

Working paper 434

# Mapping current incentives and investment in Ghana's agriculture sector

## Lessons for private climate finance

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Cover photo: Millet and sorghum in Ghana's Upper West Region (Neil Palmer/CIAT, 2010).

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# Acronyms and Abbreviations

| | |
|---|---|
| **AfDB** | African Development Bank |
| **CCD** | Climate compatible development |
| **COCOBOD** | Ghana Cocoa Board |
| **DADU** | District Agricultural Development Unit |
| **DfID** | UK Department for International Development |
| **DPs** | Development Partners |
| **FDI** | Foreign Direct Investment |
| **GIZ** | German International Development Cooperation |
| **GoG** | Government of Ghana |
| **IFAD** | International Fund for Agricultural Development |
| **(I)NDC** | (Intended) Nationally Determined Contribution |
| **METASIP** | Medium Term Agricultural Sector Investment Plan |
| **MLGRD** | Ministry of Local Government and Rural Development |
| **MOFA** | Ministry of Food and Agriculture |
| **MOFEP** | Ministry of Finance and Economic Planning |
| **MOTI** | Ministry of Trade and Industry |
| **NAFCO** | National Buffer Stock Company |
| **OECD** | Organisation for Economic Co-operation and Development |
| **ODA** | Official Development Assistance |
| **OOF** | Other Official Flows |
| **PPP** | Public-Private Partnership |
| **PPRSD** | Plant Protection and Regulatory Services |
| **REDD** | Reducing Emissions from Deforestation and Forest Degradation |
| **SME** | Small and Medium Enterprise |

# Acknowledgements

We are grateful for helpful comments provided by peer reviewers Merylyn Hedger, Tanja Havemann of Clarmondial, Anna Locke and Giles Henley of the Overseas Development Institute. Thanks to those interviewed for the study (see Appendix 1). We would welcome further inputs to this report from climate finance practitioners and those working and investing in the agriculture sector in Ghana.

# Executive Summary

There is consensus within the discourse on climate finance that there is a key role for the public sector (and donor funds more specifically) in mobilising private investment in climate-compatible development (CCD). However, there has been limited analysis about the specific roles the public sector and public resources should play, particularly in light of recent findings on (i) the importance of domestic private investment and (ii) the current domination of public investment in international (North–South) finance for CCD (Buchner et al., 2014, 2015).

This paper describes the findings from the application of a methodology (Whitley et al., 2016a) to support governments and development partners (DPs) that wish to mobilise private finance for CCD. The first aim of this approach is to fill key information gaps about incentives and investment at country level in climate-relevant sectors, in order to support governments in their efforts to shift or direct additional private resources to CCD. The second is to enhance understanding of the links between public incentives and private investment in CCD.

In this case, the methodology and including three frameworks (on incentives, sources of capital, and scale of support) have been applied to mapping current incentives and investment in Ghana's agriculture sector, which is a key sector for both the country's National Climate Change Policy approved in 2013 (of which its subsidiary strategies include the 2012 National Climate Change Adaptation Strategy) and the Ghana Shared Growth and Development Agenda.

A key challenge in applying the methodology to Ghana's agriculture sector has been gaps in publicly available data to fully complete all of the frameworks used in this approach. Sub-sector information on private and public investment is limited, meaning that the portion of agriculture finance from Ghana's national budget spent on different crops, livestock, and extension services is not easy to understand. As Ghana is seeking to spend 10% of its national budget on agriculture alongside private investment, it will be important for the government to outline additional details around this spending if it aims to highlight opportunities for those privately seeking to deploy investment. Additionally, the government will need to provide clearer information on the potential impacts to agriculture and the underlying climate risks to investments, doing so in a manner that enables investors to clearly weigh risks against opportunities.

In spite of these data gaps, we were able to link the key findings across the three frameworks and compare them with Ghana's stated objectives for (i) mobilising private investment and (ii) addressing climate change and green growth (see section 2). Through this, we were able to identify some important considerations for the deployment of climate finance in Ghana's agriculture sector, which aims to mobilise private investment:

- There are a number of options for Ghana to meet the financial investment requirements outlined in its (Intended) Nationally Determined Contribution ((I)NDC) for climate resilient agriculture. One is that the country can seek to mobilise at least $527 million annually in new climate compatible investment from public and private sources. Another is that it can look, in part, to green or 'mainstream' climate objectives within the existing finance flowing to agriculture that have been identified in this study (through FDI, ODA, national budget, OOF and Climate Finance which already average $270 million annually). Regardless of whether Ghana focuses on mobilising new climate compatible investment or also seeks to mainstream climate objectives into existing flows, the private sector will continue to play a key role.
- There are already a number of different models of public and private investment in the sector. Cocoa has been considered relatively successful as a cash crop for Ghana. This sub-sector has significant government involvement in service provision and standard setting, with the private sector leading on production (through smallholders) and investment and processing (through large international companies). There are broader debates about the extent to which the level of government control for cocoa should or could be applied to other parts of the agriculture sector in Ghana. However, there are a number of opportunities for incentives to be developed, particularly to support smallholder farmers. These could further mainstream climate into areas with existing private investment (cocoa) and support private investment in livestock (particularly poultry) and the production of priority crops, including staples such as rice.
- Given the significant role of smallholder farmers in private investment in Ghana's agriculture sector, supporting these actors and their partnerships with agribusiness could also offer an opportunity to mainstream climate into existing investments and production. Building smallholder farmer resilience is already a core focus of international public ODA, which remains one of the most significant sources of

finance for agriculture in Ghana. There are three key opportunities to support smallholders: 1) increasing understanding of climate impacts and implications for agricultural products and production, particularly how climate change is likely to affect their crop and livestock production, 2) supporting smallholders with management practices that can support adapting and building resilience to these likely climate impacts and, 3) access to finance to support smallholders in responding to those climate impacts.

Although this research has led us to be able to make some high level recommendations for those seeking to mobilise private climate finance in Ghana's agriculture sector, there are likely to be challenges to those seeking to invest in the sector, linked to gaps in enforcement around existing policies, continued lack of clarity around land ownership, and the absence of specific incentives that favour climate compatible agricultural investment.

There is a clear gap in public budget and domestic fiscal policy mechanisms that expressly seek to incentivise private investment in more climate-compatible agricultural practices in Ghana. Currently these incentives are limited to international support directed towards the public sector in the form of small volumes of climate relevant ODA and climate finance. It was noted that there are a few instances where existing incentives may favour more climate-adaptive choices. Such examples include subsidies on fertiliser, which will improve soil fertility, and the removal of import duties on some equipment. However, these have not been adequately and consistently implemented or had the intended effects. If the country is to mobilise or shift approximately $500 million per year in climate compatible agricultural investment, with a portion of this coming from the private sector, the specific domestic incentives outlined above to increase private investment in resilient and low-carbon activities (particularly for smallholders) will need to be developed in the near-term.

# 1. Introduction

Under the Paris Agreement 2015 of the UN Framework Convention on Climate Change (UNFCCC), a sub-set of rich country governments have pledged to annually spend $100 billion of international long-term climate finance from public and private sources by 2020, with increasing support thereafter. This action is intended to address the climate change needs of developing countries. Although estimates of total climate finance needs vary, it has been predicted that between $0.7 and $4 trillion in additional investment will be needed between 2015 and 2050 (Global Commission on the Economy and Climate, 2014; Green Growth Best Practice, 2014). This indicates a significant investment gap, as current total estimated flows (both international and domestic) reach only $391 billion, of which 62% is already estimated to come from the private sector (Buchner et al., 2015).

To overcome this investment gap, there is a need for public and private investment to be both mobilised from new sources and shifted from existing sources to support climate compatible development. Redirecting private finance requires stable and attractive regulatory environments. These can be achieved through long, loud and legal signals or 'Transparency, Longevity and Certainty' (TLC), alongside support from public budgets, fiscal policy and the use of domestic and international public finance (Hamilton, 2009; High Level Advisory Group on Climate Change Financing, 2010; Kreibiehl and Miltner, 2013; Mabey, 2012; UNFCCC, 2012).

Findings from researchers tracking current climate finance (Buchner et al., 2015; IFC, 2013; OECD, 2014) demonstrate that:

- Almost 74% of climate finance is domestic investment. Private actors have an especially strong domestic investment focus, with 92% of their investments remaining in the country of origin.
- The minority (26%) of climate finance is spent abroad.
- Overall, there is very limited information on private investment in climate relevant sectors, such as energy, transport, agriculture, and water and sanitation, beyond that for large renewable energy projects. There is very little country-level data beyond the Organisation for Economic Co-operation and Development (OECD) and BRICS (Brazil, Russia, India, China, South Africa).

In 2013, the Overseas Development Institute (ODI) developed a methodology (see Figure 1), based on three frameworks, seeking to (i) fill key information gaps about incentives and investment at country level in climate-relevant sectors, in order to support governments in their efforts to shift or direct additional private resources to CCD, and (ii) enhance understanding of the links between public incentives and private investment in CCD.

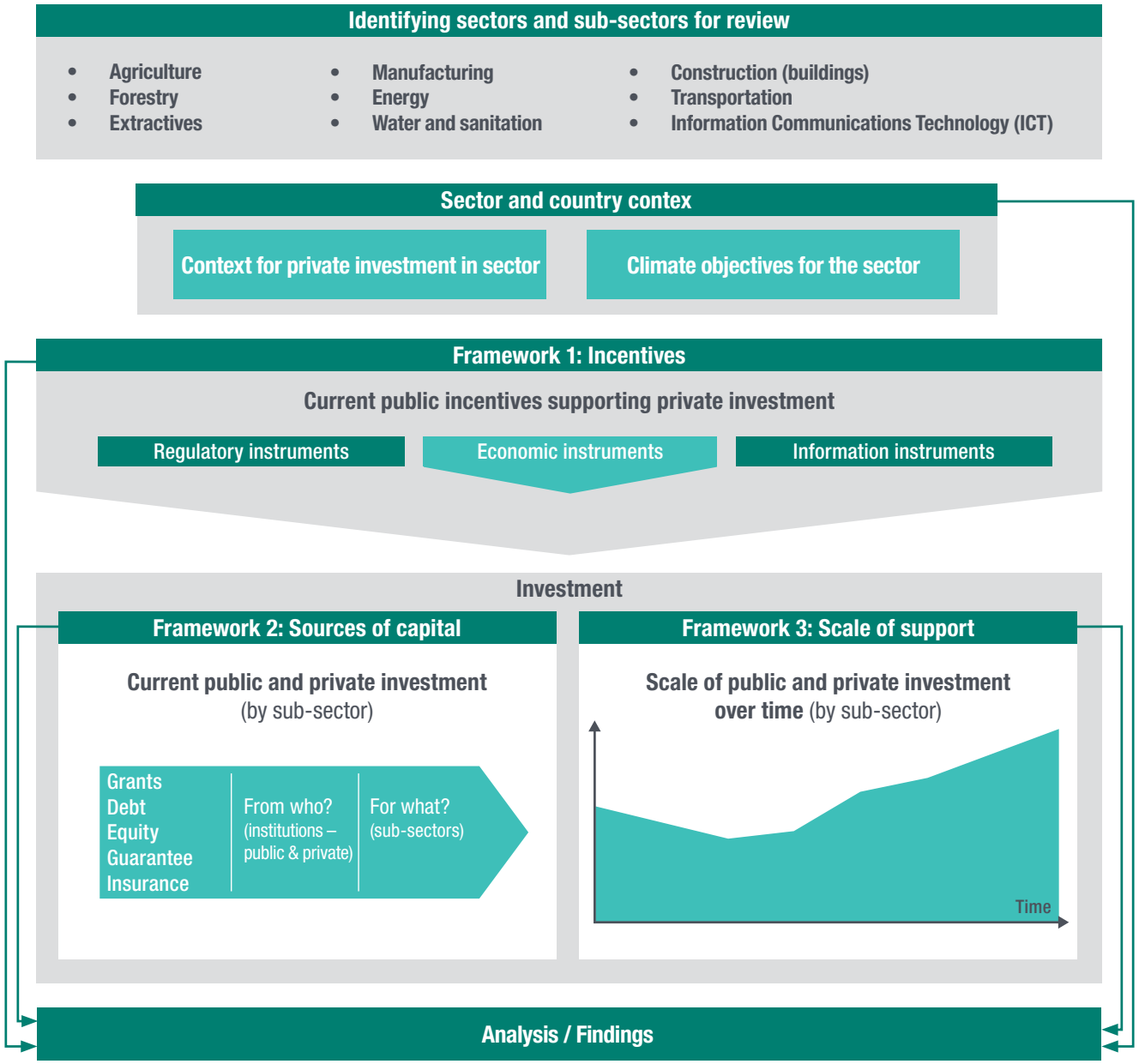
This report outlines the findings from the application of this approach via three frameworks for mapping (1) incentives, (2) sources of capital and (3) scale of support in the agriculture sector in Ghana. The aim of this analysis is to provide an overview of current support to private investment in Ghana's agriculture sector, which should inform opportunities for shifting existing private investment and mobilising new forms of it towards climate compatible activities.

This report is accompanied by a methodology paper outlining the following items in detail:

- objectives of each of the three frameworks,
- data-collection approach,
- key sources of information,
- current data gaps and areas where additional work might be undertaken to improve information on incentives
- investment at the country and sub-sector level (Whitley, 2016a).

Parallel studies have been completed, applying these three frameworks to the transport and water and sanitation sectors in Viet Nam (Darko et al., 2015; Canales Trujillo et al., 2015), the agriculture sector in Zambia (Whitley et al., 2014) and the energy sector in Uganda (Whitley and Tumushabe, 2014). See Whitley et. al., 2016b for cross cutting findings from the five studies. Our wider aim is to refine this diagnostic approach by applying it across additional countries and sectors.

**Figure 1: Diagnostic tool – mapping incentives and investment at sector and country level**



# 2. Context

This section provides a brief overview of the 'climate' for private investment in Ghana, and in the agriculture sector specifically. This includes sector level information on governance, objectives for investment, and objectives on climate change and green growth. This broader country and sector information is included to complement the detailed review of the incentives for private investment, sources of capital, and scale of support for Ghana's agriculture sector which are reviewed in the three frameworks included in sections 3–5.

## 2.1 Investment climate – Ghana

### 2.1.1 Economy

Following economic and political instability in the 1960s and 1970s, Ghana began a process of political and economic transformation from the mid-1980s that went on to steadily increase economic prosperity from the 1990s and more democratic elections since 2000. However, declining economic growth over the last four years is raising concerns about the speed and stability of the country's development. Ghana graduated to lower middle-income country (MIC) status in 2010. Having formally aspired to lower MIC status since the 1995 Government Vision 2020 document, the shift was achieved earlier than expected: in part through a technical statistical adjustment in 2011 (Moss and Majerowicz, 2012).

Although recent economic growth has been driven by service-oriented sectors and industry, the Ghanaian economy is heavily reliant on export commodities, in particular gold and cocoa (Okudzeto et.al., 2014). Ghana's economy has recently been affected by the discovery of coastal oil from near the Western Region (Takoradi-Sekondi) in 2007, with production beginning in 2011. The Petroleum Revenue Management Act (2011) has guaranteed that payments by oil companies and details of government use of its share of royalties are made public. It allows for 30% of receipts to be set aside for savings; disposal of the remaining 70% is down to the Ministry of Finance, which is charged with choosing four priority sectors for development every three years (Hicks, 2014). The expected infrastructure and wider development impacts from oil production and revenues are perceived to have been slow to manifest (Hicks, 2014).

Ghana's GDP growth steadily increased from the late 1990s to 2009, seeing a sharp dip in 2009 to below 4%, a sharp increase to 14% in 2011, followed by a steady decline to 4.2% in 2014 (World Bank, 2015). This volatility has resulted from fluctuations in international markets and the dominance of oil in contributing to the high GDP in 2011. However, growing inflation and a weakening currency have slowed growth alongside the more recent slump in oil prices, which has increased government borrowing from the domestic market. The Ghanaian economy was expected to slow down for the fourth consecutive year to an estimated 3.9% growth rate in 2015 (Okudzeto et al., 2015). Falling growth rates have also been due to a severe energy crisis and unsustainable domestic and external debt burdens (Okudzeto et al., 2015).

Despite Ghana's medium ranking on the Human Development Index (135 out of 187), development has not been equal geographically (see figure 2). The north of the country remains considerably poorer than the south, with limited infrastructure and investment, including public facilities with a higher reliance on agriculture, albeit with weaker access to markets. The southern regions of the country, Greater Accra, Western, Eastern, Central, Volta and Ashanti, are the most developed, accounting for the largest proportion of national economic activity and home to over 75% of the country's population (Okudzeto et al., 2015).

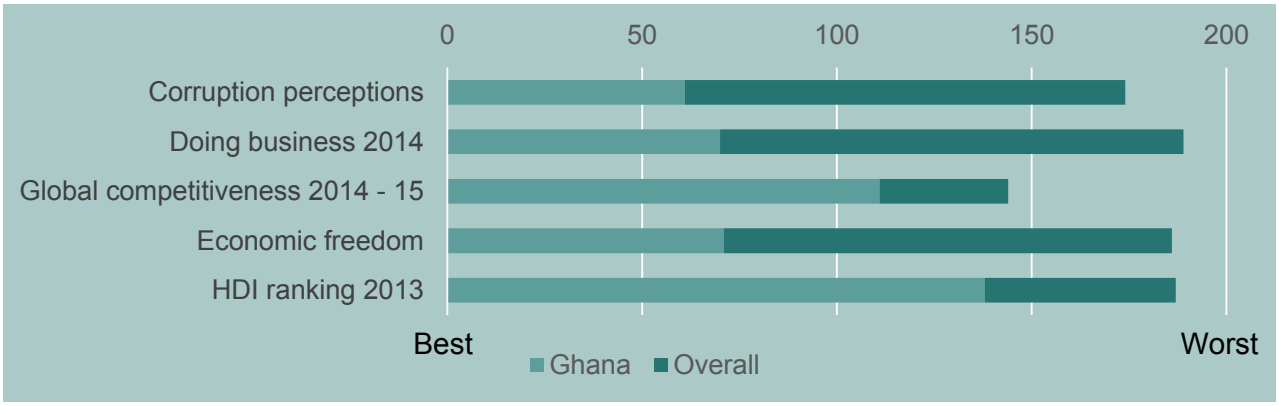
Ghana has attracted significant interest from international public donors, who have sought to support national development through Official Development Assistance (ODA), and has been one of the most successful examples in the West African region, halving extreme poverty from 36.5% to 18.2% between 1991 and 2006 (FAO, 2015). Ghana's GDP in 2014 was $38.65 billion (World Bank, 2015), while dispersed ODA in 2013 was $1.6 billion (OECD, 2015). This means that ODA represents around 24% of total GDP and has predominantly financed debt relief action, as well as supporting government and civil society and financing developments in the transport and agriculture sectors.

