Strengthening National Comprehensive Agricultural Public Expenditure in Sub-Saharan Africa

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FINAL REPORT

BASIC AGRICULTURAL PUBLIC EXPENDITURE DIAGNOSTIC REVIEW

GHANA's MINISTRY OF FOOD AND AGRICULTURE

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CAADP

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Honorable Minister
MOFA

Chief Director
MOFA

ACRONYMS AND ABBREVIATIONS

AAC	Annual Allowable Cut
AAGDS	Accelerated Agricultural Growth and Development Strategy
ABFA	Annual Budget Funding Amount
AEA	Agricultural Extension Agent
AEIF	Activity and Expenditure Initiation Form
AESD	Agricultural Engineering Services Directorate
AfDB	African Development Bank
AgGDP	Agricultural Gross Domestic Product
AgPER	Agriculture Public Expenditure Review
AgSSIP	Agricultural Services Subsector Investment Programme
AMSEC	Agricultural Mechanization Services Centres
APD	Animal Production Directorate
ASWG	Agricultural Sector Working Group
AU	African Union
BoG	Bank of Ghana
CAADP	Comprehensive Africa Agriculture Development Programme
CAGD	Controller and Accountant-General's Department
CIDA	Canadian International Development Agency
CMC	Cocoa Marketing Company
COCOBOD	Ghana Cocoa Board
CODAPEC	Cocoa Diseases and Pest Control
COFOG	Classification of the Functions of Government
CSIR	Council for Scientific and Industrial Research
CSO	Civil Society Organization
DACF	District Assemblies' Common Fund
DADU	District Agricultural Development Unit
DAES	Directorate of Agricultural Extension Services
DfID	Department for International Development
DFR	Department of Feeder Roads
DPs	Development Partners
ECOWAP	ECOWAS Agricultural Policy
ECOWAS	Economic Community of West African States
EDIF	Export Development and Investment Fund
FAO	Food and Agriculture Organisation
FASDEP	Food and Agriculture Sector Development Policy
FBOs	Farmer Based Organizations
FC	Financial Controller
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GHC	Ghanaian Cedi
GIDA	Ghana Irrigation Development Authority
GIZ	German International Development Cooperation
GoG	Government of Ghana
GPRS	Ghana Poverty Reduction Strategy
GSGDA	Ghana Shared Growth Development Agenda
HEII	Horticulture Export Industry Initiative
HIPC	Highly Indebted Poor Countries
ICOUR	Irrigation Company of Upper Region
ICR	Interim Completion Report
IFAD	International Fund for Agricultural Development

IFPRI	International Food Policy Research Institute
IGF	Internally-Generated Funds
IPPD	Integrated Personnel and Payroll Database
IWMI	International Water Management Institute
JICA	Japan International Cooperation Agency
LBCs	Licensed Buying Companies
MIDA	Millennium Development Authority
MDAs	Ministries, Departments, and Agencies
MDBS	Multi-Donor Budgetary Support
MDRI	Multi-Debt Relief Initiative
METASIP	Medium Term Agricultural Sector Investment Plan
MIDA	Millennium Development Authority
MLGRD	Ministry of Local Government and Rural Development
MLNR	Ministry of Lands and Natural Resources
MMDAs	Metropolitan, Municipal and District Assemblies
MOFA	Ministry of Food and Agriculture
MOFEP	Ministry of Finance and Economic Planning
MOTI	Ministry of Trade and Industry
MTEF	Medium-Term Expenditure Framework
M&E	Monitoring and Evaluation
NAFCO	National Buffer Stock Company
NARS	National Agricultural Research System
NCB	National Competitive Bidding
NDPC	National Development Planning Commission
NEPAD	New Partnership for Africa's Development
NGO	Non-Governmental Organization
NORRIP	Northern Region Rural Integrated Project
NREG	Natural Resource and Environmental Governance
OECD	Organization for Economic Co-operation and Development
OPRI	Oil Palm Research Institute
O&M	Operations and Maintenance
PEIR	Public Expenditure and Institutional Review
PETS	Public Expenditure Tracking Survey
PPMED	Policy Planning, Monitoring and Evaluation Directorate
PPP	Public-Private Partnership
PPRC	Producer Price Review Committee
PPRSD	Plant Protection and Regulatory Services
PSI	President's Special Initiative
RADU	Regional Agricultural Development Unit
RCC	Regional Coordinating Council
REDD	Reducing Emissions from Deforestation and Forest Degradation
RTIMP	Root and Tuber Improvement Marketing Programme
R&D	Research and Development
SADA	Savanna Accelerated Development Authority
SAKSS	Strategic Analysis and Knowledge Support System
SIP	Social Intervention Programme
SME	Small and Medium Enterprise
SRA	Stores Received Advice
SRID	Statistics Research and Information Directorate
SoW	Statement of Work
SWAp	Sector-Wide Approach
UN	United Nations
VAT	Value Added Tax
VPA	Voluntary Partnership Agreement
VSD	Veterinary Services Directorate

WAAPP	West African Agricultural Productivity Programme
WFP	World Food Programme
WIAD	Women in Agricultural Development
YIAP	Youth in Agriculture Programme

EXECUTIVE SUMMARY

INTRODUCTION AND BACKGROUND

Ghana was among a group of African countries that made a commitment in Maputo in 2003 to allocate at least 10 percent of their national budgetary resources to develop the agricultural sector by 2008. This initiative became necessary following the adoption of the Comprehensive African Agriculture Development Programme (CAADP). It was expected that an increase in the allocation of at least 10 percent of the national budget to the agricultural sector would bring about annual growth of 6 percent in the sector, engendering food security and poverty reduction. At the subregional level, West African states have adopted a common agricultural policy (the ECOWAP), known as the Agricultural Policy of the Economic Community of West African States (ECOWAS), which has similar objectives.

The policy objectives of CAADP and ECOWAP are anticipated to be reflected in the formulation of national agricultural policies. In Ghana, the formulation of key agricultural policies has largely been influenced by the tenets of these regional initiatives. These policies include the Ghana Poverty Reduction Strategy II and the Food and Agricultural Sector Development Policy (FASDEP I and II). The Government of Ghana (GoG) developed a Medium Term Agricultural Sector Investment Plan (METASIP 2011-15) to implement medium-term programs in the revised FASDEP II. The METASIP was developed to achieve the CAADP annual agricultural growth rate target of 6 percent with a 10 percent expenditure of the national budget. The government has put in place implementation arrangements and capacity for agriculture Sector-Wide Approach (SWAp) modalities of resource mobilization, allocation, and implementation.

In compliance with the Maputo Declaration, public expenditure in Ghana's agricultural sector is expected to have increased progressively over the years and to have been equitably distributed and effectively utilized in the sector. Ghana requested and was granted support for a basic agricultural public expenditure diagnostic review to update International Food Policy and Research Institute's (IFPRI) 2008 Agricultural Public Expenditure and Institutional Review (PEIR).

An Agriculture Public Expenditure Review (AgPER) analyzes data on public spending from both government and donor sources to assess: (i) the alignment between expenditure patterns within the agricultural sector and stated policy priorities; and (ii) the effectiveness of public spending by comparing, where possible, spending against results.

The main objectives of Ghana's AgPER were to:

- Promote the articulation and implementation of the Medium Term Agricultural Sector Investment Plan (METASIP 2011-2015) so as to build consensus for increased levels of public expenditure in Ghana's agricultural sector and to enhance its efficiency, effectiveness, and equity.
- Compile a coherent and comprehensive analytical database to enable assessment of recent years' agricultural public expenditure levels and composition.

Its key outputs include:

- A comprehensive agricultural expenditure assessment to enhance the 2008 PEIR database to provide a solid foundation for carrying out specialized studies, such as Public Expenditure Tracking Surveys (PETS).
- Establishment of the levels and composition of public expenditure in the selected subsectors.

METHODOLOGY, DATA REQUIREMENTS, AND CHALLENGES

Details on the type of analysis carried out in the study as well as the source data for each of the analyses were discussed with the counterpart team at the inception workshop and a common understanding of and approach to the study reached. Data required included approved budget, actual expenditure, and releases under four budget line items disaggregated by functional directorates. The four budget line items were: (i) Personnel Emoluments; (ii) Administration; (iii) Service; and (iv) Investments. Templates for the basic data collection were prepared and agreed upon by the consultants, the counterpart team, and the Technical Working Group, and were distributed to Ministries, Departments, and Agencies (MDAs) in the agricultural sector.

The review required that expenditure be linked to sector priorities and objectives. However, funds released to the units in the MDAs were generally not tagged to specific field activities under the various objectives in the budget. The review was also constrained by the aggregation of some data into functional units, and an inability, in some cases, to obtain data covering the 11-year period to undertake a comprehensive trend and functional analysis.

CONTENT

This report has three parts. Chapter 1 provides a detailed introduction and background to the study. Chapter 2 provides an overview of the sector strategy and its performance, and its institutional governance and financial management. Chapter 3 provides the main results of the AgPER, which is an analysis of trends in sector budgets and expenditure and of the performance on METASIP priority indicators for the first year of METASIP implementation.

MAIN FINDINGS AND CONCLUSIONS

The timeline for attaining a 10 percent allocation of the national budget to develop agriculture is contained in CAADP 2008. The study confirmed that the approved budget allocation to the agricultural sector over period of the study, 2001 to 2011, averaged 6.8 percent of the national budget.[1] Actual expenditure in the agricultural sector averaged 9.3 percent of national expenditure over the same period. In 2009, the country reached compliance with the Maputo Declaration, devoting 10.3 percent of actual national expenditure to agriculture. In addition, actual national expenditure on the sector has been sustained above the 10 percent target from 2009 to date. However, the increased expenditure has not been accompanied by a concomitant sustainable growth rate of 6 percent in agriculture. Instead, an average growth rate of 4.5 percent was attained over the period 2001 to 2011. A summary of the subsector expenditure composition is provided in Table 1.

[1] Government budgetary allocation to all sectors.

Table 1: Subsector public expenditure composition (%), 2001-2011

Subsector	Percentage	
	COFOG	COFOG +
Non-cocoa	57.8	45.5
Cocoa	32.7	24.4
Livestock	2.5	1.8
Forestry	6.0	4.5
Fisheries	1.0	0.8
Feeder roads (rural roads)	0.0	12.5
Debt service	0.0	10.5
Total	**100.0**	**100.0**

Expenditure Levels

Government budgetary allocation to the agricultural sector increased in both nominal and real terms over the 2001 and 2011 period.[2] The average real allocation of GHC 193 million comprised GoG and donor contributions of GHC 119 million and GHC 74 million, respectively, representing 62 percent and 38 percent. Contributions by the GoG (including multi-donor support) and donors (excluding multi-donor support) to the annual expenditure of GHC 228 million over the 2005-2011 period were GHC 157 million and GHC 71 million, respectively, representing 69 percent and 31 percent of the total expenditure. The composition of expenditure in the sector was 41 percent for investment, 32 percent for non-wage recurrent expenditure, and 27 percent for personnel emoluments.

Donor expenditures were biased towards investment activities, while GoG expenditures were mainly recurrent-oriented. An average amount of GHC 54 million, representing 76 percent of donor expenditure, was spent on investment activities, versus GHC 17 million (24 percent) of donor expenditure spent on recurrent expenditure.

Comparison between Subsector Shares in Sector Expenditure and Agriculture GDP

The agricultural sector contributed an average of GHC 5,923.6 million (2006 constant prices) to the Gross Domestic Product (GDP) between 2006 and 2011, or 27.8 percent of the national GDP. The average contribution of the non-cocoa crops subsector to agricultural GDP (AgGDP) in the same period was 62 percent. Forestry contributed 12 percent; cocoa 10 percent; and the livestock and fisheries subsectors contributed 8 percent each.

A comparison between the contribution of subsectors to AgGDP and their respective shares in agricultural sector expenditure finds that the cocoa subsector spent more funds per unit contribution to AgGDP. The next highest spender per unit AgGDP was non-cocoa crops, followed by forestry and livestock.

Average expenditure in the sector relative to GDP and AgGDP were 1.2 percent and 3.6 percent, respectively. These relative shares have been declining since 2008. Expenditure relative to GDP declined from 1.8 percent in 2008 to 0.9 percent in 2011. Likewise, expenditure relative to AgGDP fell from 5.3 percent in 2008 to 3.6 percent in 2011.

Subsector Shares in Sector Expenditure

Subsectors' shares of agricultural sector expenditure between 2001 and 2011 were as follows: non-cocoa crops, 58 percent; cocoa, 33 percent; livestock, 2 percent; fisheries, 1 percent; and forestry, 6

[2] Nominal budget is presented as the budgetary allocation at the current price level. Real budgetary allocation is the nominal budget adjusted to 2001 constant prices to remove the effects of inflation.

percent. The study was unable to obtain precise expenditure figures for agriculture mechanization and irrigation.