Ghana was ranked 114 (out of 189) by the World Bank Doing Business 2016 report, performing well on access to credit and property registration, less successfully on issues relating to resolving insolvency and trading across borders (see figure 3).

### 2.1.2 Finance and Investment

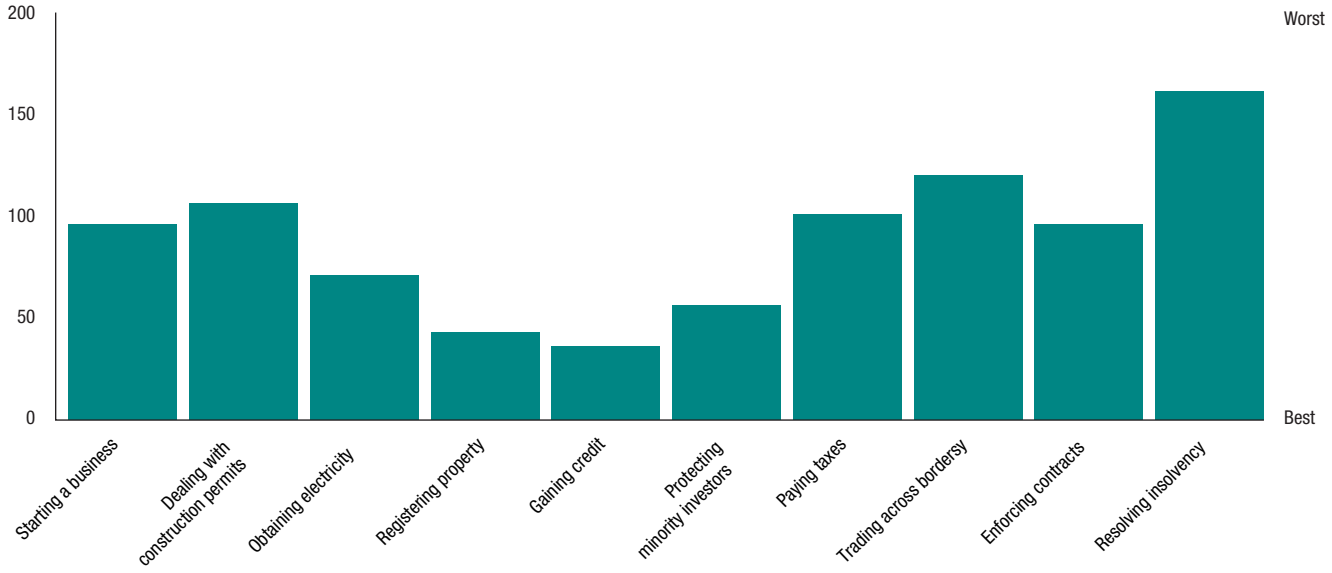
Ghana's financial system has gone through a process of liberalisation, restructuring and transformation over the last two decades. The transformation started as part of the Financial Sector Adjustment Programs (FINSAP I and II), implemented in the late 1980s and continuing through the

**Figure 2: Rankings on key global indices (0=best, 180=worst)**




*Sources: World Bank, 2015; Transparency International, 2014; WEF, 2015; UNDP, 2015.*

**Figure 3: World Bank Doing Business rankings for Ghana (2015)**




*Source: World Bank, 2015*

mid-1990s. Since the 1990s, Ghana has sought to increase the role of private domestic and international investment in the economy, through large-scale privatisation of state-owned enterprises (SOEs),[1] promotion of public-private partnerships (PPPs) and government support to investment in the form of tax incentives, stock market creation and the establishment of regulations allowing venture capital funds to invest, as well as establishing the Ghana Venture Capital Trust Fund (VCTF).

Foreign Direct Investment (FDI) in Ghana declined from the 1970s and throughout the 1980s, but picked up again following on from the Economic Recovery Plan, from around 1991 (UNCTAD, 2003). The increase in FDI was triggered in 1986 by the adoption of policies to attract investment in natural resources. Investor responses to the new mining law enacted in 1986 were also positive, causing a surge of investment. Privatisation in general also attracted FDI. However, after a slow start, it was the privatisation of the Ashanti Goldfields Corporation (AGC) in 1994 that really stimulated FDI (Ackah and Asiamah, 2014).

Private capital flows (including FDI) fell as a percent of GDP, from 7.4% in 2012 to 6.6% in 2013. FDI (net) declined by 0.8% of GDP, while medium and long term loans declined by 0.4% of GDP in 2013. Net international reserves fell from $3.2 billion in December 2012 to $2.1 billion by the end of 2013 and $1.7 billion by January 2014. The Central Bank implemented new measures intended to restore stability in the foreign

1 The Ghanaian government once controlled over 350 SOEs but only a handful remain, such as in the cocoa production sector (US State Department, 2013).

exchange markets in 2014, but these did not have the desired effect and were later withdrawn after the local currency continued to depreciate, reaching 40% against the US$ between January and September 2014 (Ackah and Asiamah, 2014). The Ghanaian Cedi (GHC) has since stabilised after the infusion of $2.7 billion into the economy through a $1 billion Eurobond floatation and $1.7 billion cocoa-syndicated loan facility, which allows the government to purchase cocoa beans to export. The IMF approved a three-year $918 million financial assistance deal for Ghana in April 2015, aimed at restoring economic stability and boosting job growth (Kpodo, 2015). The deal has already inspired some confidence in the economy, with investors expect it to aid stabilisation.

Ghana has a well-developed financial services sector by African standards and a wide array of financial institutions operating. There are 27 local banks, 58 financial institutions without a full banking license and 137 rural banks, as well as over 80 regulated and un-regulated micro-finance institutions (Ackah and Asiamah, 2014). The composition of credit portfolios suggest that the proportion of banking loans given to government and public institutions has increased marginally by 5.9%, whereas credit to the private sector has grown significantly by 42.1% (Okudzeto et al., 2015). Meanwhile, the government has a majority ownership position in the bank GCB and fully owns two other banks.

Local bank interest rates are high, which is partly due to high rates on government bonds. However, while liquidity is low, there is reportedly a growing local investor base (Darko et al., 2015). The Ghana Stock Exchange (GSE) has seen a growing number of listed companies, with a total listing of 38 equities by December 2014 and overall market capitalisation of $21 billion (Okudzeto et al., 2015). However, liquidity is generally low and this dissuades companies from listing. Capital market rules are not well understood and while local pension funds have to commit a certain percentage of portfolios to Ghanaian listed equities, they tend to favour multinational company shares over Ghanaian shares. Development of the financial sector deepened with the introduction of the Ghana Alternative Exchange (GAX) in 2013 and this continues to provide financing to SMEs (Okudzeto et al., 2015). GAX also provides an exit avenue for venture capital investors (Ampomah, 2011). Overall, Ghana's financial sector is recognised to have high levels of skilled professionals, along with a better legal and regulatory environment than other West African countries (PwC, 2014).

## 2.2 Agriculture in Ghana

Although agriculture has declined to around 20% in terms of its contribution to GDP in recent years, it remains a vital part of the economy in relation to crop production and employment (Okudzeto et al., 2014). Agriculture is an important sector in the Ghanaian economy, employing around 45% of the country's workforce (Okudzeto et al., 2015). According to the Ministry of Food and Agriculture (MOFA) policy documents, agriculture is key to overall economic growth and development in Ghana and 'agriculture is expected to lead the growth and structural transformation of the economy and maximise the benefits of accelerated growth' (MOFA, 2010). In 2014, agriculture (value added) represented 22% of GDP, with services at 50%, and industry at 28% (World Bank, 2015). Despite the size of the agricultural sector, Ghana is a net importer of a number of key agricultural products, such as rice, wheat, sugar and poultry (FAO, 2015).

Small-scale producers, with average farm size of about 1.2 hectares, dominate Ghana's agriculture sector. Relatively basic technology is used and leads to low crop yields (FAO, 2015). Currently, the tractor-farmer ratio stands at 1:1,500, suggesting that productivity increases in Ghanaian agriculture are potentially significant (WTO, 2014). In 2010, Ghana had an estimated 11 tractors per 100 square kilometres of arable land, compared to 43 and 25 tractors in South Africa and Kenya, respectively. Since 2007, agricultural mechanisation centres have been set up by the Government to provide services to farmers, under the Agricultural Mechanisation Services Centre (AMSEC) Programme. Smallholder farmers account for about 80% of domestic production and the farming population is aging,[2] as young people migrate away from farms to urban areas. Production in Ghana is also hampered by low soil fertility, low levels of fertiliser use, reliance on rain-fed agriculture, sub-optimal crop varieties, limited information and access to markets, and low animal productivity (MOFA, 2010).

Maize is the largest staple crop in Ghana and contributes significantly to consumer diets. It is the number one crop in terms of area planted and accounts for 50-60% of total cereal production. The top three consumed commodities in Ghana are cassava, yam and rice (FAO, 2015). Cassava is easy to grow but low in nutritional value; however, recent interest in using cassava in beer production is shifting its status as a food security crop. Food crops tend to be grown by small and medium-scale farmers (Tandoh-Offin et al., 2013). In contrast, industrial or "cash crops" include cocoa, oil palm, cotton, coffee, rubber and coconut. The main horticulture products include tomato, pepper, garden eggs (small aubergines), okra, citrus, mango, pineapple and pawpaw. These tend to be grown by a mix of smallholder farmers and commercial agribusiness (MOFA, 2010). Although less than 15% of farms are large-scale, these

2 Average age of farmers in Ghana is 55, while average life expectancy ranges between 55 and 60 (MOFA, 2015).

businesses produce approximately half of total cash crops, exported agricultural commodities and livestock (Tandoh-Offin et al., 2013).

Cocoa provides the second largest source of total export earnings, representing 30% of GDP. The sector is fully controlled by the government, which has a monopoly over the export of cocoa beans. The domestic buying price of cocoa beans and the purchasing season are determined by the government, which established the Ghana Cocoa Board (COCOBOD) in the 1940s, as a way to monitor and regulate the operations of the cocoa industry in Ghana (COCOBOD).[3] Cocoa is grown in the south of Ghana – Western, Eastern, Central, Ashanti and Volta regions – and accounts for over 67% of income in most cocoa producing households (Kolavalli and Vigneri, 2011). In addition to processing for export, there is a relatively small domestic market for Ghanaian finished cocoa products. This is predominantly supplied by Golden Tree (the Ghana Cocoa Processing Company for confectionary and cosmetic products), Nestle and Unilever (chocolate and drink products). Figure 4 provides further information on the top twenty crops according to value, production and volume. The sub-sections explore the crop and product types in more detail, as well as other key issues for the sector, such as support services and land.

## 2.3 Policies and institutions

Ghana's policy framework regulating agricultural investment is underpinned by a number of policies relating to agriculture, including the revised and updated Food and Agriculture Sector Development Policy II (FASDEP II) and Ghana's Medium Term Agricultural Sector Investment Plan (METASIP) 2009-2015. Both these policies seek to balance an approach that develops and promotes the commodity chains of key export crops, as well as address food security concerns. However, both have been critiqued for lacking a strong focus on private investment (Bugri, 2012).

FASDEP II 2007 states the long term policy objectives of government in relation to the development of the agriculture sector, while METASIP (2009-2015) serves as the investment plan to implement the medium term programmes of the policy. It seeks to achieve a target of at least 6% annual growth for agriculture sector GDP and halve poverty by 2015 (MOFA, 2010). In addition, the Ghana Shared Growth and Development Agenda (GSGDA 2010-2013) and GSGDA II (2014-2017) focus on supporting agricultural modernisation alongside oil and gas development, as well as investments in infrastructure, energy and housing.

The government commitment to increase its own spending on agricultural development to 10% of its total budget has given highest priority to actions that will directly impact farm production (MOFA, 2010, 2013). In a bid to promote large commercial agriculture, the government has also launched the Ghana Commercial Agriculture Project, with funding from the World Bank and USAID (see section 4.4). This is aimed towards improving the investment climate for agribusiness and developing PPPs and smallholder linkages intended to increase on-farm productivity and value addition in selected value chains. The project includes strengthening investment infrastructure, facilitation and securing access to land (MOFA, 2010; DANIDA, 2013).

Responsibility for agricultural policy development and implementation is spread across a number of agencies (see table 1). MOFA is the lead ministry for the agricultural sector, responsible for non-cocoa crops and livestock. COCOBOD is under the Ministry of Finance and Economic Planning (MOFEP) and responsible for cocoa, coffee and shea nuts. The Agricultural Research Institutes of the Council for Scientific and Industrial Research (CSIR) under the Ministry of Environment, Science, and Technology and Innovation (MESTI) and other agencies in the National Agricultural Research System (NARS) are responsible for agricultural research.

## 2.4 Objectives for agriculture sector investment

Although data and information on the government's wider objectives for private investment in the agricultural sector in Ghana is limited, there are a number of commitments and budget allocations across government and non-government actors. These indicate targets for how public finance for agriculture was meant to been spent in the past, and is likely to be allocated and spent in the future, and may point to opportunities for private investors.

Ghana was among a group of African countries that made a commitment, in Maputo in 2003, to allocate at least 10% of their national budgetary resources to develop the agricultural sector by 2008 (MOFA, 2013). While average allocation for agriculture was 6.8% of the total budget between 2001 and 2011, the government allocated 10.3% of the 2009 budget to agriculture, including forestry and fisheries, and has continued to advocate for an allocation of above 10% since then (MOFA, 2013). In real monetary terms, the average financial allocation to agriculture (including forestry and fisheries) has increased quite substantially, from 119 million GHS or 110.7 million GHS (excluding forestry and fisheries) for the 2001 to 2011 period, to more than 500 million GHS. However, this has amounted to very minimal increases in terms of US Dollars, with an overall increase from $74 million annually to almost $84 million in 2016 (see section 5 for further

3 Source: COCOBOD website https://cocobod.gh/aboutus.php

**Figure 4: Top 20 crops by value and production volume, 2012**

| Crop | Value (USD Constant, millions, 2012) | Crop | Production (tonnes), 2012 |
|---|---|---|---|
| Yams | 1,842.79 | Cassava | 14,547,279 |
| Cassava | 1,660.15 | Yams | 6,638,867 |
| Plantains | 1,030.47 | Plantains | 3,556,524 |
| Cocoa, beans | 876.25 | Oil, palm fruit | 2,196,100 |
| Maize | 556.50 | Maize | 1,949,897 |
| Groundnuts, with shell | 331.97 | Taro (cocoyam) | 1,270,266 |
| Taro (cocoyam) | 313.52 | Cocoa, beans | 879,348 |
| Rice, paddy | 264.53 | Oranges | 625,000 |
| Meat, game | 225.61 | Pineapples | 600,000 |
| Oil, palm fruit | 224.00 | Rice, paddy | 481,134 |
| Tomatoes | 196.33 | Groundnuts, with shell | 475,056 |
| Chillies and peppers, dry | 165.70 | Coconuts | 345,000 |
| Meat, chicken | 124.99 | Tomatoes | 321,000 |
| Oranges | 121.19 | Sorghum | 279,983 |
| Meat indigenous, chicken | 115.29 | Beans, dry | 223,200 |
| Oil, palm | 113.11 | Millet | 179,684 |
| Onions, dry | 102.29 | Sugar cane | 148,000 |
| Sorghum | 98.13 | Sweet potatoes | 135,000 |
| Eggs, hen, in shell | 94.47 | Onions, dry | 130,000 |
| Pineapples | 89.69 | Oil, palm | 122,000 |

*Source: FAOSTAT, 2015*

detail). In addition, the government set out METASIP for 2009 to 2015 (table 2).

The annual Budget Statement and Economic Policy of the Government of Ghana (GoG) shows that around $130.6 million will be allocated to agriculture in 2016. This includes more than $83.9 million from the GoG national budget, $1.1 million from internally generated funds and $45.7 million from international DPs (MOFEP, 2016).

The Government has also set out investment requirements for Ghana to meet climate mitigation and adaptation commitments in its (I)NDC. This is a requirement for Parties to the United Nations Framework Convention on Climate Change (UNFCCC) to contribute to addressing climate change. Ghana's (I)NDC includes more detail on financial needs and sources than the majority of other country (I)NDC commitments. The

(I)NDC and investment requirements are described in more detail in section 2.5 and indicate Ghana's plans to mobilise at least $12.8 billion for climate adaptation actions, of which a proportion will target agriculture and food security between 2020 and 2030. Roughly half the figures listed in table 3 are likely to target adaptation actions, of which around $3.2 billion is listed as an investment need for agriculture.

The GoG has also committed to a 45% reduction in emissions in the cocoa sector, which is included as a forestry mitigation component of the (I)NDC, with an additional financial need for $2.1 billion between 2020 and 2030. In addition, there is a need to achieve the aim under the agriculture and food security policy focus within the overall National Climate Change Policy (NCCP) of Ghana (see section 2.5). To achieve this, an indicative budget of $950 million has been planned between 2015 and 2020 by the government. This will be spent on agriculture and food security issues as part of Ghana's climate actions (Asante et al., 2015) (see Table 4). This implies at least

**Table 1: Key institutions shaping investment in Ghana's agriculture sector**

| Institution | Description |
|---|---|
| Ministry of Food and Agriculture (MOFA) | MOFA is the lead ministry for the agriculture sector. It has the overall responsibility to coordinate the policies, programmes and activities to ensure the development of the sector. MOFA is responsible for livestock, fisheries and all crops other than cocoa. |
| Ghana Cocoa Board (COCOBOD) | The GoG established COCOBOD, which is mandated to monitor and regulate the operations of the cocoa industry in Ghana. The COCOBOD operates under the MOFEP. The mission of the Board is to encourage and facilitate the production, processing and marketing of good quality cocoa, coffee and shea nut in all forms in the most efficient and cost effective manner. It also aims to maintain the best mutual industrial relations with its objectives. |
| Agricultural Development Bank (ADB) | The Ghanaian government established the Agricultural Development Bank (ADB) to provide necessary financing for agricultural ventures. This is important because the state is not directly engaged in the business of financing agriculture. |
| Ghana Investment Promotion Centre (GIPC) | The Ghana Investment Promotion Centre (GIPC) is a Government agency, responsible under the GIPC Act, 2013 (Act 865), to encourage and promote investments in Ghana, in order to provide creation of an attractive incentive framework and a transparent, predictable and facilitating environment for investments in Ghana. |
| National Food Buffer Stock Company (NAFCO) | NAFCO is a parastatal "buffer stock company" created in 2010 in response to the "food crisis" of 2008. This government agency was set up to accelerate the modernisation of agriculture and increase the productivity of Ghanaian farmers by guaranteeing a minimum price and market through the purchase of excess produce from all farmers to reduce post-harvest losses resulting from spoilage due to poor storage, thereby protecting farm incomes. |
| Ministry of Local Government and Rural Development (MLGRD) | MLGRD ensures good governance and balanced rural based development. One of the objectives of the Ministry is facilitating horticultural development. |
| Ghana Meteorological Agency (GMA) | The Ghana Meteorological Agency (GMA) exists to provide efficient and reliable meteorological information by collecting, processing, archiving, analysing and disseminating findings and meteorological information to end users. The agency provides the following: a daily national weather forecast, publicly broadcast via radio and television, the collection, processing, storage and dissemination of meteorological information and collaborative work with relevant agencies (for example, Agricultural, Water resources, Aviation, Energy and Adaptation programmes). |
| Ministry of Environment Sciences and Technology Innovaation (MESTI) | The Ministry of Environment, Science and Technology Innovation (MEST) exists to establish a strong national scientific and technological base for accelerated sustainable development of the country. The overall objective of MESTI is to ensure accelerated socio-economic development through the formulation of sound policies and a regulatory framework. This is intended to promote the use of appropriate environmentally-friendly, scientific and technological practices and techniques. |
| Ministry of Trade and Industry (MOTI) | MOTI has overall responsibility for the formulation, implementation and monitoring of Ghana's internal and external trade, including trade in agricultural commodities. |
| Ghana Seed Inspection Division (GSID) | The Ghana Seed Inspection Division (GSID), under the Directorate of Plant Protection and Regulatory Services (PPRSD), is charged with seed testing, quality control and certification. GSID's central laboratory, near Accra at Pokouase, tests for conditions such as moisture content, germination percentage, varietal purity, foreign matter, weed seed and content. |
| Food and Drugs Authority (FDA) | The Food and Drugs Authority (FDA), formerly the Food and Drugs Board (FDB), is the GoG's National Regulatory Authority with the responsibility of implementing Food and Drugs Law of 1992. The FDA regulates the manufacture, importation, exportation, distribution, use and advertisements of the following list: food, drugs, food supplements, herbal and homeopathic medicines, veterinary medicines, cosmetics, medical devices and household chemicals substances, and tobacco and tobacco products, with respect to ensuring their safety, quality and efficacy. |

an average annual spend of $190 million between 2015 and 2020, with more than half to be focused on improved marketing systems. This is expected to include spending on development and promotion of climate resilient cropping systems and improved post-harvest management.

## 2.5 Climate and green growth objectives (for agriculture in Ghana)

Climate change policy debates in Ghana have only recently considered agriculture, which have increasingly been focused on the importance of climate resilient food production systems (see Figure 5) (Sarpong et al., 2012). Previous climate approaches have focused on energy, environment and forestry through REDD and REDD+ (Reducing Emissions from Forestation and Forest Degradation) financial support, although greater emphasis was placed on the adaptation potential in agriculture in

**Table 2: Indicative budget for food and nutrition security activities – from Ghana's Medium Term Agricultural Sector Investment Plan (METASIP) for 2009 to 2015**

| Activity | Indicative budget (USD million)* |
|---|---|
| Promotion of cash crops | 101 |
| Increases in productivity | 74 |
| Mechanisation of the agriculture sector | 55 |
| Livestock and poultry investments | 52 |
| Support private sector capacity in warehousing and processing | 15 |
| Support to farmer based organisations and out-grower schemes | 15 |
| Development of new agricultural products | 14 |
| Development of pilot value chains for commodities | 5 |
| Support food storage and distribution | 3 |
| Alternative livelihood creation | 2 |

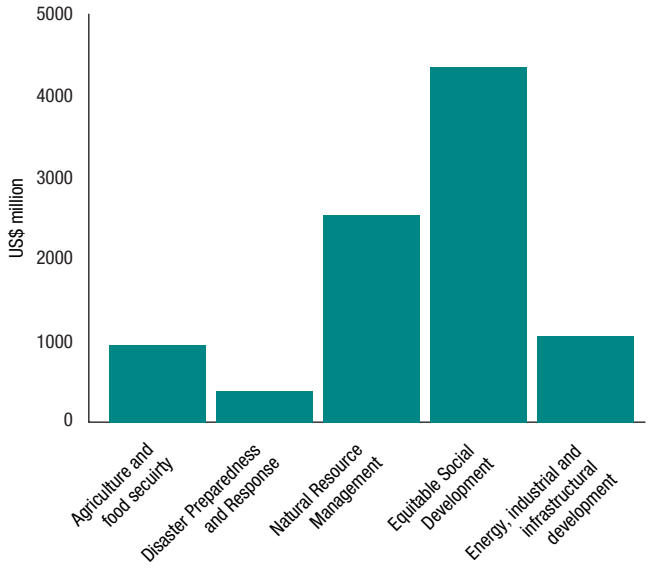
*Note: * Given the fluctuations and devaluation of the Ghanaian Cedi over the last five years, the average exchange rate with USD was used covering the period of the METASIP between 2009 and 2015.*

**Table 3: Sources of finance for implementation of Ghana's intended Nationally Determined Contribution ((I)NDC) mitigation and adaptation actions 2020-2030**

| Source of finance | Indicative amount (Billions of US$) | % of total investment |
|---|---|---|
| **Domestic sources** | | |
| National budget | 1.4 | 6.2 |
| Corporate social responsibility | 1.7 | 7.5 |
| Commercial facilities | 3.2 | 14.2 |
| **International sources** | | |
| Green Climate Fund | 5 | 22.1 |
| Other multilateral funds | 1.1 | 4.9 |
| Bilateral agreements | 2.8 | 12.4 |
| Private capital investment | 3.8 | 16.8 |
| International carbon markets | 3.6 | 15.9 |
| **Total** | 22.6 | 100 |

*Source: Ghana's (I)NDC, 2015*

**Figure 5: Domestic finance programmed for climate change policy objectives relating to agriculture**




*Source: Asante et al., 2015*

the run up to the 2009 Copenhagen Conference of Parties (COP).

Ghana's real GDP is expected to decline by about 12% per year by 2050 as a result of the impacts of climate change on agricultural productivity. This means Ghana could become a net importer of most agricultural and food products (Asafu-Adjaye, 2013) unless action is taken to make the sector more climate resilient.

Recent studies and projections for climate change in the region agree there will be an increase in air temperature for all agro-ecological zones in Ghana, which will decrease from the semi-arid northern region to the coastal southern regions, but that changes in precipitation will vary considerably both spatially and temporally (EPA, 2003; World Bank, 2010; Stanturf et al., 2011; McSweeney et al., 2012; Olesen et al., 2013). Ghana's vulnerability to climate change in the agricultural sector is therefore largely due to its dependence on rainfall, particularly in the country's semi-arid north, which is more heavily dependent on subsistence agriculture (Darko et al., 2013). This has led to concerns over expected production of key crops, with four examples set out in table 5.

In 2010, the Government published "Ghana Goes for Green Growth: National Engagement on Climate Change". The Green Growth document was followed by the National Climate Change Policy Framework in 2011 and the National Climate Change Policy (NCCP) was approved in 2013 (Nachmany et al., 2015). These discussion documents and frameworks include objectives for economic development within the context of low carbon growth and climate resilience, including adaptation of agriculture through improved land management and greater water efficiency. The NCCPF has also influenced part of the Ghana Shared Growth and Development Agenda (GSGDA I) 2010-2013, outlining the key issues of climate change and variability and the measures required to tackle them. These include a target to achieve $3,000 per capita of income by 2020 (compared to the 2011 government per capita income of $1,384.34).

Overall, implementation of the proposed NCCP work programmes is estimated in the draft NCCP Master Plan to cost approximately $9.3 billion over the period 2014-2020, with most funding directed at policy theme four: achieving equitable social development (Asante et al., 2015). The agriculture and food security policy area has as one of its aims to develop climate-resilient agricultural and food systems in all agro-ecological zones and develop the human resource capacity for climate-resilient agriculture. This is to be attained by 2020, with an indicative budget

**Table 4: Compilation of budgetary estimates for the agriculture programme within the NCCP (2015-2020)**

| Policy area | Focus areas | Programmes | Budget (USD millions) |
|---|---|---|---|
| Agricultural and food security | Develop climate resilient agriculture and food security systems | Improved marketing systems | 500 |
| | | Development and promotion of climate resilient cropping systems | 150 |
| | | Improved post-harvest management | 100 |
| | | Risk transfer and alternative livelihood systems | 55 |
| | | Support to water conservation and irrigation systems | 50 |
| | | Support to adaptation in the fisheries sub-sector | 45 |
| | | Institutional capacity development for research and dissemination | 35 |
| | | Adaptation of livestock production systems | 15 |
| | | Sub-Total | 950 |

**Table 5: Trends in yield changes for maize, rice, groundnuts and cocoa, due to climate change predictions for Ghana**

| Crop | Trends in yield change |
|---|---|
| Maize | Overall small decrease, mostly below 25% in each region. Some models, such as that of the Centre National de Recherches Météorologiques (CNRM), predict an increase in the Upper East, West and Northern regions |
| Rice | Moderate yield decrease, with variation seen between the models. CNRM has provided the most optimistic figures, while the Microindustry Credit Rural Organisation's (MIROC) model shows many areas with a yield decrease up to 25 percent. |
| Groundnuts | High rates of yield decrease. The Commonwealth Science and Industrial Research Organisation's (CSIRO) and MIROC's models show that more than 25% of loss has occurred in the Central and Southern regions. The European Centre Hamburg Model (ECHAM5) projects a high rate of loss in the Northern Region, while the other models predict some degree of gain in the northern part of the country. |
| Cocoa | High rate of yield decrease. By 2050, cocoa production will become concentrated in two areas in Ghana, between the Central and Ashanti regions, as well as in the mountain ranges of the Kwahu Plateau between the Eastern and Ashanti regions. |

*Source: Adapted from IFPRI, 2012 and Läderach, 2011.*

of $950 million. This planned spending represents approximately 10% of the total indicative budget for climate financing in Ghana under the NCCP.

Ghana has developed several subsidiary instruments to support the implementation of the NCCP. The 2012 National Climate Change Adaptation Strategy (NCCAS), which was developed with the support of UNEP, UNDP and the Danish Ministry of Foreign Affairs, aims to help strengthen Ghana's adaptive capacity and build resilience for the period up to 2020. The document outlines the following key objectives for agriculture:

- Build and strengthen capacity of local farmers to increase agricultural productivity and awareness of climate issues.
- Build and strengthen capacity of extension officers in new farming technologies in order to enhance their support for farmers.
- Enhance the living standards of vulnerable groups through acquisition of alternative livelihoods skills.
- Protect the environment through the promotion of agricultural biodiversity.
- Promote the cultivation of crops and rearing of animals adapted to harsh climatic conditions.
- Document existing indigenous knowledge and best practices.
- Train trainers to promote post-harvest technologies so as to minimise losses of farm produce.

In September 2015, Ghana put forward national mitigation and adaptation actions as part of its (I)NDC to contribute to addressing climate change. This is a requirement for Parties to the United Nations Framework Convention on Climate Change (UNFCCC) and is consistent with Ghana's medium-term development agenda (Ghana Shared Growth Development Agenda II – GSGDA II), the anticipated 40-year socio-economic transformational plan. The (I)NDC sets out 20 mitigation and 11 adaptation programmes of actions between 2020 and 2030. As part of the mitigation commitment, Ghana has pledged to unconditionally lower its GHG emissions by 15%, relative to a business-as-usual (BAU) scenario emission of 73.95MtCO2e by 2030. Agriculture and food security are only covered under the adaptation actions of the (I)NDC with 'Sustainable land use including food security' as one of the priority actions expected to help attain low carbon climate resilience. Specific intended programmes of action include:

- Modified community-based conservation agriculture adopted in 43 administrative districts.
- Scaled-up penetration of climate smart technologies to increase livestock and fisheries productivity by 10%.
- Innovations in post-harvest storage and food processing and forest products in 43 administrative districts.
- Emission reductions in the cocoa sector, which are covered under the mitigation component of the (I)NDC, with expected actions to include: 45% emission reduction through a result-based emission reduction programme in the cocoa landscape.

# 3. Framework 1: incentives for private investment in agriculture

The first framework in the methodology,[4] applied here to Ghana's agriculture sector, identifies and analyses the incentives most commonly used by the government of Ghana to mobilise private investment in agriculture. We use this analysis to identify how these policy tools could be used to shift existing or mobilise new private climate finance. This information on the incentives available to support private investment in Ghana also shows whether they are provided across the agriculture sector or targeted at specific sub-sectors (ie. in ways that might favour climate compatible or in-compatible outcomes).

This section identifies three types of incentives that the government of Ghana uses to promote private investment in agriculture (Figure 6), namely: regulatory (section 3.1), economic (section 3.2) and information (section 3.3) in Ghana's agriculture sector. Where available from secondary analysis, information on the effectiveness of these incentives in shaping or obilizing investment has been included. Additional detail on economic instruments can be found in section 4 (Framework 2), while the incentives likely to have the greatest role in shaping private investment are outlined in more detail in the section below.

We obtained information for this framework on the basis of interviews with key stakeholders in Ghana (see Appendix 1) and by reviewing publicly available government documents.

*See Whitley et al. (2016) for more detail on the methodology and the three frameworks used for this study. A summary of key themes emerging across Framework 1 are outlined in section 3.4, and conclusions from the information identified across the three frameworks are outlined in Section 6.*

## 3.1 Regulatory instruments: key incentives, gaps and considerations

In the past 25 years, the quality of business regulations in Ghana has improved overall, in terms of both simplicity and transparency (Asem et al., 2013). However, regulations and policies have been regularly altered over the last few years and the private sector needs more consistency. According to the World Bank's 2012 report on Agribusiness Indicators for Ghana, policy inconsistency and lack of transparency from the Government in sharing policy and strategies remain core challenges that restrict investment. More generally, the private sector in Ghana has not had a significant impact on the changes in the regulatory quality (Asem et al., 2013). This means the ability of the private sector to organise and push for some of these reforms has been limited.

From our research and looking at the agriculture specifically, the following regulatory instruments appear to be the most relevant for incentivising investment.

### 3.1.1 Land tenure

While the state owns or otherwise administers a significant proportion of rural land in many African countries (Cotula, 2011), the Ghanaian government only owns about 20% of land (Kasanga and Kotey, 2001). Most of the remaining 80% is held by customary authorities for the intended benefit of their communities or owned by individual families. Customary land is managed through a diverse tenure system. In broad terms, however, tenure systems in the three northern regions of Ghana (Northern, Upper East and Upper West Regions) differ considerably from of the rest of the country. This is because lower levels of urbanisation have led to a lower tendency to sell land in the northern regions. In contrast, customary land tenure is eroding in the south, as land owners have been more likely to register their land with the state to improve their tenure security (Cotula et. al., 2009; Pomevor, 2014). Along with

4 See Whitley et. al (2016a) for more detail on the methodology and the three frameworks used for this study.

**Figure 6: Framework 1 – incentives for private investment in agriculture**

| | |
|---|---|
| **Regulatory** | Land tenure<br>• Administration of Lands Act, 1962 (Act 123).<br>• Free Zones Act, 1995, Art. 504.<br>• Lands Commission Act of 2008.<br>Quality control<br>• The General Labelling Rules, 1992 (L. I. 1514).<br>• The Plants and Fertiliser Act, 2010 (Act 803) and the Plant and Fertiliser Regulations, 2012 (L.I. 2194).<br>• Environment Protection Act (1994). |
| **Economic** | Subsidies<br>• Fertiliser Subsidy Programme, including the Cocoa Hi-Technology Programme for the promotion of feritiliser on cocoa farms.<br>• Agricultural Mechanisation Centres Programme.<br>Price Setting<br>• COCOBOD Act 1984.<br>• Increasing the producer prices of cocoa with a national commitment to pay 70% of net Free on Board (FOB) to farmers, while still paying bonuses to cocoa farmers at the end of the cocoa season.<br>Concessional finance<br>• Ghana Loan Portfolio Guarantee Fund – to tackle lack of agricultural investment by banks.<br>• Export Development and Investment Fund (EDIF) – loans, grants and equity.<br>• Micro and Small Loans Centre (MASLOC).<br>• The Venture Capital Trust Fund (VCTF).<br>• Outgrower and Value Chain Fund (OVCF).<br>• Export Development and Agricultural Investment Fund (EDAIF).<br>Grants<br>• Support to SMEs through the National Board for Small Scale Industries (NBSSI) – grants.<br>• Agricultural Services Sub-sector Investment Programme (AgSSIP).<br>Tariffs<br>• Import tariffs on crops in relation to Imports and Exports Act of 1995 and The VAT Act, 1998 (Act 546).<br>• Export taxes on cocoa and hydrocarbons.<br>• Import tariff changes for rice and poultry in 2008 and, again, in 2010.<br>Income tax deductions and exemptions<br>• Tax holidays and income exemptions in relation to the Ghana Investment Promotion Centre (GIPC) Act 2013 (Act 865) and the Ghana Free Zones Board Act, 1995 (Act 505), along with any associated tax breaks.<br>Risk Mitigation instruments<br>• Weather risk mitigation insurance. |
| **Information** | National strategies and plans (including regulations with limited enforcement).*<br>• National economic plan, known as "Ghana Vision 2020" launched in 1995.<br>• Ghana Shared Growth Development Agenda (2014-2017)<br>• GPRS II (2006-2009) Poverty Reduction Strategy<br>• National Strategic Framework for the Microfinance Sector (1999-2000).<br>• The Ghana Strategy Support Programme (GSSP).<br>• First National Cocoa Plan (Cocoa Sector Development Strategy I) (1999).<br>• National Policy on Public Private Partnership (NPPPP) (2011).<br>Research<br>• Research institutions providing information on agriculture, including: the Animal Research Institute, the Crops Research Institute, the Oil Palm Research Institute, the Savannah Agricultural Research Institute, the Food Research Institute, the Plant Genetic Resources Centre, the Water Research Institute and the Soil Research Institute and the Cocoa Research Institute of Ghana (CRIG).<br>Industry hubs and associations<br>• The Ghana Export Promotion Council (GEPC), established in 1969.<br>• Ghana Federation of Agricultural Producers (GFAP).<br>• National Farmers and Fishermen Award Winners Association.<br>• Private Enterprise Foundation (PEF).<br>• Sea-Freight and Pineapple Exporters Association of Ghana (SPEG).<br>• The Ghana Cocoa, Coffee and Shea Nut Farmers Association (GCCSFA). |

*Note: * Although plans and strategies can send signals to investors (and therefore be seen as information instruments), they may not drive investment in the absence of parallel use and enforcement of regulatory and economic instruments.*

this, increased land is being managed under sharecropping systems or transferring land to outsiders (USAID, 2013). Transferred land remains under customary tenure, with the new occupier paying a 'token offer' – token offers in urban areas are now often equivalent to the market rate for the land (USAID, 2013).