Expenditure by MDAs

The Ministry of Food and Agriculture (MOFA) accounted for 40 percent of expenditure between 2001 and 2011; Ghana Cocoa Board (COCOBOD) had 33 percent; agricultural research accounted for 11 percent; the Millennium Development Authority (MIDA) had 6 percent; the Forestry Services had 6 percent; Fisheries Directorate had 1 percent; and the Ministry of Trade and Industry (MOTI) had 3 percent.

Expenditure on irrigation represented 3.4 percent of the sector expenditure. Agricultural extension comprising MOFA's extension directorates and the regional and district agricultural development units (RADUs and DADUs) accounted for 3.6 percent of agricultural sector expenditure. Agricultural engineering and mechanized services accounted for 0.8 percent.

Input Subsidy

A total of GHC 862.39 million (in 2001 constant prices) was spent as subsidy on the subsidized fertilizer program over the 2008-2011 period. This amount represented 79 percent of real expenditure in the agricultural sector over the same period. The program covered both the cocoa and non-cocoa subsectors, with expenditure shares of 87.5 percent and 12.5 percent, respectively. The average rates of subsidy were 42 percent for non-cocoa crops and 65-85 percent for cocoa.

MOFA's Expenditure

Expenditure at MOFA Headquarters represented 52 percent of the Ministry's total. The high percentage is explained by the fact that the Headquarters acts as a conduit for the purchase and distribution of equipment and other items for the regions, districts, and other cost centers. The Technical Directorates accounted for 21 percent and the regions and districts had a share of 27 percent.

Allocative Efficiency

The shares of recurrent and investment expenditure were 66 percent and 34 percent, respectively. The shares of wage and non-wage recurrent expenditure were 47 percent and 53 percent, respectively. The shares of non-wage recurrent and investment expenditure were 43 percent and 57 percent.

Release of Funds

An average of 86 percent of the agricultural sector budget was released between 2002 and 2011. Between 2005 and 2011, the release averaged 92 percent. Frequent delays in the release of service funds were encountered, which affected implementation of projects and field activities.

Equity in Expenditure

At the national level, expenditure shares of the subsectors did not match their respective contributions to AgGDP. At the decentralized level, different results were obtained when expenditure was mapped against land area and rural population. A scatter diagram of expenditure and poverty incidence showed a modest orientation of expenditure allocation to focus more resources on poorer regions.

Institutional Governance and Financial Management

The definition of the scope of the agricultural sector for the purposes of this study is guided by the UN's Classification of the Functions of Government (COFOG) system, which places the agricultural sector in the group of Economic Services. As defined in the Economic Services Group, the sector comprises agriculture (crops and livestock), forestry, fishing, and hunting. The UN definition

includes, among others, the administration of agriculture, forestry, and fishing affairs; conservation and reclamation of arable land; and construction or operation of flood control, irrigation, and drainage systems. The UN definition does not include research and development (R&D). The African Union's (AU) New Partnership for Africa's Development (NEPAD) uses the UN's definition but includes agricultural R&D. In addition to the AU-NEPAD definition, the agricultural sector in Ghana is defined broadly to include feeder roads (rural roads) and debt service. Rural roads (roads to farm lands) play an important role in the agricultural sector as they enhance the transportation of inputs and farm produce.

The subsectors within the agricultural sector in Ghana fall under different MDAs. However, MOFA is the lead ministry for the agricultural sector, responsible for non-cocoa crops, livestock, and fisheries. COCOBOD is responsible for cocoa, coffee, and sheanuts, and is under the Ministry of Finance and Economic Planning (MOFEP). The Ministry of Lands and Natural Resources is responsible for the forestry subsector. The Agricultural Research Institutes of the Council for Scientific and Industrial Research (CSIR) and other agencies in the National Agricultural Research System (NARS) are responsible for agricultural research. CSIR is under the Ministry of Science and Technology; MOTI supports the production of selected commodities for local markets and export. At the decentralized level, the Ministry of Local Government and Rural Development (MLGRD) supports agricultural activities through the Metropolitan, Municipal and District Assemblies (MMDAs).

MOFA has four Line Directorates as stipulated in the Civil Service Law 1993 (PNDCL 327, Section 12 (1); eight Technical Directorates; five subvented agencies; and one State-Owned Enterprise. The four Line Directorates are: (i) Finance and Administration; (ii) Policy Planning, Monitoring and Evaluation; (iii) Human Resource Development and Management; and (iv) Statistics, Research and Information Directorate. The eight Technical Directorates are: (i) Animal Production Directorate (APD); (ii) Veterinary Services Directorate (VSD); (iii) Women In Agriculture Development (WIAD); (iv) Plant Protection and Regulatory Services Directorate (PPRSD); (v) Agricultural Engineering Services Directorate (AESD); (vi) the Directorate of Agricultural Extension Services (DAES); (vii) Directorate of Crop Services (DCS); and (viii) Fisheries Directorate. The five subvented organizations are: (i) the Ghana Irrigation Development Authority (GIDA); (ii) the Grains and Legumes Development Board (GLDB); and (iii) the Irrigation Company of Upper Region (ICOUR); (iv) the Veterinary Council; and (v) the Fisheries Commission. The State-Owned Enterprise is the National Food Buffer Stock Company (NAFCO). MOFA is represented by the RADUs at the regional level and by the DADUs at the district level.

The 10 RADUs, headed by Regional Directors, are responsible for coordination and monitoring of agricultural programs and projects in the regions and districts and for backstopping the DADUs. The DADUs serve as delivery units, and are assigned the role of managing projects and programs, decentralized planning, and implementing national agricultural policies and decisions at the district level.

The reporting and disbursement procedures between MOFA Headquarters, RADUs, and DADUs have changed over the years. Between 2001 and 2007, the districts reported to the regions but received funds directly from Headquarters. Between 2007 and 2011, district fund allocations were routed from Headquarters through the regions. Since 2011, district fund allocations have been routed directly from the Controller and Accountant-General's Department (CAGD) to the districts. A detailed analysis of the amounts transferred to the districts and regions is presented in Chapter 3.

Financial management challenges encountered by MOFA include: untimely submission of reports; submission of inconsistent data; disagreement between revenue and expenditure statements and bank reconciliation statements; lack of preparation of bank reconciliation statements; a lack of computers in some cost centers; a paucity of accountants trained in the Easybooks Accounting software; and difficulty in consolidating data from about 250 cost centers to generate a consolidated financial report as no accounting software is being used. To address this, in October 2011, the Japan International Cooperation Agency (JICA) undertook a project to improve financial management in MOFA.

Challenges associated with decentralization include: a possible conflict of local priorities with national priorities in such areas as disease surveillance and research; a lack of appropriate technical capacity and expertise at the district level to resolve agro-ecological and marketing problems; the rational allocation of funds between the center and the districts; technical departments feeling sidelined to staff positions from line positions in which they were directly involved in delivery of services; and the bypassing of Technical Directorates by MOFA leadership in implementing programs.

In addition to the above institutional and governance arrangements, a different set of arrangements was put in place for the implementation of METASIP. The METASIP Implementation Strategy identifies: the various stakeholders responsible for ensuring the effective implementation of the plan at various levels of governance; the arrangement for engaging stakeholders at various levels; and the functions of various levels of the implementation arrangements. To ensure stakeholders' participation and coordination of the plan, a country team was established, consisting of members who were signatories to the pact between the GoG and stakeholders for the implementation of the agricultural sector plan, and a Strategic Analysis and Knowledge Support System (SAKSS). Four levels of implementation governance were set up for the smooth implementation of METASIP: (i) a Steering Committee/Board; (ii) a Policy Dialogue Group; (ii) a National SAKSS; and (iv) a Secretariat.

An Assessment of METASIP's First Year

The level of budgetary allocations and the corresponding actual expenditures post-METASIP (2011) in the agricultural sector show an increase over the 2010 figures, though some subsectors had relatively lower budgets and expenditures.

A comparison of budgetary allocations to the agricultural sector pre- and post-METASIP shows an increase in allocation in 2011 (GHC 512 million) that exceeded the 2010 level (GHC 510 million) by 0.4 percent. Expenditure in 2011 (GHC 525 million) exceeded the 2010 level (GHC 387 million) by 36 percent. In 2011, budgetary allocation to MOFA including fisheries (GHC 221.6 million), however, represented only 86 percent of the allocation made in 2010 (GHC 256.9 million) and an increase of only 9 percent over the 2009 allocation of GHC 202.6 million. MOFA's expenditure in 2011 (GHC 248 million) exceeded its budget (GHC 221.6 million) by 12 percent and its 2010 expenditure (GHC 160.4 million) by 54 percent.

Budgetary allocations to the subsectors in 2011 generally showed increases over the 2010 allocations with the exception of the non-cocoa crops, livestock, and forestry, whose allocations in 2011 were below that of the previous year. Allocation to the non-cocoa subsector in 2011 (GHC 31.25 million) represented 59 percent its 2010 budget (GHC 53.37 million). The budget for livestock in 2011 (GHC 6.53 million) represented 25 percent of the 2010 budget of GHC 26.08 million and exceeded the 2009 budget (GHC 6.35 million) by 2 percent. The forestry budget in 2011 (GHC 30.54 million) represented 42 percent of the 2010 allocation of GHC 72.38 million. Expenditures by the subsectors

in 2011 exceeded that of 2010. The livestock and forestry subsectors just managed, with 26 percent and 62 percent, respectively, of their 2010 expenditures.

A matrix prepared by MOFA indicates reasons why only marginal progress has been attained in the priority areas. Reasons include: the challenge in financing inputs as well as putting in place basic infrastructure such as irrigation, mechanization, storage facilities, and distribution systems; and the cost of credit and lack of basic infrastructure for commercial agriculture. It was also noted that research institutions' funding only covers administrative costs and salaries. There are no funds for actual research work except for small grants from international institutions. Most of the significant research work has been funded under MOFA projects.

The Agriculture Sector Working Group (ASWG) offers the following additional challenges and recommendations for the successful implementation of METASIP. Funding of METASIP and its steering/governance structures remains seriously inadequate. Overall GoG discretionary budget allocations to MOFA (in 2011) showed a significant decline (30 percent) in resources for agricultural investments versus a substantial increase in personal emoluments. The implementation of the METASIP is intended to drive the application of a SWAp as a funding mechanism and coordination tool. The process has slowed down and needs to be fast tracked. Modernization of the agricultural sector requires well-functioning markets that are predictable and rules-based, with standard trade regimes. This is a precondition for the agricultural commercialization process and the establishment of a commodities exchange, which the GoG is keen to establish. The need for improvement in data/statistics is paramount in supporting the commercialization process and decision making in the sector.

METASIP has been endorsed as a strong overarching investment plan for the entire agricultural sector, not just MOFA. It requires the commitment and participation of all stakeholders, especially financial service providers, for better delivery of financial services and products as new programs initiated by the GoG would require medium- to long-term lending instruments.

The implementation of Public-Private Partnerships (PPPs) in agriculture would require MOFA to enhance its skills to better facilitate the process. A communication strategy drafted by MOFA to guide the implementation of METASIP has stalled. The strategy seeks to reinforce decentralized planning and review processes with local actors at the district and regional levels. MOFA is encouraged to implement this strategy and ensure efficient coordination mechanisms that link outcomes and impact measurements to the national M&E framework. Finally, the ASWG strongly recommends that rural and agricultural development needs a strong MOFA with qualified, dedicated, and well guided staff.

A mid-term review of METASIP is scheduled for 2013. Meanwhile, a multi-stakeholder Steering Committee has been put in place to provide oversight and strategic direction for the implementation of METASIP.

RECOMMENDATIONS

- Teething and transitional issues in the implementation of L.I. 1961 need to be resolved for a smooth transition from deconcentration to decentralization and the implementation of composite budgeting.
- Database management in the sector needs improvement.

- Policy on and management of fertilizer and other subsidies in the sector need to be reviewed and realigned.
- Budgetary allocation to the agricultural sector must continue to increase in real terms.
- As much as possible, funds must be released in substantial amounts and on time to ensure efficient utilization for their intended purpose.
- Budgetary allocation to the subsectors needs to be reconsidered along the lines of subsector performance and contribution to AgGDP. Underfunded subsectors (fisheries, livestock, and forestry) need to be better resourced to enable them achieve set targets.
- Budgetary allocation to line items must be balanced for all MDAs, particularly research institutes, to enable them to carry out their mandates effectively in support of sector development.
- Within the MDAs, underfunded directorates and units must be better resourced.
- Budgetary allocation to the agricultural sector and the corresponding MDAs must be real and reflect the expectations for effective implementation of METASIP and other sector plans.
- METASIP envisages an agricultural sector growth rate of 6 percent, which was attained in 2008 but has not been realized since. With the rate as low as 0.8 percent in 2011, the agricultural sector, together with its subsectors, needs to be examined through special studies such as expenditure tracking to determine how efficiently funds have been utilized in the sector. Other studies, such as impact assessments of selected special projects, programs, or initiatives, could be undertaken to assess their effectiveness. Results from the studies would guide policy decisions in the sector.
- A mid-term review of METASIP is scheduled for 2013. Meanwhile, efforts in resolving challenges in financing inputs and putting in place basic infrastructure such as irrigation, mechanization, storage facilities, and distribution systems, and in reducing the cost of credit and providing basic infrastructure for commercial agriculture should be intensified. Funding for research institutions also needs to go beyond administrative costs and salaries to provide funds for actual research work.