Along with their descendants, first clearers of agricultural land have primary rights to it. While primary owners are in principle entitled to cultivate collectively held land, outsiders who wish to purchase land for agricultural investment can only do so based on an arrangement with customary authorities (Pomevor, 2014). Most large-scale investors are outsiders and must therefore lease land from the relevant customary authority (Abudulai, 2002). The Constitution allows foreigners to lease land for 50-year renewable terms but foreigners cannot own land in Ghana under Article 266 (USAID, 2013). Because agricultural investments typically require large areas of land and most landholdings are small and fragmented, customary authorities must typically take lands from several locals to be able to meet an investor's requirements. Lack of clarity around land ownership and leasing has significantly impacted private foreign investors (Amanor, 2013). This means many companies prefer to work with smallholder contract farmers rather than establish large estates, given the large number of land disputes and large-scale land acquisitions' tendency to attract unfavourable or unwanted international attention.

Since 2007, land in Ghana has attracted considerable attention from both multinationals and local companies. While comprehensive data on the scale of land acquisitions in the country is still lacking, foreign investors have acquired approximately 600,000 ha (or roughly 2% of total land area) for agriculture (Onoja and Achike, 2015).

### 3.1.2 Access to quality seeds

Ghana passed an updated seed law in 2010 (the Plant and Fertilisers Act 803) to address the lack of access to seeds. This had the stated aim of increasing private investment in seeds production and trade. The accompanying regulations for the Act were approved in 2014. These specifically allow for imports of hybrid maize seeds. With a $20 million investment by the Africa Agriculture and Trade Investment Fund (AATIF, a PPP), Wienco Ghana Limited introduced imported PANNAR hybrid maize seed in the second half of the 2000s. Use of the seed variety has increased significantly, particularly in northern Ghana. A National Seed Council, created with the 2010 Act, oversees seed varietal improvement, seed production, seed testing and regulation of the seed trade.

Despite some very limited private investment in seed production, interviews suggest that there remains a shortage of government seed inspectors, as well as inadequate funding for inspectors to visit often-remote foundation[5] and certified seed production sites to maintain quality standards. The policy environment is therefore one that favours private investment by agribusiness and international investments, rather than by smaller domestic actors. However, agribusiness developments have been patchy and hesitant, given the lack of comprehensive transport, research and high quality seed infrastructures, along with difficulties in acquiring large tracts of land (Amanor, 2013).

## 3.2 Economic instruments: key incentives, gaps and considerations

### 3.2.1 Fertiliser subsidy

After nearly 20 years with no large-scale government intervention in the fertiliser sector, a national Fertiliser Subsidy Programme was re-introduced in 2008, as a temporary response to spikes in domestic food and fertiliser prices that year. The programme subsidised crop farmers, covering approximately 50% of fertiliser prices, and was distributed in the form of fertiliser-specific and region-specific vouchers. Such programmes have the potential to increase productivity and attractiveness for private investment. The government scaled up the programme, following the end of the crisis, although the overall subsidy was reduced to 21% in 2013, due to rising fertiliser prices and budgetary constraints (Baltzer and Hansen, 2011). Between 2008 and 2011, the GoG spent the vast majority (79%) of the annual government agriculture budget on fertiliser subsidies. This aimed to increase the rate of fertiliser application among farmers, as it is one of the lowest in the world, and is typically below recommended application levels (WTO, 2014) (IFPRI, 2012). According to IFDC (2012), nearly 40% of fertiliser imported into Ghana was used on cocoa in 2010-11. The remainder has been imported through subsidised or non-subsidised channels for use on food crops and vegetables. Although the GoG has waived customs duties for fertiliser, numerous other charges and levies appear to apply to imports.

Unfortunately there is evidence that subsidies on fertiliser have not been successful. Even after implementation of the input subsidy programme, fertiliser consumption has remained low (FAO, 2015). Most fertiliser to date has been directed and suffered from poor targeting, leakages, smuggling, all resulting in delays in delivery that do not match the growing season and limited effectiveness. Low levels of fertiliser use are the result of

5 Seed that is the source of all certified seeds.

limited farmer liquidity, lack of extension services and an absence of seasonal agricultural production credit. Extension services are also under-performing in Ghana, partly because public extension coverage is limited. This stands at one extension agent per 2,500 farmers, which is well under the recommended ratio of 1:500.

### 3.2.2 Price setting

Seed pricing: A MOFA-led Seed Technical Advisory Committee of 15-20 members establishes annual seed production costs and fixes prices for private seed firms and growers to sell certified seed. The certified seed price is a minimum, which buyers cannot undercut. Most observers think the price ratio is too low and does not offer strong incentives for private seed multiplication, particularly hybrids (WTO, 2014).

Food crop pricing: The government set up the National Buffer Stock Company (NAFCO) in 2010 in response to the 2008 food crisis. NAFCO mainly intervenes in markets for maize and rice and sets minimum grain prices early in the season. However, as a state funded organisation, it does not obtain funding to begin buying grain until midway or later in the marketing season. This means NAFCO cannot defend the support prices earlier in the marketing season, which creates uncertainty among producers and in the grain market (AGRA, 2014).

In terms of cocoa pricing, the government fixes the producer price upwards by making adjustments to the price of cocoa each time there is an improvement in the world market price. At the beginning of every season (October 1), the COCOBOD announces a new producer price of cocoa. This price incentive has encouraged cocoa producers to increase production and manage their farms as businesses. As part of its mandate, the COCOBOD controls the export and internal marketing of cocoa beans and oversees agricultural research, hybridisation of seeds, sale of seed to the farmers, quality control and extension services to farmers.

### 3.2.3 Credit for smallholders and SMEs

The Bank of Ghana (BoG) mandates that agricultural loans should represent at least 50 % of any rural bank's loan portfolio at any particular point in time, adding that cottage industry, along with trading and transport, should have a maximum allocation of 30% and 20% respectively (BOG, 1985; Kadri et al., 2013). But in reality, few rural banks comply with this (Kodom, 2015). One of the main challenges facing agricultural development is this lack of credit to production, including that which is needed to support the purchase of inputs. In general, commercial banks, which account for 87% of all lending in the country, allocate just 5% of their portfolio to agribusiness (WTO, 2014).

The Agricultural Development Bank, established by the GoG in the 1960s to meet the banking needs of the agriculture sector, dedicated just 29% of its portfolio to agriculture in 2010, with just 3% of that going to food crop production. Finance plays an important role in increasing agricultural production and encouraging SMEs to invest or overcome the initial financial barriers for purchasing inputs such as seeds and fertilisers. However, despite the desire for agricultural loans, actors in the area are challenged by factors such as not understanding the loan acquisition process and there being a lack of availability to collateral securities (Sulemana and Adjei, 2015). Smallholder farmers do not have physical properties and individuals to serve as guarantors. Therefore, economic instruments need to go further, encouraging farmers to more consistently collaborate to form groups and link with the District Agricultural Development Unit (DADU), which could offer greater links to commercial banks.

In 2005, the government created the Micro and Small Loans Centre (MASLOC) to offer loan finance to the micro and small enterprise sector. This was intended to enhance access to credit by groups and individuals for business expansion. MASLOC has offered 12-month unsecured loans at a low interest of 24% per annum (or 2% per month) which remains well below other microfinance providers, with rates of between 36% and 60% per annum (Acquah, 2012). In 2010, the centre had an extremely high default rate (90%), highlighting the challenges MASLOC has faced in recouping loans.

Despite this recent growth in the microfinance sector, the advancing of loans and credit to farmers, so they can increase crop production, is still a challenge (Tenaw and Islam, 2009). The agricultural sector is characterised by generally much lower returns on capital, higher risks and less understanding of finance and business (Miller, 2011). While improved technology is often thought to increase productivity and yields, credit is required to be able to access such technology; this is a real barrier for the smallholder farmers in Africa with little or no capital of their own.

The GoG has also set up funding schemes to support the development of agribusiness through the Outgrower and Value Chain Fund (OVCF), with support from KfW, the German Development Bank. The Fund's mainly aims to improve the income and competitiveness of small-scale farmers and contribute towards rural growth and poverty reduction

Along with this, the government has established the Venture Capital Trust Fund (VCTF)[6] (ACT 680, 2004) to provide low-cost finance to small and medium enterprises (SMEs). VCTF is a revolving fund operating in priority

6 The Fund started with a seed funding of GHC 22.4 million from the GoG. Here, the Fund monies are made available to investee companies through intermediary institutions called Venture Capital Finance Companies (VCFC), which are tax-exempted. The VCFCs take monies from the VCTF in the form of debt, equity or both. VCTF started with a seed funding of GH¢22.4million from the GoG. Since inception, the Trust Fund has focused on increasing the pool of venture capital funds available to SMEs in Ghana. In partnership with both local and foreign investors, VCTF has created a pool of GH¢83 million for SME investments. In doing so, the Trust Fund has established five venture capital funds and invested the Ghana cedi equivalent of $17 million. To date, more than 1,000 direct jobs have been created by a total of 39 portfolio companies (Sackey, 2013).

sectors, such as agriculture, pharmaceuticals, ICT, tourism and energy, with the exception of imports to sell. VCTF has established the GAIN network of local high net worth individuals, to bridge funding and mentor gaps for early-stage ventures. GAIN made its first investment in 2014, in the education sector (Darko et al., 2015) and could provide more transparent access for SMEs looking for concessional finance to invest in agriculture. In addition, the GoG established the Export Development and Agricultural Investment Fund (EDAIF) in 2011 to provide low-cost financing for SMEs. The GoG also provides funds to commercial banks at 0-2.5% interest, capping the bank spread at 10% and therefore effectively making loans available to SMEs at a maximum interest rate of 12.5%, which is far below prevailing market rates. Though provision of concessional finance is welcomed, private sector firms complain that the Export Development and Agricultural Investment Fund is difficult to access, with a lengthy application process for finance. This is a significant barrier given the time-sensitive working capital requirements in the seasonal agricultural sector. Here, the selection of recipients is not transparent, with funds often going to those with the right connections and the banks receiving the low-cost funds, often not using them in accordance with the regulations of the scheme. Poor implementation, along with a lack of adequate monitoring and evaluation of funds, also tends to limit the reach of the concessional finance. This, in turn, further constrains access to finance for farmers.

In 2007, the low level of agricultural mechanisation in the country led the GoG to launch the 'Agriculture Mechanisation Services Enterprises Centres' (AMSECs) programme. This has been designed to act as a credit facility to assist private companies in purchasing agricultural machinery at a subsidised price and interest rate. This is then rented to rural farmers at affordable prices. The programme has been extended but has been widely criticised for financing large-scale tractors in a country dominated by small-scale farming (FAO, 2015).

### 3.2.4 Grants (and in-kind contributions)

The government has increasingly sought to support efforts to reduce the spread of disease, particularly within the cocoa sector. The Cocoa National Disease and Pest Control Committee was formed in 2001 to control the spread of capsid and black pod disease (COCOBOD, 2012). Upon the recommendation of the committee, the COCOBOD sprays all cocoa fields free of charge for producers (COCOBOD, 2012). COCOBOD attributes the 2003/2004 and subsequent years' production's success to the programme, which has also been said to encourage farmers to take up additional pest control measures. Other cocoa specific incentive policies applied by the government include an input credit programme (the so-called 'hi-tech scheme'), a fertiliser subsidy, annual scholarship grants awarded to about 2,600 children of cocoa farmers and the staff of COCOBOD, and flexible house mortgage schemes.

### 3.2.5 Tariffs and trade liberalisation

Regional trade has been subject to the Economic Community of West African States (ECOWAS), a group of 15 countries, including Ghana, aiming to promote regional economic integration. This group introduced the ECOWAS Trade Liberalisation Scheme (ETLS) in 1979 to guarantee free movement of transport, goods and persons within the region. ECOWAS countries have agreed in principle to make basic staple foods and inputs exempt from Value Added Tax (VAT) on intra-regional trade through the Additional Act on VAT in 2009, which exempts all agricultural and livestock staple foods and inputs from VAT (de Roquefeuil et al., 2014). However, this Act has not come into effect, as the countries have not yet agreed on the specific list of products. The West African Economic and Monetary Union (most commonly referred to by its French acronym UEMOA), which is comprised of eight member states (excluding Ghana) that are also ECOWAS members, established a common VAT policy in 1998 that exempts most staple foods. However, national governments are permitted to supersede the policy as long as VAT is applied uniformly to a given product, whether it has been produced domestically or in another UEMOA country (WTO, 2014).

In 2000, UEMOA countries implemented a Common External Tariff. ECOWAS approved a similar scheme in 2013, which has been implemented in January 2015 (de Roquefeuil et al., 2014). The high number of policies has led to confusion on the correct application of or exemption from VAT for agricultural goods traded within the region, which impacts the likelihood of investment.

The government has applied import duties to most products, albeit inconsistently and with fluctuation from year to year, including a complete lifting of the tariffs on rice imports in mid-2008 in response to the global food crisis (WTO, 2014). While duties were re-imposed in 2010, the GoG banned imports of rice by road in 2013, only to relax the ban two months later. This has impacted the competitiveness of Ghanaian private production of crops like rice. The government exempts import tariffs and VAT on agricultural machinery and spare parts. However, numerous other import charges remain, reducing access to equipment for investors in agricultural production. Inconsistent approaches and changes to tariffs have led to apprehension over investing in agriculture (AGRA, 2014). For example, in 2008, speculators were holding maize stocks in anticipation of the expected seasonal price increase and when a ban on imports was suddenly lifted, imports flooded the market and prices plummeted (AGRA, 2014).

### 3.2.6 Income tax deductions and exemptions

Through the Ghana Investment Promotion Centre Act 1994, the GoG initiated a wide range of economic instruments to incentivise private investment in agriculture

and agro-industries. These included tax holiday periods of between five and 15 years for enterprises using agricultural raw materials as their main inputs, with a corporate tax rate of 0% from year six onwards (MOFEP, 2010). These provisions apply to both local and foreign investors, although cocoa farmers are exempt from tax without any time limits. The standard corporation tax rate in Ghana is 25%.

In addition, the Ghana Free Zones Board (GFZB) Act of 1995 provided tax exemptions for the first 10 years, an 8% limit on income tax after year 10 and exemption on tax on dividends for shareholders. Domestic and foreign investors have equal legal status in free zone enterprises. This requires companies to produce a minimum of 70% of the output for export. However, there are concerns that more than 30% of these products are actually remaining within the domestic market and not being exported, suggesting the regulations accompanying the economic instrument are not completely enforced.

In addition, tax breaks have been offered to encourage geographical diversification of farming and agribusiness locations. However, incentives have tended to focus on processing and manufacturing, which remains outside the scope of this study. Companies investing in regional capitals outside of Accra and Tema receive a tax rebate of 25%, while investments outside all regional capitals and Tema receive a 50% tax rebate. However, ActionAid (2014) have identified that these measures have only had a limited effect on the location of investment within Ghana.

## 3.3 Information instruments: key incentives, gaps and considerations

### 3.3.1 National strategies and plans

Although plans and strategies can send signals to investors, thereby being seen as information instruments, they may not drive investment in the absence of parallel use and enforcement of regulatory and economic instruments. The government has sought to mainstream climate adaptation and mitigation into public agriculture sector regulation and investment through (FASDEP II, 2007 and METASIP, 2011-2015), as well as the NCCP Master Plan, 2015-2020, and the Ghana Shared Growth and Development Agenda (GSGDA 2010-2013) discussed in section 2.6. However, as these have yet to be implemented through regulatory or economic instruments, they currently only provide an informational signal to investors in the agriculture sector regarding possible future policy orientation.

In addition, the government has stated investment objectives not backed up by regulations. For example, increased poultry production is now a stated Government priority, with relevant government strategies including new research into large scale breeding and production of guinea fowls, cattle, sheep, goats, grass cutters and ostriches. These government strategies also offer support to large-scale cultivation of maize and soya-beans for the production of animal feed and improved access to watering resources.

The GoG launched the NPPP in 2011 to promote increased private sector participation in the economic development of Ghana and, particularly, to encourage and foster the use of private sector resources for the provision of infrastructure and services otherwise provided by the public sector. The intention has been to enable investment through PPP arrangements (MOFEP, 2013). The Government has sought to use PPPs to address funding challenges over and above national resources mobilised through the traditional sources of tax revenues, domestic borrowing, external loans, foreign grants and donor support (Santacoloma, 2013). While the policy generally focuses on infrastructure and developing health and education, there are opportunities for it to enhance agribusiness PPPs as it 'establishes the principle of public institutions engaging with the relevant private sector entities to undertake mutually rewarding socio-economic ventures' (Santacoloma, 2013).

However, efforts to privatise service provision in the agriculture sector have seen mixed results. For example, privatisation of the state seed sector has found no private sector buyers, and this has resulted in a significant decline in modern seed production (Amanor 2013). Similarly, Ghana's irrigation projects lie largely idle, with the exception of those rehabilitated by China, as a result of the reluctance of donors to invest in state controlled assets (Amanor, 2013).

### 3.3.2 Research

Agricultural research is undertaken by various public institutions, including the Animal Research Institute, the Crops Research Institute, the Oil Palm Research Institute, the Savannah Agricultural Research Institute, the Food Research Institute, the Plant Genetic Resources Centre, the Water Research Institute and the Soil Research Institute.

All these institutions are grouped under CSIR and are required to generate revenues to cover at least 30% of their operational budget (AGRA, 2014). The Cocoa Research Institute of Ghana (CRIG), established in 1938, carries out research and advises on issues relating to the production of cocoa, coffee, shea nut and other indigenous oil tree crops.

### 3.3.3 Industry hubs and associations

There is a proliferation of farmer-based umbrella organisations and associations, which can create confusion on who does what. In addition, there has tended to be a predominance for commercial agribusiness trade associations. These include the Ghana Cocoa, Coffee and Shea Nut Farmers Association, the Ghana Export Promotion Council (GEPC) – established in 1969 – and the Federation of Associations of Ghanaian Exporters. The Ghana Cocoa, Coffee and Shea Nut Farmers Association seeks to work with the COCOBOD and MOFA to improve yields and ensure good market price of cocoa, coffee and shea-nut, as well as acquire the right fertiliser and

inputs for crops from the government. The Ghana Export Promotion Council (GEPC) aims to promote exports of non-traditional products with a view to diversifying Ghana's export base. It provides technical assistance and advisory services to Ghanaian companies in order to create an enabling environment for non-traditional export expansion. The GEPC's key programmes include market access facilitation for export companies, technical advisory services on export product development, trade information services and export-related human resources development through the Ghana Export School. More recently, there have been a number of smallholder farmer associations established, such as the Peasant Farmers Association of Ghana in 2005. In 2009, the Peasant Farmers Association joined the Ghana National Association of Farmers and Fishermen (GNAFF), the Farmers Organisation Network of Ghana (FONG), the Apex Farmers Organisation of Ghana (AFOG) and the Federation of Association of Ghanaian Exporters to form the Ghana Federation of Agricultural Producers.

In terms of finance, the Ghana Microfinance Institutions Network (GHAMFIN) was established in 1998 as an umbrella organisation for regulated and non-regulated microcredit institutions. The main objective of GHAMFIN is to act as a knowledge centre and offer information on statistics for the microfinance industry.

## 3.4 Key themes emerging from Framework 1 – incentives for private investment in agriculture sector

The following are the key themes identified from the completion of framework 1, based upon the information summarised in figure 6. This was achieved through interviews and desk based research on the use of regulatory, economic and information instruments to incentivise private investment in Ghana's agriculture sector:

### Regulatory instruments:

- The GoG has identified private and financial sector reforms that it believes will expand the economy generally, attract additional foreign investment and expand the domestic financial sector. However, many government regulations are poorly or inconsistently enforced, which impacts the competitiveness of private investment in a number of sectors, including agriculture.
- Lack of clarity around land ownership and leasing has significantly impacted private foreign investors (Amanor, 2013). As a result, many companies prefer to work with smallholder contract farmers rather than establish large estates, given the large number of land disputes and large-scale land acquisitions' tendency to attract unfavourable or unwanted international attention.
- Ghana has attempted to improve its general business climate and attract FDI, with an emphasis on commodity export. However, regulations and policies have changed significantly in recent years and the private sector needs more consistency. Regulations have also been overly arduous for private investors in the agriculture sector and could benefit from streamlining. For example, companies selling fertiliser and pesticide must separately register to sell seed, fertiliser and pesticides. Seed registration can take up to six months, but only one month is required for each of the other two registrations. The limitations of seed inspectors present a problem and there is inadequate funding for inspectors to visit often-remote certified seed production sites to maintain quality standards, which means smallholder producers often do not have access to quality seeds. Despite a number of regulations and policies facilitating commercial agribusiness and the development of cash crops through international investments, agribusiness investments have been patchy, given the complexities of investing in agricultural land and limited supply of high quality seed infrastructures (Amanor, 2013).

### Economic instruments:

- **Fertiliser subsidy.** A national programme to subsidise fertiliser was re-introduced in 2008 for crop farmers, covering approximately 50% of fertiliser prices. While such subsidies have the potential to increase productivity and thereby attractiveness for private investment, subsidies on fertiliser have not led to increased fertiliser consumption (FAO, 2015). Most fertiliser to date has suffered from poor targeting, leakages and smuggling, which results in delays in delivery that do not match the growing season and limited effectiveness. Low levels of fertiliser use are the result of limited farmer liquidity and an absence of seasonal agricultural production credit.
- **Price setting.** Through seed, food crop and cocoa pricing measures, the GoG has sought to fix a minimum price for smallholder farmers to reduce risk of price fluctuations. While some prices, particularly for cocoa, are often intended to match the market, prices are set by COCBOD at the beginning of the season and subject to budgetary constraints, which has meant prices have often been set too low and are affected by when government departments (particularly MOFA and COCOBOD) receive their annual budget and can buy commodities.
- **Credit for smallholders and SMEs.** One of the main challenges facing agricultural development is the lack of credit provided to agriculture. Given the prevalence of smallholder farming, there is a shortage of both secured and unsecured credit facilities that are able to support farmers and SMEs to cover the upfront costs

of production. The government has established the Venture Capital Trust Fund (VCTF) and the Export Development and Agricultural Investment Fund, as well as the Micro and Small Loans Centre (MASLOC). However, it remains that many smallholder farmers do not understand the loan process and are often unable to meet the minimum collateral requirements (Sulemana and Adjei, 2015). Smallholder farmers do not have access to guarantors and therefore need new instruments that allow for small loans from commercial banks. This could include encouraging smallholder farmers to more consistently collaborate to form groups and link with the District Agricultural Development Unit (DADU), potentially offering greater links to commercial banks. Given strong associations between DADU and smallholders, this could present an opportunity to provide information to smallholder farmers on how to access to finance.

- **Grants and in-kind contributions.** Delivery of grant inputs and service provision by the government has had mixed results. For instance, the direct government support for spraying cocoa to prevent spread of black pod and capsid disease has, according to COCOBOD, had a demonstration effect, encouraging farmers to take up additional pest control measures. However, this programme has also been limited by budgetary constraints and the timing of when government departments receive their finance. This type of programme could be applied to other crops and commodities for demonstration potential, but timed to most effectively support crop development.
- **Tariffs and trade liberalisation.** Inconsistent approaches and changes to tariffs have led to apprehension from investors in cash crops destined for export such as rubber, rice and cocoa (AGRA, 2014). The high number of policies regarding trade liberalisation and application/exemption from VAT for agricultural products traded within the region impacts investment. In addition, inconsistency in government-applied import duties and fluctuations from year to year impact the competitiveness of Ghanaian private production of crops like rice. In addition, exemptions on import tariffs and VAT on agricultural machinery and spare parts are helpful. Nonetheless, numerous other import charges remain, reducing access to equipment for investors in agricultural production.
- **Income tax deductions and exemptions.** Through the Ghana Investment Promotion Centre Act 1994, the GoG initiated a wide range of economic instruments to incentivise private investment in agriculture and agro-industries. Tax breaks have also been offered to encourage geographical diversification of farming and agro business locations. However, incentives have tended to focus on processing and manufacturing linked to agriculture, which remains outside the scope of this study. They have found to only have had limited effect on the location of investment within Ghana; this remains concentrated in the south and within the Free Zones around Tema and Accra.

**Information instruments:**

- The GoG aims to mainstream climate adaptation and mitigation into the regulation of and investment in the agriculture sector. It has sought to do this through FASDEP II (2007) and METASIP, (2011-2015), as well as through GSGDA (2010-2013). However, as these have yet to be formalised through regulatory or economic instruments, they currently only provide an informational signal to investors in the agriculture sector about possible future policy orientation.
- There is a proliferation of farmer based umbrella organisations and associations. This can create confusion as to who does what and who the government should coordinate with (GIZ, 2013). In addition, there has tended to be a predominance for commercial agribusiness (discussed in the following section) and trade associations, such as the Ghana Cocoa, Coffee and Shea Nut Farmers Association, the Ghana Export Promotion Council (GEPC) and the Federation of Associations of Ghanaian Exporters. Additional support for strengthening partnerships between the government, private farmers and exporter industry associations could also be provided.

# 4. Framework 2: sources of capital for the agriculture sector

In addition to understanding incentives at the country level (Framework 1), designing interventions to mobilise private investment in CCD requires a clear picture of the current sources of capital (public and private) available (Framework 2). To that end, Framework 2 (figure 7) outlines the different sources of public and private finance available for the agriculture sector in Ghana, to show where there may be gaps for the GoG, donors and private investors could fill.

This framework has been completed on the basis of interviews and desk-based research, including both formal datasets (government and international) and informal data from sources such as local media. In most cases, information has been made publicly available through company press releases; however in the case of Ghana's agriculture sector there is a limited amount of disclosure in terms of financial information. Section 4.1 highlights some of the particular considerations for applying Framework 2 to the agriculture sector, both in Ghana and more broadly.

*See Whitley et. al (2016) for more detail on the methodology and the three frameworks used for this study. A summary of the key themes emerging across Framework 2 are outlined in section 4.6, and conclusions from the information identified across the three frameworks are outlined in Section 6.*

## 4.1 Identifying public and private investment by sub-sector – particular case of the agriculture sector

Not all activities under the full International Standard Industrial Classification (ISIC) code for 'agriculture, forestry and fishing' were reviewed during this research. We instead sought to focus only on agriculture by reviewing investment under the sub-component on 'crop and animal production, hunting and related service activities', which includes:

- Growing of non-perennial crops (maize, groundnuts, rice, vegetables, cassava, yams, sweet potatoes, cocoyams, tobacco, sugar cane and cotton).
- Growing of perennial crops (fruits, cashews, oil palm, cocoa, coffee and rubber).
- Plant propagation (this includes the growing of seedlings for planting and is not covered in this report)
- Animal production (livestock including poultry, cattle, sheep, goat and pigs).
- Mixed farming (this includes the combined production of crops and animals).
- Support for activities related to agriculture and post-harvest crop activities (extension services, fertiliser, pesticide and seed provision).
- Hunting, trapping and related service activities (not covered in this report).

The analysis of sources of capital was initially compiled in three broad categories – crops, livestock and support activities. Each was assessed separately. In order to provide concise information on public and private finance, these categories were then aggregated using the following process:

- Crops and livestock products not detailed in figure 7 had minimal or no evidence of private investment and were not in the top 20 crops produced by value in the years 2010-2012 (FAOSTAT), as shown in figure 4.
- Grouped items include certain crops with similar patterns of investment, such as fruits, and support activities.

When Framework 2 on sources of capital was applied as part of completing the other country studies, each sub-sector was categorized to indicate private finance as 'established', 'emerging' or 'limited', based on a qualitative judgment of the scale and depth of the private investment identified. However, this categorisation (used in the energy, water and sanitation, and transport sectors) was not effective for agriculture, given widespread private investment across the sector. In contrast to other sectors such as energy, transport or water and sanitation, where there are significant levels of public investment, private

investment is likely to be the most important source of support to agriculture. Although private investment is well-established in the agriculture sector, there is a further challenge of tracking this finance in lower income countries as the majority of private investment takes place through informal channels or at a small scale, and is infrequently tracked by governments or other actors compiling sector level investment statistics (see section 5).

To account for the fact that private investment is *'everywhere and nowhere'* in the agriculture sector in many lower income countries, the analysis has instead been re-framed using a different set of categories to highlight the different producers associated with each sub-sector (see also Whitley et al., 2014 where this has also been applied to Zambia's agriculture sector):

- Mainly smallholder farmers.
- Mainly smallholder farmers (sub-sector cocoa).
- Mainly commercial agribusiness.
- Mixed farm scales.
- Other (mainly directed to smallholders via some private corporations).

These are general classifications and not exhaustive. They merely provide a general grouping of the overall producers. The sources of capital are also categorised as 'international' or 'domestic', based on the headquarters of the majority shareholder or investor (see figure 7).

## 4.2 Mainly smallholder farmer production

A number of items are predominantly produced by smallholder farmers, with the majority originating from smallholdings of less than 3 hectares (Santacoloma, 2013): cashew, maize, cassava, shea, yam, cocoyam, groundnuts and sweet potato. Garden vegetables grown predominantly for domestic consumption and subsistence – including tomato, cucumber, lettuce, onion, ginger, chili, pepper, carrot, mushroom and cabbage –also come under this category. Cassava is cultivated on small farms, often in fields that are left aside as fallow or marginal areas. It is cultivated in all eight regions of Ghana, apart from the Upper East and Upper West regions in the northern provinces, with a prevalence of the Eastern and Central regions, while maize is predominantly grown in the Central and southern regions. Intercropping between cassava, yams, maize and beans is common (Angelucci, 2012). While a significant proportion of the sub-sector commodities are developed for human food consumption, the GoG estimates that 15% of maize produced in Ghana is used for the animal feeds sector, mainly poultry (Santacoloma, 2013).

Maize and cassava are financed primarily by international public bilateral Official Development Assistance (ODA) grants, as well as through concessional loans from multilateral development banks aimed at improving yields and access to finance for smallholder farmers (particularly in the northern regions of Ghana). The Ghanaian government also supports these crops through price and commodity support to secure a product buffer, and by international private agribusiness who provide debt and credit support to smallholders.

International public grant finance has also sustained cashew production through the African Cashew Initiative, which is supported by the German International Development Corporation (GIZ), and the Bill and Melinda Gates Foundation partners, TechnoServe and Fairmatch, to provide technical training and business advice to farmers and processors. The African Development Bank (AfDB) has also used concessional loans to increase cashew production, working with the GoG and the Agricultural Development Bank through the Cashew Development Project, to offer credit and advice to smallholder farmer cashew unions. Additional funding for shea nut projects is provided through ODA grants from the Netherlands and USA as well as UNDP. For example, the shea nut quality campaign project is financed by the Netherland's SNV, with additional support from USAID/West Africa Trade Hub and ICCO (the inter-church organisation for development cooperation).

International public sector donors including Korea, the US and the Netherlands have used ODA grants to fund garden vegetable development, particularly through developing smallholder organic crop production. For example, the GhanaVeg programme seeks to develop vegetables as cash crops and has invested €4 million from the Embassy of the Kingdom of the Netherlands. At least €2.5 million in co-financing investments are foreseen from the private sector. GhanaVeg can offer financial support to innovative projects with a grant of up to €50,000 and proposals requiring at least 50% co-financing from the private sector. In addition, the only insurance instrument identified in this research was the Ghana Agricultural Insurance Programme (GAIP) set up in 2011 by GIZ. This includes drought index insurance for maize soya, sorghum and millet, as well as broader crop insurance that has been tailor-made to cover the various risks experienced by commercial farmers and plantations.

Private finance is also supporting a range of smallholder crops. Traditionally a smallholder subsistence crop, cassava is experiencing a change in status due to its rising profile as a cash crop – in particular through its use in beer production. Both Guinness Ghana (Diageo) and Accra Brewery (SAB Miller) have invested in cassava beer, sourcing from smallholders. SAB Miller incorporate this in their 'Farming Better Futures' programme, which invests in smallholders. Guinness Ghana has been investing in local raw material sourcing for over a decade; it has been working to improve the productivity of farmers and develop sustainable local raw material supplies. This assistance is beneficial to Guinness Ghana itself, as it facilitates a supply chain for their cassava beer, which now uses cassava for about 70% of its inputs.

## Figure 7: Framework 2: sources of capital

| **Sub-sector (by producer)** | | **Mainly smallholder farmers**<br><br>Including: Cashew, maize, cassava, shea, garden vegetables, yam, cocoyam, groundnut, sweet potato | **Mainly smallholder farmers** (sub-sector government managed)<br><br>Including: Cocoa | **Mainly commercial agribusiness**<br><br>Including: Cotton, flowers, tobacco, coffee, sugarcane, plantain | **Mixed farm scales**<br><br>Including: Rubber, rice, oil palm, fruits, livestock | **Other** (mainly directed to smallholders via some private corporations)<br><br>Including: Extension services, fertiliser (including organic), pesticide, seeds |
|---|---|---|---|---|---|---|
| **Grants (including philanthropy and CSR)** | Public | International: Germany's GIZ, USA, Netherlands, AGRA, GEF OFID, EC, AfDB, FAO, Australia | International: Germany's GIZ, Netherlands, UNDP<br><br>Domestic | International: USAID | International: Germany's GIZ, Japan, USA, AGRA, France, FAO, UK, Australia, Netherlands. | International, Netherlands, AGRA, Canada.<br><br>Domestic |
| | Private | International: USA (maize and yams: Gates Foundation, Peace Corps) | International: UK, USA (Kraft, (Cadbury, Mondelēz)<br><br>Domestic (Kuapa Kokoo, West Africa Fair Fruits) | | International: US (Gates Foundation),<br><br>Domestic (Twifo Oil Palm Plantation (TOPP) Limited), Ghana Rubber Estate Limited (GREL) | |
| **Debt (including OTC, capital markets, microfinance etc.)** | Public | International: AfDB, IFAD, World Bank | | International: World Bank | International: France, Germany's KfW, World Bank, AfDB, Libya | |
| | Private | International: Brazil (cashew: Usibras), USA (shea: Root Capital), Canada, Netherlands, UK<br><br>(Cassava: Diageo, SAB Miller, Dutch Agricultural Development and Trading Company)<br><br>Domestic (Mim Cashew) | Mars, Mondeléz, Cadbury | | International: USA (Acumen Fund), Germany, France, Netherlands, Ivory Coast<br><br>Domestic | |
| **Equity (listed and unlisted)** | Public | None identified | None identified | None identified | None identified | |
| | Private | International: Singapore (Cashews: Olam), China | International: Singapore, (Olam) Switzerland (Barry Callebaut) | International: UK (tobacco: British American Tobacco), Singapore (cotton: Olam), USA, Italy, India (coffee: Viram Plantation Ltd), Netherlands (coffee: Gold Coast Foliage Ltd)<br><br>Domestic (Coffee: Ghalia Ghana Limited, Upcountry Coffee) | International: Ivory Coast (rubber, oil palm: Sifca Group), Singapore (rubber, oil palm: Olam), India (rubber: Viram Plantation Ltd), UK (fruit: Blue Skies), Switzerland, British Virgin Islands, Belgium, Germany France (fruit: Compagnie Fruitière) | |
| **Guarantees (including loan insurance)** | Public | International: Germany (maize soya, sorghum and millet) | | | | |
| | Private | | | | | |

There is also increasing interest from private investment in cashews and garden vegetables, which are an emerging commodity. A Brazilian cashew processing company, Isebra Ghana Limited, has earmarked $25.5 million for the processing of cashew nuts in Ghana, while Mim cashew – a Ghanaian cashew plantation and processing firm – has received equity investment from Singapore.

Other examples of private finance for smallholder produced products include international debt investment, in the form of several loans from US based non-profit financial institution Root Capital, to the Savannah Fruits Company - a Ghanaian company that produces shea butter for export and improves livelihoods for rural women by providing a stable, well-paying market outlet for raw shea nuts. According to Ghanaian media in 2015, there has been emerging interest from investors. However, no private investment has been identified through this research.

Yam, cocoyam and sweet potato are subsistence crops and there is little information available indicating private investment. However, The Yam Improvement for Income and Food Security in West Africa (YIIFSWA) project, which is supported by a $12 million grant from the Bill & Melinda Gates Foundation, provides funding aimed at increasing yields through better seed supply and improving markets. A yam development strategy was developed in 2013 and negotiations have started with private sector noodle buyers in Nigeria, Turkey and Japan to use yam as a component of pasta and noodles. However, no evidence of investments to date has emerged in this research.