1. BACKGROUND TO GHANA'S AGRICULTURE PUBLIC EXPENDITURE REVIEW

1.1 INTRODUCTION

The Ghana Agriculture Public Expenditure Review (AgPER) is being implemented by the World Bank under the *"Strengthening National Comprehensive Agricultural Public Expenditure in Sub-Saharan Africa"* program financed by the Bill and Melinda Gates Foundation. It seeks to improve the impact of scarce public resources spent by Sub-Saharan African governments on agricultural sector development activities to improve the welfare of predominantly poor rural populations. It operates in the context of the Comprehensive Africa Agriculture Development Programme (CAADP) of the African Union's (AU) New Partnership for Africa's Development (NEPAD).

CAADP encourages governments and development partners (DPs) to target public expenditure on the agriculture sector as the most effective way of stimulating growth in the sector to ultimately reduce hunger and poverty. Thus, African governments are encouraged to commit to the Maputo Declaration by allocating at least 10 percent of their national budgets to agriculture to enable the sector to attain the targeted annual agricultural growth rate of 6 percent. This growth rate is expected to be achieved by governments promoting the articulation and implementation of national comprehensive agricultural programs that would foster consensus building for increased levels of expenditure in the sector.

The Government of Ghana (GoG) has developed a Medium Term Agricultural Sector Investment Plan (METASIP 2011-115) to implement medium-term programs in the revised Food and Agriculture Sector Development Policy (FASDEP II). The METASIP was developed to achieve the CAADP annual agricultural growth rate target of 6 percent with a 10 percent expenditure of the national budget. The government has put in place arrangements for agriculture Sector Wide Approach (SWAp) modalities of resource mobilization, allocation, and implementation. Stakeholders are engaged in annual Joint Sector Reviews of implementation progress and policy coherence, for which public expenditure assessment is a core element.

An AgPER analyzes data on public spending from both government and donor sources to assess: the alignment between expenditure patterns within the agricultural sector and stated policy priorities; and the effectiveness of public spending by comparing, where possible, spending against results. In compliance with the Maputo Declaration, public expenditure in Ghana's agricultural sector is expected to have increased progressively over the years to attain the CAADP target of at least 10 percent national budgetary allocation to the sector, with the amounts equitably distributed and effectively utilized for the sector to register an annual growth rate of 6 percent.

Box 1.1: Ghana's AgPER Study Process

Ghana requested and was granted support for a basic AgPER to update International Food Policy and Research Institute's (IFPRI) 2008 agricultural Public Expenditure and Institutional Review (PEIR). Three Ghanaian-based consultants were engaged to undertake the assignment between July and December 2012. Two of the consultants were funded by the World Bank, while the third was funded by GIZ. The consultants were expected to work closely with a technical counterpart team from the Ghanaian government bodies most relevant for the purposes of this review, particularly MOFA and MOFEP, and with a working group to be drawn from other government bodies and agencies. A list of the members of the counterpart team and the working group are provided in Annex 5.

1.2 DEFINITION OF THE AGRICULTURAL SECTOR

The definition of the scope of the agricultural sector for the purposes of this study is guided by the UN's Classification of the Functions of Government (COFOG) system, which places the agricultural sector in the group of Economic Services. As defined in the Economic Services Group, the sector comprises agriculture (crops and livestock), forestry, fishing, and hunting. The UN definition includes, among others: the administration of agriculture, forestry, and fishing affairs; conservation and reclamation of arable land; and construction or operation of flood control, irrigation, and drainage systems. The UN definition does not include research and development (R&D). The AU-NEPAD uses the UN's definition but includes agricultural R&D (see Annex 3). The AU-NEPAD definition has been used in this AgPER review for the main analysis. A broader definition that constitutes the AU-NEPAD definition plus "roads to farming areas and debt service" has also been used in some of the analyses to facilitate comparison of results based on the two definitions. This broader definition is referred to as "COFOG plus" in this review.

The subsectors within the agricultural sector in Ghana fall under different Ministries, Departments, and Agencies (MDAs). The Ministry of Food and Agriculture (MOFA) is the lead ministry for the agricultural sector, and is responsible for non-cocoa crops, livestock, and fisheries. Ghana's cocoa board, COCOBOD, is responsible for cocoa, coffee, and sheanuts, and is under the Ministry of Finance and Economic Planning (MOFEP). The Ministry of Lands and Natural Resources is responsible for the forestry subsector. The Agricultural Research Institutes of the Council for Scientific and Industrial Research (CSIR) and other agencies in the National Agricultural Research System (NARS) are responsible for agricultural research. CSIR is under the Ministry of Science and Technology; the Ministry of Trade and Industry (MOTI) supports the production of selected commodities for local markets and export. At the decentralized level, the Ministry of Local Government and Rural Development (MLGRD) supports agricultural activities through District Assemblies. The Department of Feeder Roads (DFR) is responsible for providing roads to farming areas.

1.3 OBJECTIVES OF THE CURRENT ASSIGNMENT

The objectives of the current AgPER are defined by the consultants' terms of reference, as stated in the following two subsections.

1.3.1 Overall Objective

The main objective of Ghana's AgPER is to promote the articulation and implementation of the Medium Term Agricultural Sector Investment Plan (METASIP 2011-2015) through a public

expenditure review to build consensus for appropriate levels of public expenditure in Ghana's agricultural sector and to enhance its efficiency, effectiveness, and equity.

1.3.2 Specific Objectives

The specific objectives are to:

- Compile a coherent and comprehensive analytical database to enable assessment of recent years' agricultural public expenditure levels and composition.
- Assess: (i) the extent to which expenditures reflect stated national agricultural sector priorities; (ii) the effectiveness of the expenditures in contributing to sector priorities and target outcomes; and (iii) the efficiency with which the public financial management capacity of agriculture sector entities has been deployed for sector budget planning and implementation.
- Propose observations and recommendations on expenditure levels and composition, financing, and budget performance that aim to enhance the efficiency and effectiveness of public expenditure in the agriculture sector.
- Communicate with sector stakeholders about the process and outcome of the study.

1.4. EXPECTED OUTPUTS AND OUTCOMES

Among the expected outcomes of this AgPER is guidance about gains in effectiveness that could be realized by: (i) reallocating public spending within the agriculture sector; and (ii) identifying areas of public expenditure that could absorb additional funds, made available from internal resources as well as by external finance, and spending these on activities that promise a high level of effectiveness in agricultural production, food security, and poverty reduction. This objective underpins the rationale of the Maputo Declaration that if governments and external financing agencies increase the level of spending on public service in the agriculture sector, the funds must be spent rationally and effectively.

1.5 SCOPE AND METHODOLOGY

1.5.1 Scope

In 2008, MOFA carried out a Public Expenditure and Institutional Review (PEIR) in the agricultural sector through the International Food Policy Research Institute (IFPRI). The current assignment calls for an update and enhancement of the 2008 database to provide a solid foundation for subsequently carrying out specialized studies, such as Public Expenditure Tracking Surveys (PETS).

The current AgPER covers the period 2001–2011, to include periods before and after the Maputo Declaration as required by the CAADP. The timeframe selected for the review is also consistent with the PEIR's start date.

The review covers: MDAs in the agricultural sector and their respective expenditure from government and donor sources; and agricultural projects, programs, and special expenditure in the sector that are not part of the sector budget (e.g., President's Special Initiatives and the Millennium Development Authority (MIDA)).

Basic expenditure data were compiled to assess the extent to which expenditures reflect and contribute to stated national sectoral priorities. Lessons were drawn from the analysis to provide insights to enhance the efficiency and effectiveness of the agriculture sector.

1.5.2 Methodology

The consultants worked in close collaboration with the GoG's counterpart team. An agreed roadmap that was adjusted as the need arose was followed to collect relevant documents, data, and information to facilitate the analytical process, the preparation of reports, and the organization of workshops. The basic budget and expenditure data were collected by a counterpart team drawn from the core agencies (MOFA and MOFEP) and a Technical Working Group drawn from relevant agriculture-related MDAs. Additional data and information were collected by the consultants through interviews and discussions. Data analysis was conducted by the consultants. Results from the analysis provided guidance in the form of recommendations on expenditure levels and composition, financing, and budget performance that would enhance the efficiency and effectiveness of public expenditure in the agricultural sector. The Draft Report was presented to the Technical Working Group and at stakeholders' workshops for validation of the provisional results before the final report was prepared.

1.5.3 Analytical Process

Both qualitative and quantitative analyses of the sector budget and expenditures were conducted, as well as an assessment of the existing institutional capacity and processes for budget implementation. A descriptive overview of the public expenditure budget in the agriculture sector and its links with the macro economy, the fiscal context, and MOFEP processes was formulated.

Overall trends in the allocations of budget and expenditures in the sector were established in nominal and real terms to assess: (i) the share of approved and actual agricultural expenditures in the overall national budget; and (ii) alignment of expenditures to sector priorities. Specific analyses undertaken included the extent to which expenditures comply with the Maputo Declaration and reflect stated national agricultural sector priorities. The analyses focused on the following: attainment of the 10 percent budgetary allocation to agriculture and 6 percent growth rate in the sector; attainment of food security and other sector goals; allocative efficiency; effectiveness of budget execution; equity; sources of financing the budget; other sources of expenditure in the sector; budget performance; and institutional mechanisms.

1.6 DATA REQUIREMENTS AND CHALLENGES

1.6.1 Data Requirements

Details on the type of analysis to be carried out in the study as well as the source of data for each of the analyses were discussed with the counterpart team at the inception workshop to reach a common understanding of the scope and nature of the study. Required data included: approved budget; actual expenditure; and releases under the four budget line items disaggregated by functional directorates and units. The four budget line items are: (i) personnel emoluments; (ii) administration; (iii) services; and (iv) investments. Templates for the basic data collection were prepared and agreed upon by the consultants, the counterpart team, and the Technical Working Group, and were distributed to MDAs in the agricultural sector.

1.6.2 Challenges

The review required that expenditures be linked to sector priorities and objectives. However, funds released to the units in the MDAs were generally not tagged to specific field activities under the various objectives in the budget. Other challenges included the following:

- Donor expenditure data were limited for the earlier years of the review period;
- Expenditure data for 2001 were unavailable for some of the MDAs;
- Disaggregated data from some MDAs needed to enable comprehensive functional analysis were not available;
- There was a lack of precise expenditure data for agricultural mechanization and irrigation; and
- Some data did not fully cover the 11-year study period; e.g., data on feeder roads were not available for 2001-2007; expenditure data on debt service were not available for 2001, 2010, and 2011.

1.6.3 Steps Taken

Customized templates and questionnaires were prepared and administered to the relevant MDAs through interviews by the consultants. The consultants, the counterpart team, and the Technical Working Group discussed the type of data collected using templates that had been developed for the exercise. The Technical Working Group met at specified periods to discuss progress and challenges in gathering the data. These meetings were used as platforms to discuss and validate the data.

2. SECTOR FRAMEWORK, STRATEGY, PERFORMANCE, AND INSTITUTIONAL GOVERNANCE

2.1 FRAMEWORK

2.1.1 Scope

The agricultural sector comprises agriculture (crops and livestock), forestry, and fishing. The FASDEP II and METASIP policies are consistent with the AU-NEPAD definition and guidelines. The AU-NEPAD definition of COFOG includes: administration and operation of government agencies engaged in applied research and experimental development related to agriculture; and grants, loans, or subsidies to support applied research and experimental development related to agriculture by research institutes and universities (see Annex 3). The five main subsectors in the agriculture sector are crops, livestock, fisheries, forestry, and cocoa. By this definition, MOFA and its cognate institutions in other MDAs that perform agriculture-related functions form the agricultural sector. Other subsectors that fall within the sector and perform agriculture-related functions but are located in other MDAs include: COCOBOD; the Forestry Department of the Ministry of Lands and Natural Resources; DFR; the Agricultural Research Institutes of the CSIR and other agencies in the NARS; MOTI; the Ministry of Education; and MLGRD. These MDAs are expected to perform specific responsibilities in line with the objective of the FASDEP II initiative.