## 4.3 Mainly smallholder farmers (sub-sector government managed)

Interest in Ghanaian cocoa is driven by its high quality and Ghana is the world's second largest producer of cocoa beans (after Cote d'Ivoire). Cocoa provides the second largest source of export earnings, representing 30% of Ghana's total export earnings (MOFA, 2013). Cocoa production is managed in a different way from other commodities and production systems in Ghana. While dominated by smallholder farmer production, it is entirely managed by the government through COCOBOD. Finance for cocoa production ultimately comes via investments from international corporations such as Mars, Mondelez, Olam and Barry Callebaut, who buy cocoa beans for export from COCOBOD. As such, the GoG plays a direct financial role for smallholder farmers, using finance from cocoa bean sales to support producers by setting a minimum price for beans and offering bonus payments. It also provides input and service provision, such as pesticide and fertiliser applications. COCOBOD also oversees agricultural research, hybridisation of seeds, sale of seed to the farmers and quality control.

In addition to the international investors buying beans for export, there are a number of CSR grants and investments through PPPs from UK, US and French companies. Included here would be the Cadbury Cocoa Partnership, now funded by Kraft Foods. This enterprise works in partnership with the United Nations Development Programme, CARE International, along with domestic companies, Kuapa Cocoa and West Africa Fair Fruits, to provide grant finance to small farms and farming villages in Ghana, supporting farmers to increase their yields. International equity investment flows from companies such as Olam, which is now the largest private sector licensed buying company in Ghana. Swiss cocoa group Barry Callebaut has acquired Nyonkopa Cocoa Buying Company Ltd in Ghana to support bean production from smallholder farmers. In 2013, Solidaridad secured grant funding from the Dutch Embassy in Ghana to implement a Cocoa Rehabilitation and Intensification Programme to help a consortium of government partners and key private sector partners to develop a certification programme for the sustainable production of cocoa.

Some limited international bilateral and multilateral grant ODA, as well as debt forgiveness, supports the GoG and smallholder farmers to increase cocoa yields. In addition, Germany's BMZ and the Netherland's SNV are working with private sector companies including Mars and Mondeléz, along with research institutions such as Cocoa Research UK and Cocoa Research Institute Ghana (CRIG), to develop high yielding disease and drought resistant varieties of cocoa.

## 4.4 Mainly commercial agribusiness

Cotton, flowers, tobacco and coffee sectors are consolidated among a few large commercial agribusinesses, supported primarily through corporate, balance sheet finance (equity and debt). They are each relatively small markets but economically significant crops, tobacco, horticulture/floriculture and cotton are characterised by a strong commercial agribusiness presence that has incorporated smallholder farming via out-grower schemes. Under this arrangement, smallholder production is financed via commercial agribusinesses providing inputs and technical assistance on credit in exchange for produced agricultural commodities that are then exported.

Commercial agribusiness receives a mix of financing, largely dominated by international and domestic equity investments and some international public and private debt. First, there are crops that have been in production in Ghana for some time and which receive periodic private investment. One example here is tobacco, from UK firm British American Tobacco, which has bought shares in its Ghanaian subsidiary. Singaporean firm Olam has invested at least $10 million in cotton production in the 2011 cropping season and is considering increasing this investment to $35 million to engage more farmers in the communities to cultivate cotton. Juaboso Agro Processing Company (JAPC), a joint Ghanaian/American business, is investing $70 million in the production and export of

plantain chips, but there are also a number of crops that appear to attract increasing levels of private finance.

These include crops not previously produced at a large scale in Ghana, such as flowers, or not seen as major cash crops for several decades, such as coffee. Ghalia Ghana Limited is a registered Ghanaian company with Italian and Ghanaian investment and has secured a 50-year lease on a 481.9ha coffee plantation, abandoned 25 years ago by COCOBOD. The company intends to improve yields on the plantation for Robusta Green Coffee production in the Eastern Region. Further equity investment in coffee production comes from the US investors in coffee producer and processor, Upcountry Coffee, who produce for the domestic market and Indian equity investment in coffee and a range of other commodities. This takes place via Viram Plantation Ltd., which is the majority shareholder of INGA Farms Ltd. Dutch company Gold Coast Foliage Ltd has established a €600,000 project, with the help of a Dutch investor, growing green foliage for export for the production of bouquets. There is further equity investment from India, into sunflower producing company Agriserve.

Relatively little evidence of finance for sugar production was found as part of this study. In 2007, the Brazilian government announced plans to offer a loan of $260 million to Northern Sugar Resources (NSR), a Ghana registered company, for a sugar cane plantation and ethanol processing plant in Northern Ghana, through the Brazilian Development Bank (BNDES) (Amanor, 2013). The ethanol is designated for export to Sweden; Svensk Etanolkemi AB, a Swedish green fuels company, has committed itself to purchase the first ten years of the plant's production (Bizzard 2008; Razanamandranto 2008).

Currently, there is relatively limited public investment through grant and loan finance to support commercial agribusiness development in the sub-sector commodities. However, a number of bilateral donors are supporting more general private sector engagement across the whole sector. The World Bank has provided loans for cotton, as well as for crops such as coffee, to expand the cultivation of non-cocoa tree crops and horticultural crops, which can be efficiently and competitively cultivated in Ghana for export and import substitution. The US has provided USDA's Agricultural Research Service expertise and resources to develop plantain and cowpea production.

## 4.5 Mixed farm scales

Both smallholder farmers and commercial agribusiness increasingly manage a number of sub-sectors. Rubber, oil palm and rice are supported primarily through a mix of international public grant finance and CSR contributions from private foundations, as well as international public and private debt finance and international private equity.

There is a significant and long-standing international history of FDI in rubber, oil palm and fruit production in Ghana. Private investment in rubber and oil palm has tended to come from the same companies. These include the Sifca Group, headquartered in Ivory Coast, and OLAM, a Singaporean commodity firm, which also invests in a range of commodities in Ghana). Additionally, there is the Indian-invested Viram Plantation Ltd, which is investing equity in plantations producing tea, sugarcane, coffee and oil palm, as well as rubber. Exotics Ltd, a subsidiary of the French group Compagnie Fruitière, is investing in pineapple and banana production. The UK's Blue Skies began investing in its Ghanaian operations in the late 1990s and predominantly produces and processes pineapples into juice for domestic and international markets, as well as being involved in mango production. Nonetheless, Blue Skies is increasingly importing pineapples to Ghana due to lack of domestic production capacity. BioExotica is a $2 million Ghanaian-Dutch investment that has also established a farm for producing organic pineapple on the shores of Lake Volta, highlighting the growing importance of FDI in fresh fruit production.

The same international public investors have predominantly provided international public grant and debt investments in rubber and oil palm (see figure 6). For example, the government of France and the World Bank have been major investors, working in partnership with MOFA. They have also collaborated with the Ghana Rubber Estate Ltd to set up the first non-sovereign loan (without a state guarantee) in Ghana to finance rubber out-grower plantation development. This has the specific aim of connecting smallholders with commercial agribusiness and a supply chain (The Ghana Rubber Outgrower Project). The Ghana Agricultural Development Bank has consequently received a €14 million credit line to provide 2,750 rubber out-growers with the financing to develop 10,500 ha of rubber plantations, with loans provided in Euros. International donors have also supported efforts to develop the Ghanaian fruits sector, particularly through ODA grants for mango development from the governments of the US and Finland. One kind of project included would be fruit tree cropping in villages of the Lawra-region (Upper West). This is intended to create local potential for sustainable fruit tree management and provide vitamins and nutrients from fruits to act as an important addition to dry season local nutrition intake. Less significant international public sector investment has been seen in citrus, pineapple and banana development, although the EU institutions have invested $9 million to support the banana industry's efforts to improve competitiveness, while addressing some of the social and agro-environmental aspects that are crucial for the sector's development.

Rice production in Ghana has been dominated by international public grant finance from bilateral and multilateral organisations, which have focused on reducing the GoG's strategy to reduce rice imports and raise consumption of domestically produced rice. Programmes include the USAID grant-funded Ghana Commercial Agriculture Programme (GCAP). These are in place to

improve the investment climate for rice agribusiness. They are also intended to help develop PPPs and smallholder linkages aimed at increasing on-farm productivity alongside debt investments from France to develop rice production. Private finance for rice production is generally limited, to where it can be linked to public finance, such as the support provided by KfW, Deutsche Bank and US 'impact' investor Acumen Fund to Gadco (a rice firm with over 1,600 hectares of land), which is also supported through technical assistance from Brazil and Acumen Fund.

The livestock sub-sector has significant smallholder and commercial agribusiness participation. Most larger-scale commercial operations focus on egg production, with some raising exotic breeds of broiler chickens, guinea fowl and turkeys for meat. The livestock sector accounts for almost one-third of the value added of African agriculture. Given the current consumption trends in animal protein, this sector is anticipated to become one of the main, if not the largest, contributors to agriculture in the coming decades. Commercial poultry operations are mostly found in the urban areas of the Greater Accra and Ashanti administrative regions. There are currently less than twenty large-scale poultry enterprises in Ghana, mainly producing eggs, with limited production of broilers (RVO, 2014).

The Ghanaian poultry industry supplies a small proportion of domestic demand and imported poultry is cheaper, meaning private investment in the poultry sector has been limited. For example, US fast-food chain KFC recently opened in Ghana. The company imports all of its chicken. In Nigeria, KFC has been forced to add fish to the menu, due to restrictions on poultry importation and shortfall of domestic production. The industry is primarily supported by international public grants and debt finance, and from domestic debt finance. AgDevCo, a predominantly UK Department for International Development (DFID)-funded impact investor, confirmed a $375,000 investment to a slaughter and processing facility in 2015. Other international public investors, such as the Bill and Melinda Gates Foundation, the EU institutions and Japan, have focused on developing the egg industry (in the case of France), pig farming (primarily supported by the US), making livestock more resilient to a changing climate (supported by Canada) and livestock health. Public Private Partnerships for livestock development managed by MOFA have been financed primarily by the AfDB to develop a partnership between public agencies and livestock producers. This has resulted in the creation of a credit facility, with beneficiaries receiving credit in the form of live animals.

## 4.6 Other (extension services)

The GoG and international DPs are the primary providers of extension services, fertilisers, pesticides and other inputs, such as seeds for production, with some additional provision by commercial agribusiness.

Finance is predominantly in the form of international and domestic public grants and from public budget support. International public sector donors have not tended to invest as much in inputs and extension services. In fact, international public investment in extension services has decreased in recent years, following a peak of $7.7 million in 2005. The main international public investors have been the World Bank and the government of Canada, although Germany, Australia, Korea and Finland have all supported extension services. An example of this is the $23 million provided through the Agricultural Services Subsector Investment Project, supported by the World Bank up to 2007. This aimed at policy and institutional reforms, decentralising the planning and implementation of agricultural development programmes and promoting cost-effective agricultural and extension systems.

There is little evidence of private investment in support services, although a significant amount of extension services are provided through non-profit organisations, several of whom raise part of their funding through private individuals or companies such as the Bill and Melinda Gates Foundation. There is also some private investment in fertilisers, with significant potential for more if the climate is perceived to be conducive. For example, a large US impact investing fund is poised to invest in a domestic organic fertiliser company, although the details remain confidential. Other private investment has been limited. For example, a planned Indian investment in fertiliser production collapsed, apparently due to lack of mutual agreement on $1 billion state assurance of gas supply. Injaro Investments has helped finance a Volta Region seed company, M&B Seeds and Agricultural Services, which acquired seed processing equipment, a first for the private sector. Norwegian firm, Yara International ASA plans to build a $2.5 billion nitrogen fertiliser plant in Africa and Ghana is one of five countries with which they've held discussions. Yara Ghana Ltd has already invested in fertiliser production in Ghana. There are also some early initiatives supported by Zoomline (a domestic sanitation company) and GIZ to develop domestic organic fertiliser production.

## 4.7 Key themes emerging from Framework 2 – sources of capital in the agriculture sector

The following are the identified key themes regarding sources of capital in Ghana's agriculture sector, based upon the data summarised in figure 7.

**Cross-cutting findings:**

- Commercial banking and microfinance provision is underdeveloped and financiers principally target large-scale farmers or commercial agribusinesses, as opposed to smallholders, who have limited collateral to secure loans. In addition, commercial banks have also tended to favour international businesses over wholly

local Ghanaian companies, while rural banks ignore mandates to invest in agriculture. Nonetheless, some initiatives and banks are now targeting smallholder farmers. This includes programmes partially supported by international donors such as AGRA's 2009 $10 million loan guarantee, which enabled Standard Bank to offer lower-interest loans.

- Larger-scale private investment in the sector is most common in cash crops such as rubber and oil palm, where there has been long standing investment and an international market. More established private investment is focused on plantation agriculture. However, companies investing in plantation out-grower schemes, such as Unilever in oil palm plantations, have more recently been selling their ownership stakes and looking to source directly from smallholder farmers.
- There is a lack of information about domestic and international private agriculture investment in Ghana. Information on insurance and guarantees is also minimal. The Ghana Agricultural Insurance Programme (GAIP) set up in 2011 by GIZ is the first and only example of agricultural insurance found in the research for this paper. The products include drought index insurance for maize soya, sorghum and millet, as well broader crop insurance that has been tailor-made to cover the various risks experienced by commercial farmers and plantations.

### Findings by category of producer:

- **Smallholder-dominated agriculture:** Maize, cassava, cashew, shea, groundnut, garden vegetables and yam production, is dominated by smallholder farmer rain-fed agricultural production, with the majority of this taking place on farms or smallholdings of less than 3 hectares (Santacoloma, 2013). Maize and cassava production is financed primarily by smallholder farmer savings alongside international public bilateral ODA grants. It is also partly funded by concessional loans from multilateral development banks that are geared towards improving yields and access to finance for smallholder farmers (particularly in the northern regions of Ghana). Along with this, the Ghanaian government offers price and commodity support to secure a product buffer, while smallholders with some local and international debt from private agribusiness also play a role. Cashew and garden vegetables have seen some increasing international investment through private equity, mainly from Asian investors based in China and Singapore.
- **Mainly smallholder farmers (Cocoa):** this area of production is managed differently from other commodities and production systems in Ghana. While dominated by smallholder farmers, cocoa production is entirely led by the government through COCOBOD. Finance for cocoa production ultimately comes from investments from international corporations such as Mars, Mondelez, Olam and Barry Callebaut, who buy cocoa beans for export from COCOBOD. As such, the GoG plays a direct financial role for smallholder farmers, using finance from cocoa bean sales to support producers by setting a minimum price for beans, offering bonus payments, and providing input and service provision such as pesticide and fertiliser applications. Along with debt forgiveness programmes, some limited international bilateral and multilateral grant ODA supports the GoG and smallholder farmers to increase cocoa yields.
- **Commercial agribusiness (including out-growers):** The cotton, flowers, tobacco and coffee sectors are consolidated among a few large commercial agribusinesses, supported primarily through corporate, balance sheet finance (equity and debt) and domestic debt. They are each small markets but economically significant crops, tobacco, horticulture/floriculture and cotton are characterised by a strong commercial agribusiness presence that has incorporated smallholder farming via out-grower schemes. Under this arrangement, smallholder production is financed via commercial agribusinesses providing inputs and technical assistance on credit in exchange for produced agricultural commodities. Commercial agribusiness receives a mix of financing, largely dominated by international and domestic equity investments and some international public and private debt. Currently, there is relatively limited public investment and grant finance to support commercial agribusiness development in Ghana, although a number of bilateral donors are supporting more general private sector engagement across the whole sector.
- **Mixed smallholder and commercial agribusiness:** A number of sub-sectors are increasingly managed by a more even mix of both smallholder farmers and commercial agribusiness. Rubber, oil palm and rice are primarily supported through a mix of international public grant finance and CSR contributions from private foundations, as well as international public and private debt finance and international private equity. The livestock sub-sector has significant smallholder and commercial agribusiness participation with most larger-scale commercial operations focusing on egg production, with some raising exotic breeds of broiler chickens, guinea fowl, and turkeys for meat.
- **Other (including extension services):** Extension services, fertilisers, pesticides and other inputs, such as seeds for production, are primarily managed by the GoG and other international development partners, with some provision by commercial agribusiness. Finance is predominantly in the form of international and domestic public grants and from public budget support, as well as international private debt and equity finance where there are large commercial out-grower programs e.g. rubber.

# 5. Framework 3: scale of support to agriculture sector

The aim of completing Framework 3 is to understand trends in public and private investment in the agriculture sector over time, with the aim of tracking the impact of incentives on private investment over the longer term. It is important to track both public and private investment over time, as without information on where public sector funds come from and where they have been used to mobilise private climate finance in developing countries, it is virtually impossible to assess their effectiveness, learn lessons or replicate good practice (Whitley, 2013a).

*See Whitley et. al (2016) for more detail on the methodology and the three frameworks used for this study. A summary of the key themes emerging across Framework 3 on investment trends are outlined in section 5.2, and conclusions from the information identified across the three frameworks are outlined in Section 6.*

## 5.1 Barriers to completing Framework 3 – for the agriculture sector in Ghana

Unfortunately, as a result of significant gaps in international and national datasets, in terms of both year and sub-sector coverage, it was only possible for this research to complete a framework showing investment trends over time for ODA as opposed to all sources of finance (see figure 8). Critically, it was not possible to identify levels of private investment in the agriculture sector beyond FDI, as domestic private investment was not covered by any of the national or international datasets. In addition, FDI data was also limited and was collated based on GIPC quarterly reports for the period between 2007 and 2015. Given the data gaps, it was also impossible to find sub-sector information for FDI to Ghana's agriculture sector.

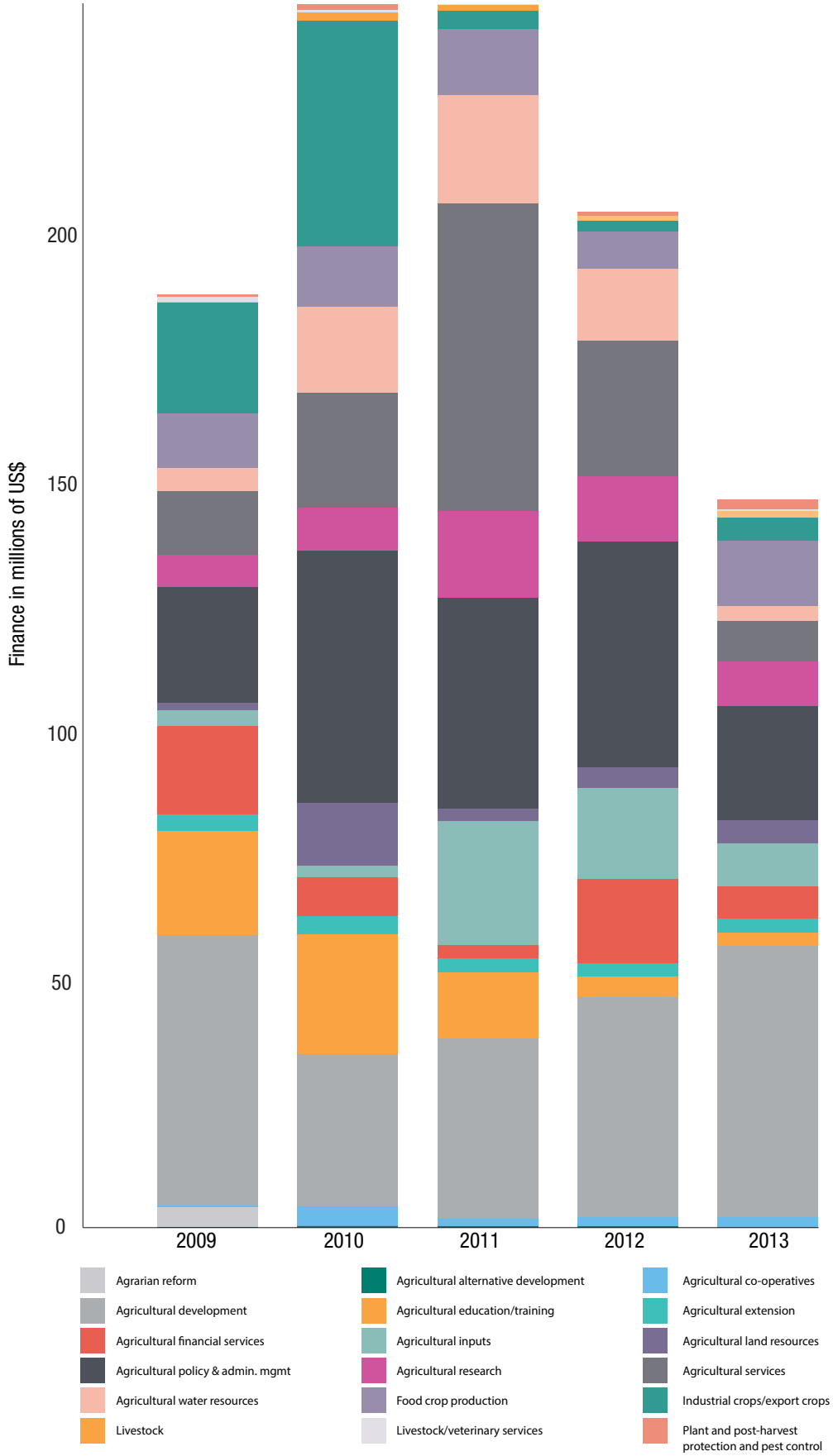
In particular, there was a lack of data available on domestic, national budget spend on agriculture at the sub-sector level. Despite speaking with a number of government departments within the GoG, it was not possible to access comprehensive data on the overall budget for agriculture or the expenditure at the sub-sector level. Information on the scale of government spend on agriculture was sourced from the annual Budget Statement and Economic Policy of the GoG released by MOFEP and averaged for the period between 2011 and 2016 (see figure 9). In addition, MOFA's 2013 report on their national expenditure was used to assess the extent to which the GoG had been meeting a national commitment to spend at least 10% of the national budget annually on agricultural development. While the 2013 MOFA report suggests this was at least been the case in the period between 2009 and 2013, the annual Budget Statement and Economic Policy suggests a much lower percentage for agriculture spend over the period. Additional information is therefore needed to accurately determine the percentage of the overall budget spent on agriculture, as well as actual expenditures (rather than budgeted amounts) at the sub-sector level.

Another challenge in understanding the scale of support to the agriculture sector over time is that when information is available by sub-sector, datasets have tracked it differently. For example, the OECD DAC CRS divides the agriculture sector into 18 sub-sectors, 12 of which are supported by donors in Ghana.[7] These are mainly around the specific type of agriculture or stage in the process of supporting production or agricultural commodities (which it uses to track ODA and OOF). The information collected from MOFA through a 2013 basic agricultural public expenditure diagnostic review disaggregated data in two ways: 1) in terms of the government departments managing the finance and programmes (for example as: non-cocoa, cocoa, livestock, forestry, fisheries and infrastructure), and 2) through different categories such as food security, emergency preparedness, and with outputs listed around promotion of cash crops and improved mechanisation (see figure 9).

In addition, a number of international donors support a broad suite of development objectives aimed at improving access to water, enhancing institutional strengthening and developing PPPs. Such broad and overarching approaches

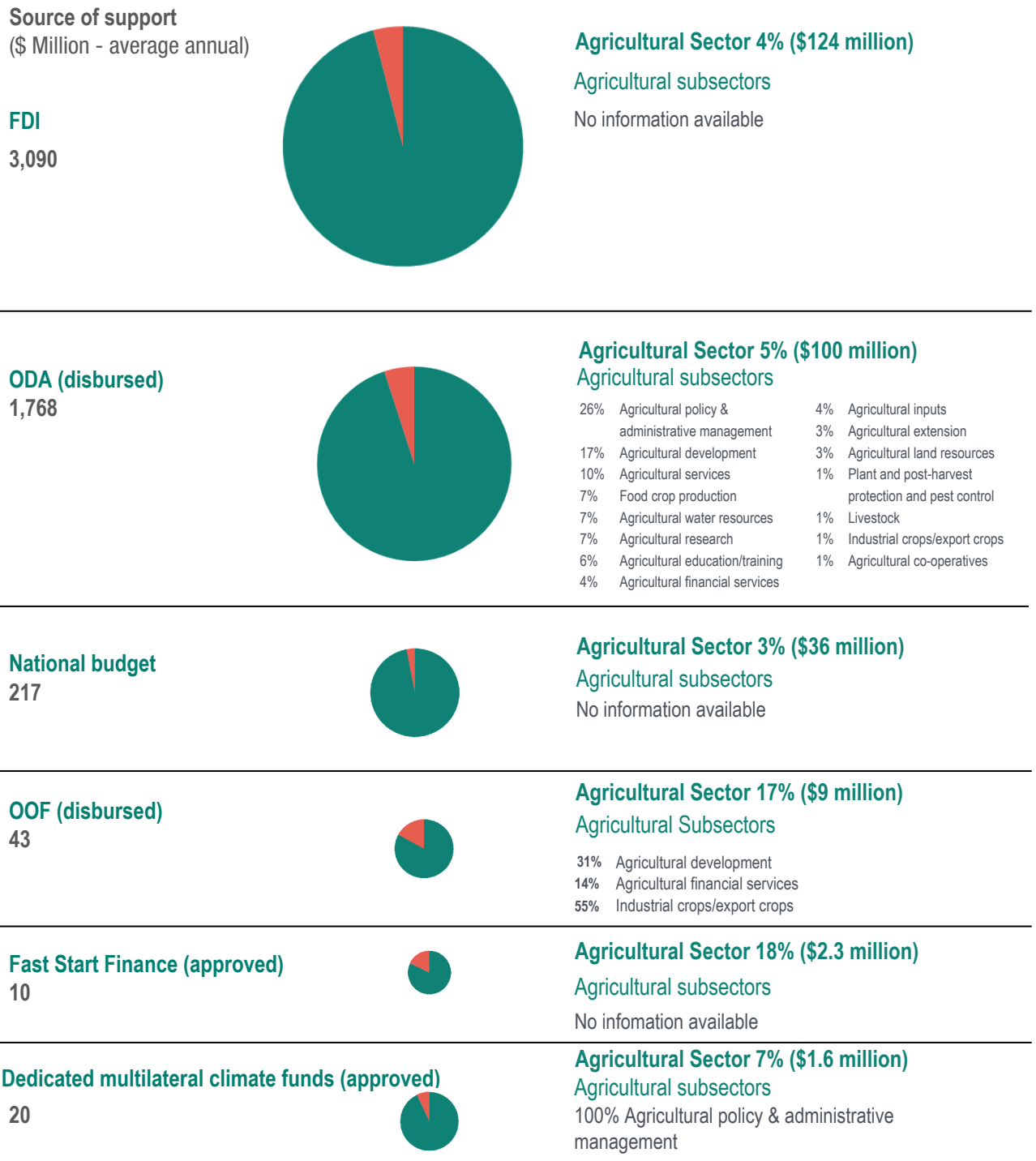
7 https://stats.oecd.org/Index.aspx?DataSetCode=CRS1

**Figure 8: ODA to agriculture sub-sectors in Ghana 2009-2013 (current US$ million)**




*Source: OECD, 2015*

**Figure 9: Framework 3 – scale of support to agriculture sector in Ghana ($ million-average annual 2007-2016 – see Appendix 3)**




are either reported as being multi-objective or tagged as one sector or sub-sector, even if they are supporting more than one objective. This makes it harder to understand current gaps in investment. Another challenge is that it makes it much more difficult to look at how successfully public finance is incentivising private investment. This is because the private sector does not categorise investments according to the arbitrary public sector reporting categories.

This general lack of data, together with inconsistent tracking systems, has significant implications for monitoring climate finance effectiveness in the agriculture sector. This is not only because it pertains to private investment. If it is not possible to track support and investment at the sub-sector level, there will not be a causal link between the support provided and the shifts or increases in climate-compatible activities and investment.

It has been possible, however, to find sub-sector information regarding public support and investment flowing towards Ghana's agriculture sector in the forms of ODA, other official flows (OOF) and dedicated multilateral climate funds. This was obtained via Climate Funds Update (CFU), across a number of different years and allowed us to observe some interesting trends in the relative scale of support and investment from these different public sources and different emphases in terms of sub-sector support and investment (figure 9).

## 5.2 Key themes emerging from Framework 3 – scale of support to agriculture sector

### Domestic support

- National government budget for agriculture averaged $36.1 million annually between 2011 and 2016, with significant increases in government finance allocated to agriculture in the 2015 and 2016 budget, although the percentage of the budget focused on agriculture has remained relatively constant. While the government has committed to spend at least 10% of the national budget on agriculture, the annual Budget Statement and Economic Policy suggests a much lower percentage for agriculture spend over the period. Additional information is therefore needed to accurately determine the percentage of the overall budget spent on agriculture, as well as actual expenditures (rather than budgeted amounts) at the sub-sector level.
- While data on sub-sector and commodity-specific spend has been difficult to collect, the GoG set out Ghana's METASIP for the 2009 to 2015 period, which includes an indicative budget for a range of food and nutrition security actions (Appendix 2). From this anticipated breakdown of spend on agriculture priorities, it is possible to see spend focusing on promotion of cash crops (with $101 million spent annually), increases in productivity (with annual budget of $74.4 million[8]), livestock and poultry investments ($51.5 million annually), and support for mechanisation of the agriculture sector ($55 million annually).

### International support

- Noting the absence of domestic private finance information, the flows identified supporting agriculture in Ghana primarily come through international channels. These include FDI (averaging $124 million annually) paired with international public finance, mainly through ODA (averaging around $100 million annually).
- Between 2002 and 2013, ODA for agriculture increased substantially overall from $20 million to $124 million annually. However, ODA for agriculture actually decreased by 44% between 2011 and 2013. More than 60% of the finance has been in the form of grants, with around 40% offered through concessional loans. ODA has mostly supported national level capacity through policy development and administrative management efforts as well as agricultural development and agricultural services. Over time, and despite a drop in ODA for agriculture, international donors are increasingly targeting finance towards crop production and agricultural development, with less finance targeting capacity development and policy reform efforts. The USA, Canada and the World Bank's International Development Association are the primary providers of ODA for agriculture in Ghana, contributing around 68% of the agricultural ODA between 2002 and 2013. OOF finance has been relatively small to date: the African Development Bank has financed agricultural development, while the OPEC Fund for International Development has used OOF to support both agricultural financial services development and expansion of industrial and export crops.
- Most ODA to the agriculture sector in Ghana is not tagged as climate-relevant (for example, the Rio Marker is blank or zero). Just 9% of agriculture ODA is tagged as climate-relevant (Rio Marker is 1 or 2). Adaptation tagged finance has tended to support agricultural extension services, with mitigation finance targeting food crop production. Both mitigation and adaptation tagged ODA has supported agricultural development.

### International climate finance

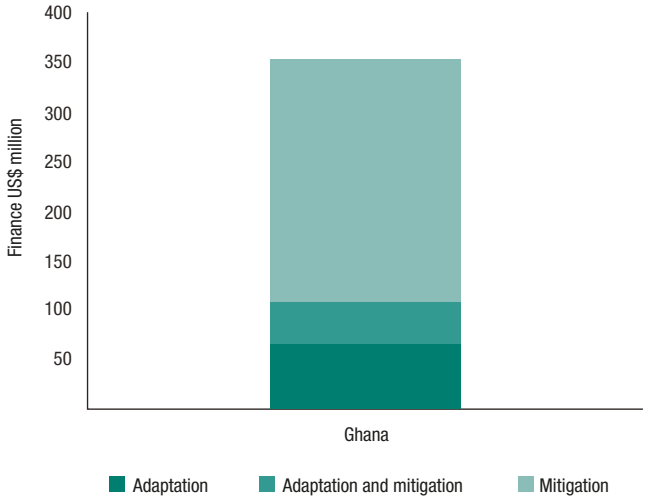
- Between 2010 and 2013, overall international climate tagged ODA to Ghana was spent primarily on mitigation actions (69%), with just 19% supporting adaptation actions and 12% supporting both mitigation and adaptation outcomes (figure 10).
- The climate finance tracked by ODI during the FSF (2010-2012) highlights around 18% of finance targeting agriculture (see figure 9). This includes just five projects supported by Canada (the largest donor), Germany and Japan. The largest project entails building resilience of vulnerable households to climate change in targeted communities in Northern Ghana through improved access to nutritious food and sustainable economic development. Other projects are supporting insurance products to help local people adapt to climate change and enhancing capacity for rice breeding. It is important to note there is duplication between data

8 Given the fluctuations and devaluation of the GHC over the last five years, the average exchange rate with USD was used, covering the period of the METASIP between 2009 and 2015.

reviewed on FSF and other datasets on investment in the sector. All of the five FSF projects identified in the agriculture sector were tagged as ODA in this research and therefore likely to be included in the OECD Development Assistance Committee (DAC) database. However, they may not have been tagged as 'climate-relevant' within the OECD data.

- Climate finance has played less of a significant role in the sector compared to wider non-climate tagged development finance, averaging around $12.5 million annually over the Fast Start Financing period (2010-2012) and $1.6 million annually from multilateral climate funds since 2008.
- Climate finance programmed by dedicated multilateral funds between 2008 and June 2015, tracked through ODI and HBF's Climate Finance Update, also indicates that relatively modest levels of finance for agriculture have supported climate compatible agricultural development. To date, the Special Climate Change Fund and the Adaptation for Smallholder Agricultural Programme of the International Fund for Agricultural Development (IFAD) have supported the integration of climate risk management into agricultural value chains, improved access to diversified energy sources, up-scaling of efficient irrigation and sustainable land management technologies.

**Figure 10: International climate tagged ODA disbursed to Ghana during 2010-2013, by theme**



# 6. Conclusions

There were two goals in applying this methodology to map incentives and investment in the agriculture sector in Ghana. The first was to fill key information gaps about incentives and investment at country level in climate-relevant sectors, in order to support governments in their efforts to shift or direct additional private resources to climate compatible development (CCD), the second to enhance understanding of the links between public incentives and private investment in CCD. More specifically, the application of this methodology can provide information needed by governments and other stakeholders seeking to design interventions to mobilise private climate finance in the agriculture sector in Ghana.

*More information on the methodology and frameworks used in this report can be found in Whitley et al (2016), while cross cutting findings from applying this methodology across 4 sectors and countries are discussed in Whitley and Norman (2016).*

## 6.1 Information on incentives and investment in Ghana's agriculture sector

We were able to complete 'Framework 1: incentives for private investment in agriculture in Ghana' and 'Framework 2: sources of finance at sub-sector level for the agricultural sector in Ghana' using government websites and documents, interviews with key stakeholders (see Appendix 1), publicly available information and international datasets. These provided primarily qualitative information, which could be used in the future to inform decision making for spending climate finance, particularly as it pertains to actors and programmes that seek to mobilise private investment.

We were unable to complete all of 'Framework 3 (scale of support)' at sector or sub-sector level because of the absence of publicly available data on levels of private investment over time, discrepancies in the definitions and categories used in international and national datasets, gaps in coverage for particular years and the fact that a number of actors do not collect sub-sector data. This had significant implications for the second aim of this research, which was to determine links between incentives and investment within a sector. It also has broader implications for the assessment of climate finance effectiveness, and not only as it pertains to private investment. If it is not possible to track support and investment at sub-sector level, it will be very challenging to make a causal link between the support provided and any shifts or increases in climate compatible activities and investment.

In addition to gaps in information on private investment, budget transparency at sub-sector level is limited, meaning that the portion of agriculture finance from Ghana's national budget spent on different crops, livestock and extension services is not easy to understand. As Ghana is seeking to spend 10% of its national budget on agriculture, it will be important for the government to outline additional details around this spending if it aims to highlight opportunities for those privately seeking to deploy investment. In addition, the government will need to provide clearer information on the potential impacts to agriculture and underlying investments of climate risks, and do so in a manner that enables investors to clearly weigh risks against opportunities.

## 6.2 Opportunities to incentivise private climate finance in Ghana's agriculture sector

In spite of these data gaps, by linking the key findings across the three frameworks and comparing them with Ghana's stated objectives for mobilising private investment for agriculture and addressing climate change and green growth (see section 2), we were able to identify some important considerations and opportunities for deploying climate finance in Ghana's agriculture sector to mobilise private investment for CCD.

### 6.2.1 Ghana's objectives for climate finance in the agriculture sector

Consistent with other countries in sub-Saharan Africa, the most significant sources of agriculture finance in Ghana are FDI (private investment) (averaging $124 million annually) and international public finance mainly through ODA (averaging around $100 million annually). While ODA has historically provided high levels of investment in agriculture in Ghana, the annual contributions have fallen in recent years, almost halving since a peak of $220 million in 2011 (see Section 5.2).

Ghana also has an objective to ramp up both the national budget for agriculture and wider climate compatible investment (public and private). To that end, the GoG has committed to allocate and spend at least 10% of the national budget on agriculture. It has also outlined that Ghana will need to mobilise $22.6 billion in

international and domestic support for the mitigation and adaptation pledges included in the country's (I)NDC under the UNFCCC between 2020 and 2030. Agriculture and food security concerns sit within Ghana's National Climate Change Adaptation Strategy and within the adaptation component of the (I)NDC.