MOFA is the lead ministry for the sector. It has the overall responsibility to coordinate the policies, programs, and activities of all of these MDAs to ensure the development of the sector. However, MOFA is only responsible for livestock, fisheries, and crops other than cocoa. In 2005, the fisheries subsector was decoupled from MOFA into an autonomous ministry, but in 2009 it reverted to its former status as a department of MOFA. The cocoa subsector is under the MOFEP, while forestry falls under the Ministry of Lands and Natural Resources. Other sector ministries with units or agencies that perform agriculture–related functions are: MOTI, which is responsible for agro-industries and trade; the Ministry of Science and Environment, which is responsible for agricultural research through the CSIR; and MLGRD, which has responsibility for agriculture at the decentralized level. The role of MOFEP, on the other hand, is to make budgetary allocations to the respective MDAs to ensure the attainment of 6 percent growth rate envisaged in FASDEP II and Ghana's agricultural policy document.

2.1.2 Sector Contribution and Challenges

Over the years, Ghana's agricultural sector has been the backbone of the country's economic growth and development. Between 2001 and 2005, the sector contributed an average of about 40 percent to GDP while the service and industry sectors contributed 33 percent and 27 percent, respectively. The contribution of agriculture to the national GDP declined between 2006 and 2011, to an average of 26.5 percent, compared to 48.5 percent and 25.9 percent contributed by the service and industry sectors, respectively.

Despite this development, the agricultural sector continues to play an important role in the Ghanaian economy. The sector accounts for about 75 percent of export earnings and currently employs about 42 percent of the total labor force, albeit much lower than its share of 50 percent recorded in 2000.[3] The

[3] 2010 Population and Housing Census, GSS, May 2012, page 76.

sector is dominated by smallholder farmers. About 90 percent of the smallholder farmers cultivate an average of less than two hectares of land, using low levels of technology.[4]

Major problems in the sector include: inadequate development of irrigation facilities, resulting in high dependence on the weather for production; low accessibility by farmers to agricultural financial services to facilitate the adoption of improved technologies; a low level of mechanization in production and processing; and high post-harvest losses resulting from poor post–harvest management, including poor storage, low value addition, and ineffective linkages with markets. Problems specific to the livestock subsector include: the inability of farmers to replace old and low performing stocks with improved breeds; the low quality of feed; and poor husbandry practices. The fisheries subsector faces problems of: overfishing of natural waters; an undeveloped fish value chain (e.g., inadequate supply systems for fingerlings and feed); and lack of skills in aquaculture.

Institutional and financial management problems include implementation challenges arising from MOFA's 1997 organizational restructuring. The new structure is consistent with the government's policy of decentralization, making MOFA one of the most decentralized ministries in the country, but it has introduced the challenge of crafting mechanisms to facilitate the required interaction and interface between technical and implementation units. Evidence collected by IFPRI's 2008 PEIR indicates that challenges remain in the following areas: (i) the relationship of Technical Directorates to service delivery units – the District Agricultural Development Units (DADUs); (ii) the relationship of Technical Directorates to MOFA's leadership; (iii) internal communication and coordination; and (iv) the relationship between the DADUs and District Assemblies.

2.2 OVERVIEW OF STRATEGIES, PERFORMANCE, AND OPERATIONS

2.2.1 Agricultural Policies and Strategies Over the Past Decade

In recognition of the important role the agricultural sector plays in the country's economy, the government has over the years adopted various strategies and policies to address problems in the sector to promote increased growth and development.

The food and agriculture subsector policies and strategies have aimed to modernize agriculture for accelerated sector growth. The modernization strategy was to eventually transform the economy through rural development, increased productivity, and diversified exports. The Accelerated Agricultural Growth and Development Strategy (AAGDS) and the Food and Agricultural Sector Development Policies (FASDEP I and II) were formulated to provide frameworks for the development of agricultural programs. AAGDS and FASDEP were in support of broader sector goals outlined in national plans, specifically Vision 2020, the Ghana Poverty Reduction Strategy (GPRS I 2003-2005), the Growth and Poverty Reduction Strategy (GPRS II 2006-2009), and the Ghana Shared Growth Development Agenda (GSGDA 2010-2013). Though the AAGDS aimed at 6 percent sector growth, GPRS II, with which FASDEP II was aligned, targeted an annual sector growth rate of 6-8 percent. The crops and livestock subsectors were expected to lead the sector's growth with an average annual growth rate of 6 percent; forestry, logging, and fisheries were each expected to grow at 5 percent per annum; and the cocoa subsector's growth was expected to remained robust.

FASDEP II focused on growth-inducing policies and programs for wealth creation and poverty reduction. It also improved upon targeting poor and vulnerable groups, which FASDEP I had failed to

[4] MOFA Facts and Figures, MOFA 2010, page 6.

address. It thus aimed to achieve six objectives: (i) food security and emergency preparedness; (ii) improved growth in incomes; (iii) increased competitiveness and enhanced integration into domestic and international markets; (iv) sustainable management of land and environment; (v) science and technology applied in food and agriculture development; and (vi) enhanced institutional coordination. The objectives have been developed into six programs for implementation over the 2011-2015 period under the METASIP.

2.2.1.1 Cocoa subsector

Ghana has regained its position as the world's second largest cocoa producer of cocoa beans after Cote d'Ivoire, and cocoa has been the mainstay of the Ghanaian economy. Production has recovered from a low of 17 percent of world output in the 1970s to about 25 percent currently. The cocoa industry demonstrated impressive growth of 26 percent in 2010 and 14 percent in 2011. In 2010/11, Ghana achieved the policy goal of producing over 1.0 million metric tons (mt) of beans.[5] Cocoa provides the second largest source of export earnings, representing 30 percent of Ghana's total export earnings. Over the years, the GoG has been committed to implementing policy measures within the cocoa subsector, such as increased producer prices, effective disease and pest control programs, bonus payments, and high-tech programs including fertilizer applications and replanting of denuded areas to enable the subsector to contribute significantly to the growth of AgGDP, foreign exchange earnings, employment generation, and poverty reduction in the country.