As part of the (I)NDC commitment, at least $320 million annually is expected to be spent on climate resilient agriculture,[9] and an additional $207 million annually, is expected to be spent on reducing emissions in the cocoa production sector between 2020 and 2030. Although the proportion expected to be financed by the private sector is not specified, 14 % of finance overall is expected to come from the domestic private sector and 17% from international private capital investment (see section 2.3).

If Ghana is to meet the (I)NDC financial investment requirements for climate resilient agriculture, the country can either seek to mobilise at least $527 million annually in new climate compatible investment from public and private sources or look in part to green or 'mainstream' climate objectives within the existing finance flowing to agriculture identified in this study (through FDI, ODA, national budget, OOF and Climate Finance which already averages US$270 million annually).

Regardless of whether Ghana focuses on mobilising new climate compatible investment or seeks to 'mainstream' climate into existing flows, the private sector will continue to play a key role and there are a number of opportunities to incentivise climate compatible private investment.

### 6.2.2 Opportunities to incentivise private investment in a more resilient crop and livestock mix

Under current climate change scenarios, Ghana is projected to experience increased temperatures and significant changes to rainfall patterns. Because most agriculture in Ghana is rain fed, these changes could make yields more variable between years and lower average yields. Without interventions to increase resilience, staple crops such as maize are projected to decrease by between 19 and 41%, while crops such as rice, where there is high domestic demand, may decrease by around 25%. Climate change is also expected to significantly impact cash crops such as cocoa, with predictions of a significant decrease in yields. As a result of climate change, cocoa production is projected to become concentrated in two areas in Ghana by 2050. These are between the Central and Ashanti regions, and in the mountain ranges of the Kwahu Plateau between the Eastern and Ashanti regions.

Adapting agriculture in Ghana is likely to require public and private investment (where relevant) in 1) meteorological information; 2) improved inputs (fertilisers and irrigation); 3) new crops and varieties; 4) appropriate management of soil fertility to improve water harvesting and nutrient supply and 5) strengthening of research and advisory services to develop, demonstrate and implement new technologies and management systems (see section 2.5).

As highlighted by Frameworks 1 and 2 (on incentives and sources of capital), there are already a number of different models of public and private investment in the sector. Cocoa has been considered relatively successful as a cash crop for Ghana, with public and private investment in all of the areas outlined above as being necessary for adaptation. There is significant government involvement in service provision and standard setting, with the private sector leading on production (through smallholders) and investment and processing (through large international companies). There are broader debates about the extent to which the level of government control for cocoa should or could be applied to other parts of the agriculture sector in Ghana. However, there are a number of opportunities for new incentives to be developed or existing incentives to be more targeted. The following sections outline how climate could be further mainstreamed into areas with existing private investment (cocoa) and support private investment in livestock (particularly poultry) and the production of priority crops, including staples such as rice.

#### (i) Cocoa

Cocoa provides the second largest source (30%) of Ghana's total export earnings. Sale of cocoa beans is fully controlled by the government through COCOBOD, with cocoa predominantly produced by smallholder farmers. Benefits of the cocoa model include the consistency of a high quality product and the success in controlling and securing international private buyers such as Mars, Mondelez, Olam and Barry.

In addition, the GoG, in collaboration with international private companies such as Cadbury and international development organisations such as UNDP, has developed a number of strategies to reduce the climate and environmental impacts of cocoa production. These include supporting national land tenure reform processes in cocoa communities, improving the efficiency and effectiveness of mass spraying programmes to prevent disease of cocoa crops and overall management practices in cocoa communities. At the same time, cocoa production itself could also become more resilient through promotion of a mixed agroforestry system, where fruit trees with economic value—such as avocado, and citrus—are grown next to cocoa trees, providing both shade for the cocoa trees and food and income for the farming household.

In addition, instead of primarily subsidising fertiliser for cocoa (see section 3.2.1), some of the funds for these subsidies could be re-directed to offer support for specific and appropriate crop varieties that are heat and drought tolerant. They could also be channelled into agricultural

9 The (I)NDC includes some overlapping policy actions, but "agriculture" within Ghana's (I)NDC also includes policy actions and spend on fisheries and forestry which have not been tracked in this report as do not fall under the agriculture ISIC code.

systems that promote inter or mixed cropping, using the cocoa production model, which has established and maintained high standards of crop and provision of certain extension services.

### (ii) Rice (and other staples)

Increasing domestic production of rice will reduce imports and provide an opportunity to build resilience for a particularly vulnerable crop. It is possible that lessons from the cocoa sector on standards and provision of extension services to reduce risks could be applied to rice production, along with the model for partnerships between smallholders and private agribusiness. A number of programmes are already supporting partnership development and could be scaled up. Included here would be the Ghana Commercial Agriculture Programme (GCAP), which is intended to improve the investment climate for rice agribusiness. It is also targeted towards the development of PPPs and smallholder linkages aimed at increasing on-farm productivity (see section 4.4). Accelerating investment in climate resilient rice production will also need to address barriers outside the agricultural sector as it is defined in our study. This would include considering effective provision of sustainable irrigation for a crop that relies on significant volumes of water. It would also require improvement of wider infrastructure including transport links. There is a role for public climate finance in supporting wider climate-smart infrastructure investments, which could in turn incentivise private investment in agriculture.

### (iii) Poultry

The livestock sector accounts for almost one-third of the value added of African agriculture. Coupled with the current demand for meat, it is likely to significantly increase in the coming decades. Given the high demand for poultry in Ghana and the fact that poultry farming has a lower impact on the climate and environment than cattle[10] there could be opportunities to scale up support for poultry production. This could lead to increased private investment, as the livestock sub-sector has significant smallholder and commercial agribusiness participation. Additional research would be required to understand how best to promote more private investment in poultry, as well as highlight the mitigation and adaption opportunities in this sub-sector. Nonetheless, some early high-level findings from this study suggest public budget and climate finance could focus on promoting transparent land access that is climate compatible (see section 3.1.1) and develop a more comprehensive sustainable transport infrastructure to support the movement of agricultural products.

## 6.2.3 Other opportunities to incentivise investment in resilience by smallholder farmers (a key sub-set of private investors in Ghana's agriculture sector)

Although increased urbanisation may shift their importance, smallholder farmers are currently the main group of private actors investing in Ghana's agriculture sector, with smallholders often linked to commercial agribusiness and international investment through out-grower models, as in the case of oil palm and rubber production in Ghana.

Supporting smallholders and their partnerships with agribusiness could offer an opportunity to mainstream climate into existing investments and production, encouraging climate compatible private agribusiness investment. Building smallholder farmer resilience is already a core focus of international public ODA, which remains one of the most significant sources of finance for agriculture in Ghana.

Continuing to focus on smallholder farmers can promote development, meet Ghana's climate objectives and incentivise climate compatible private investment. There are three key opportunities to support smallholders: 1) increasing understanding of climate impacts and implications for agricultural products and production, particularly how climate change is likely to affect their crop and livestock production, 2) supporting smallholders with management practices that can support adapting and building resilience to these likely climate impacts and 3) access to finance to support smallholders in responding to those climate impacts. Given their more obvious links to private investment, application of the methodology has allowed us to identify high level recommendations for the second two opportunities.

### (i) Grant funding and budget for inputs and capacity development

Existing national budget spend on agriculture has focused on subsidising fertiliser use, of which 79% of the subsidies have focused on cocoa production. While this type of subsidy is aimed at supporting smallholder farmers, the subsidy has been widely criticised as ineffective, with fertiliser being smuggled out of the country and sold in neighbouring countries such as Côte d'Ivoire. In addition, timing of input provision and lack of adequate extension services to non-cocoa crops have been found to be barriers to smallholder farmer investment in agriculture. Where extension services have been provided, such as to cocoa farmers, there is some evidence of a positive impact on climate change adaptation (see section 3.2.4).

There is potential to diversify extension services, increasing the number of agents working directly with smallholder farmers to provide climate information and educate on best practices to build resilience, as well as

10 Global emissions from poultry are estimated at about 25% of that of beef and dairy cattle. (FAO, 2013)

offer and more successfully monitor the application of inputs such as fertiliser and pesticides for smallholder farmers. This in turn could lead to increased investment for smallholder agriculture, resulting from increased standards of production and productivity.

### (ii) Access to credit

Another challenge facing smallholder famers is access to credit, which is important in order to support the initial upfront costs of production. Although the government has established the Venture Capital Trust Fund (VCTF) and the Export Development and Agricultural Investment Fund (see section 3.2.3), their disbursements have been limited due to a lack of understanding of the loan process and barriers to meet minimum collateral requirements. Smallholder farmers also lack assets and guarantors, which means that additional support is needed to ensure access to these existing instruments. Options include encouraging farmers to more consistently collaborate to form groups of borrowers, which can potentially diversify risks to lenders. Additional support could also be provided by the District Agricultural Development Unit (DADU), thereby offering greater links to microfinance institutions.

## 6.3 Remaining barriers to private climate finance in Ghana's agriculture sector

Although this research has led us to be able to make some high level recommendations for those seeking to mobilise private climate finance in Ghana's agriculture sector, there are likely to be challenges to those seeking to invest in the sector, linked to gaps in enforcement around existing policies, continued lack of clarity around land ownership, and the absence of specific incentives that favour climate compatible agricultural investment.

Existing legislation centred on supporting private investment in Ghana more generally (and in the agriculture sector specifically) has been criticised for its inconsistency and lack of transparency. It is also the case that there are high levels of bureaucracy, such as requiring companies selling fertiliser and pesticide to separately register to sell seed, fertiliser and pesticides. These have further dis-incentivised private investment in the sector (see section 3.2).

While policies and regulations exist, they are not well enforced and this makes it challenging for private investment, particularly in terms of crops meeting the quality standards or in terms of producing a high enough yield (with poor quality seeds and lack of other inputs impacting this). This means that there is a risk that even if climate is effectively mainstreamed into plans and strategies, private finance could continue to flow towards vulnerable investments in agriculture, such as subsidy- and input-dependent production, if these are not transparently enforced and implemented.

In addition, beyond the cocoa sub-sector (where land tenure reforms are being undertaken) a lack of clarity around land ownership and leasing has significantly impacted private foreign investors (Amanor, 2013). This means many companies prefer to work with smallholder contract farmers rather than establish large estates, given the number of land disputes and the tendency of large-scale land acquisitions to attract unfavourable or unwanted international attention. In addition to the measures to support smallholder access to finance, and to increase their resilience, if Ghana's climate finance objectives include increased investment by larger international private actors, wider land reforms are likely to be needed.

Finally, there is a clear gap in public budget and domestic fiscal policy mechanisms that expressly seek to incentivise private investment in more climate-compatible agricultural practices in Ghana. Currently these incentives are limited to international support directed towards the public sector in the form of small volumes of climate relevant ODA and climate finance (see section 5.2). It was noted that there are a few instances where existing incentives may favour more climate-adaptive choices. Such examples include subsidies on fertiliser, which will improve soil fertility, and the removal of import duties on some equipment. However, these have not been adequately and consistently implemented or had the intended effects. If the country is to mobilise or shift approximately $500 million per year in climate compatible agricultural investment, with a portion of this coming from the private sector, the specific domestic incentives outlined above to increase private investment in resilience and low-carbon activities (particularly for smallholders) will need to be developed in the near-term.

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# Appendix 1: Interviewees

| No | Name | Organisation |
|---|---|---|
| 1. | Namho Oh | UNDP |
| 2. | Vincent Okyere Akomeah | Ghana Cocoa Board (COCOBOD) |
| 3. | Joseph Osiakwan | Ministry of Land and Natural Resources |
| 4. | Angela Dannson | Ministry of Food and Agriculture |
| 5. | Kwaku-Mensah Nudanu | Ministry of Food and Agriculture-Extension Services |
| 6. | Festus William Amoyaw | Acumen Fund |
| 7. | George Ortsin | GEF Small Grants Programme |
| 8. | Wisdom Adongo | Private Enterprise Federation |
| 9. | Moses Agyemang | Private Enterprise Federation |
| 10. | Nelson Obirih-Opareh | Science and Technology Policy Research Institute, CSIR-STEPRI |
| 11. | Kevin Sharp | USAID |
| 12. | Fenton B Sands | USAID |
| 13. | Tom Philips | AgDevCo |
| 14. | Emmanuel Kodwo Sackey | DANIDA |
| 15. | Joel Boateng | Unilever |
| 16. | Audu Adams | Cargill |
| 17. | Nicholas Nyathi | SNV |
| 18. | Ernest Dwamena | Touton |
| 19. | Godwin Cudjoe | Food and Agricultural Organisation |
| 20. | Raymond Denteh | Solidaridad |
| 21. | Frank Asante | Cocoa Marketing Company (CMC) |
| 22. | Genevieve Pawar | CMC |
| 23. | Kofi Tekyi | CMC |
| 24. | Benoist Bazin | EU |
| 25. | Kudomor Klutse | Nestle |

# Appendix 2: Medium term agriculture sector investment plan (METASIP) 2009–2015 indicative budget breakdown

| Food security and emergency preparedness example strategy components | Proposed outputs | Indicative budget in GHC | Indicative budget in US$ (based on average exchange rate between 2009 and 2015) | Average annual spend US$ (based on average exchange rate between 2009 and 2015) | Percentage of finance from total METASIP budget |
|---|---|---|---|---|---|
| Improving productivity | Improved technologies adopted by smallholder farmers and yields of maize, rice, sorghum, cassava and yam increased by 50% and cowpea by 25% by 2015 | 1,002,136,384 | 520,710,065 | 74,387,152 | 8 |
| | Production of poultry (including guinea fowl) increased by 20% and small ruminants and pigs by 25% by 2015 through adoption of improved technologies | 693,913,569 | 360,557,490 | 51,508,213 | 5 |
| Improving nutrition | Stunting and underweight (in children) as well as Vitamin A, iron and iodine deficiencies (in children and women of reproductive age) reduced by 50% by 2015. | 26,547,641 | 13,794,154 | 1,970,593 | 0.2 |
| Support for off-farm alternative livelihood activities | Support to 5% of people falling below extreme poverty line to engage in off-farm livelihood alternatives by 2015 | 24,136,716 | 12,541,438 | 1,791,634 | 0.2 |
| Food Storage and distribution | Post-harvest losses along the maize, rice, sorghum, cassava, yam and fish value chains reduced by 30%, 35%, 20%, 40%, 50% and 30% respectively by 2015 | 39,795,649 | 20,677,819 | 2,953,974 | 0.3 |
| | Private sector capacity (including FBOs) developed to store 50,000 tonnes of grain annually and to process (mill and/or package) 25,000 tonnes of maize, cassava, yam, sorghum and cowpea products annually. | 200,880,531 | 104,377,524 | 14,911,075 | 2 |
| Mechanisation | At least one (private sector led) mechanisation centre established in each district by 2015 to provide diversified services to all types of farmers and agro-processors (small, medium and large). | 727,240,946 | 377,874,396 | 53,982,057 | 6 |
| | A system of incentives for agro-processing industries to adopt food grade processing technologies established and enforced. | 17,939,351 | 9,321,287 | 1,331,612 | 0.1 |

**(continued)**

| Food security and emergency preparedness example strategy components | Proposed outputs | Indicative budget in GHC | Indicative budget in US$ (based on average exchange rate between 2009 and 2015) | Average annual spend US$ (based on average exchange rate between 2009 and 2015) | Percentage of finance from total METASIP budget |
|---|---|---|---|---|---|
| Promotion of cash crop, livestock and fisheries production | Income from cash crop production by men and women increased by 20% and 30% respectively by 2015 | 749,659,740 | 389,523,201 | 55,646,172 | 6 |
| | Income from livestock rearing by men and women increased by 10% and 25% respectively by 2015 | 198,256,338 | 103,013,993 | 14,716,285 | 2 |
| | Post-harvest losses of mango, plantain, tomatoes, pineapples, papayas and citrus reduced by between 25 and 50% by 2015 | 67,241 | 34,938 | 4,991 | 0.001 |
| | Products from bee keeping, mushroom and snail farming and production of small stocks increased by 20 to 50% by 2015 | 407,620,901 | 211,799,820 | 30,257,117 | 3 |
| Development of new products | At least two new commercially viable products developed from each of staple crops, horticultural crops, livestock (including poultry) and fisheries by 2015 | 188,983,450 | 98,195,800 | 14,027,972 | 1 |
| Development of pilot value chains for two selected commodities in each agro-ecological zone | Efficient pilot value chains developed for two selected commodities in each agro-ecological zone (pineapple and chillies in Coastal Savanna, commercial poultry and pig in Forest, maize and tomato in Derived Savanna and guinea fowl and tomato in Guinea/Sudan Savanna) | 68,642,673 | 35,666,733 | 5,095,248 | 1 |
| Intensification of FBOs and outgrower concept | Development of outgrower schemes and FBOs intensified and three-tier FBO structure achieved in all districts by 2015. | 212,848,072 | 110,595,858 | 15,799,408 | 2 |

*Source: Adapted from Ghana's METASIP using average exchange rates for the period between 2009 and 2015.*

# Appendix 3: Additional information for Framework 3

### Appendix 3a: Sources of finance – Ghana (total)

| | Years | Average annual investment / support (USD million / yr) | Data source |
|---|---|---|---|
| FDI net inflows | 2009 - 2014 | 3,090 | World Development Indicators UNCTAD, World Investment Report 2015 |
| ODA disbursed total | 2002-2014 | 1,768 | OECD Creditor Reporting System |
| Ghana budget | 2011-2016 | 217 | MOFEP Budget Statements 2011-2016 The Budget Statement and Economic Policy of the Government of Ghana |
| OOF disbursed total and sub-sectors | 2002-2014 | 43 | OECD Creditor Reporting System |
| FSF | 2010-2012 | 10.3 | ODI, Climate Funds Update, FSF data |
| Dedicated multilateral climate funds | 2008-2015 | 20.7 | ODI, Climate Funds Update |

### Appendix 3b: Sources of finance – Ghana (agriculture sector and sub-sectors)

| | Years | Average annual investment / support (USD million / yr) | Data source |
|---|---|---|---|
| FDI net inflows | 2009 - 2014 | 124 | GIPC Quarterly Reports, 2007 to 2015 |
| ODA disbursed to agriculture and sub-sectors | 2002-2014 | 100 | OECD Creditor Reporting System |
| Ghana budget | 2011-2016 | 36 | MOFEP Budget Statements 2011-2016 The Budget Statement and Economic Policy of the Government of Ghana |
| OOF disbursed total and sub-sectors | 2002-2014 | 9 | OECD Creditor Reporting System |
| FSF | 2010-2012 | 2.3 | ODI, Climate Funds Update, FSF data |
| Dedicated multilateral climate funds | 2008-2015 | 1.6 | ODI, Climate Funds Update |

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