The cocoa industry is fully controlled by the GoG, 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 GoG. The GoG established the Ghana Cocoa Board (COCOBOD), which is mandated to monitor and regulate the operations of the cocoa industry in Ghana. As part of its mandate, the COCOBOD controls the export and internal marketing of cocoa beans, and oversees agricultural research, hybridization of seeds, sale of seed to the farmers, quality control, and extension services to farmers. The COCOBOD operates under the MOFEP. Internal purchasing of cocoa beans from producers is, however, carried out by private sector companies that have been registered and given license by the COCOBOD (Licensed Buying Companies [LBCs]). All LBCs pay the same minimum set price to the cocoa producers. The LBCs purchase their cocoa through buying centers established in cocoa production areas. All LBCs are obliged to sell their cocoa beans at a fixed price to the COCOBOD, which in turn exports the beans or sells to domestic processors. The operations of all LBCs are closely monitored by the COCOBOD. By this institutional arrangement, producer prices are managed by COCOBOD while private sector participation is limited to logistics. The arrangement also serves to reduce intra-seasonal price risk, and links almost 1 million small farmers, each with about 2 ha, to an increasingly complex and competitive global supply chain.

Although revenues to stakeholders have been increasing, when assessed on a per unit basis, value for money of expenditures has declined. This is attributed to such factors as subsidy programs that have weak economic or financial justification. Increased bean production has placed additional demands on some functions with high variable costs, such as LBC functions and handling of beans by the Cocoa Marketing Company (CMC). A significant portion of additional revenues is allocated to expenditure activities that do not have a clear link to production volumes, such as the Farmers' Housing Scheme, social security for farmers, and scholarships for children of cocoa farmers. In the latter case,

[5] The World Bank, Report No. XXXX-GH. Republic of Ghana: Cocoa Sector Policy Brief. May 15, 2012. AFTAR Africa Region.

scholarships are in principle available to children of cocoa farmers, but half of the available places are offered to COCOBOD staff.[6]

2.2.1.2 Forestry subsector

The forestry subsector's policy was formulated in the 1994 Forestry and Wildlife Policy. Its implementation brought about significant changes in the structure and form of the forestry sector in Ghana. The sector institutions were transformed into a corporate Forestry Commission in accordance with the 1992 Constitution. A number of strategic initiatives were introduced to improve and develop the forest and wildlife resource base and to integrate good governance, transparency, equity, and poverty reduction into the forest and wildlife sector. The 1994 policy: introduced equitable sharing of management responsibilities; increased benefit flows to local stakeholders, especially the rural poor; and increased participation, transparency, and accountability in sector activities.

The implementation of the 1994 policy with all of its associated reforms could not halt the degradation in the forest resource base. Illegal chainsaw and mining (*galamsey*) operations in forest areas have thrived over the years, despite conscious national efforts to curb the situation in collaboration with security agencies. Wood fuel production, especially in the fragile areas of the savanna regions, has remained unsustainable while wildfires continue to be an annual occurrence in all ecosystems. The timber industry still operates with obsolete equipment and has installed capacities that exceed the Annual Allowable Cut (AAC). In addition to these challenges, the forestry sector today is confronted with emerging global issues and initiatives, such as the Voluntary Partnership Agreement (VPA), Forest Certification, climate change, and Reducing Emissions from Deforestation and Forest Degradation (REDD), all of which have far reaching implications for the forest and wildlife industry as well as local livelihoods.

In response to these challenges, the Ghana Forest and Wildlife Policy was developed in 2012. The revised policy is intended to take advantage of these emerging opportunities to maximize the rate of social and economic development of the country and to secure optimum welfare and adequate means of livelihood from the forestry sector for all Ghanaians.

2.2.1.3 Fisheries subsector

Ghana is endowed with significant and valuable stocks of fish. Including aquaculture, the country produces on average 440,000 tons of fish from its waters each year, worth in excess of US$1 billion annually. As many as 2.2 million people in Ghana are dependent on the fisheries industry for their livelihoods, including some 135,000 fishers in the marine sector (of which 92 percent are artisanal). It is estimated that a further 71,000 artisanal fishers operate in Lake Volta. Additionally, 27,000 women are estimated to be engaged full time in fish processing, smoking, and salting. These figures underscore the prominent role that fisheries currently play in the Ghanaian economy, as they have for many generations.

However, many of Ghana's fish resources are heavily overexploited. According to a 2011 World Bank study,[7] with the introduction of recovery measures, fisheries could contribute far more than they currently do to the country's economic growth, food security, and poverty reduction. Including aquaculture, Ghana's fisheries subsector has the potential to help the country meet its strategic objectives of generating an annual sustained growth rate of 6 percent. However, this potential will not

[6] Ibid.

[7] World Bank, Ghana Project Under the First Phase of the West Africa Regional Fisheries Program, June 17, 2011.

be realized if current trends in overexploitation and subsequent decreasing profitability in fisheries continue.

As a result of the decreasing profitability of Ghana's fisheries, the 2.2 million people reliant on the sector for their livelihoods, and the communities in which they live, are getting steadily poorer. The average income received per canoe in Ghana's artisanal fishery has dropped by as much as 40 percent over the last decade. These losses often fall on the most vulnerable, as many of the coastal communities are based in rural areas that still remain at the margin of the country's economic growth.

The root cause of the declining profitability lies in the failure of the government to control access to fishery resources. Too many vessels compete to catch too few fish, with little incentive to invest in management and value addition. Controlling access requires effective resource management. However, public sector investment to date has been negligible. Fisheries management expenditure in Ghana (0.2 percent of total income from the sector) is less than 2 percent of the average expenditure in OECD countries (i.e., 17 percent of revenue).

The GoG realized the need to strengthen governance and management of the sector to control access and reduce overfishing, and to thereby begin to restore profitability. In 2009, the government prepared a draft Ghana Fisheries and Aquaculture Sector Development Plan (2011–2016) with support from DfID, NEPAD, and the World Bank. The draft plan aimed to increase revenue and profitability in capture fisheries by at least US$50 million annually after five years of investment in governance to control access to the resources. The control of access would notably be achieved through a freeze in the size of the artisanal fishing fleet, and a phased reduction in the industrial trawl fleet, while maintaining current capture fisheries production levels and increasing aquaculture production levels. The draft plan specifies a range of government reforms and investments needed to meet the targets. Explicit tasks are phased across the five year time frame of the draft plan. As a first step in a longer program, the plan is expected to ensure that the benefits realized from fisheries governance reforms can be captured and that they accrue to the artisanal sector and local communities as a priority.

2.2.2 Overview of Projects and Programs Implemented in the Agricultural Sector

Projects and programs undertaken over the period covered by this review were funded by the following agencies: the World Bank, International Fund for Agricultural Development (IFAD), the African Development Bank (AfDB), Agence Francaise de Development, Food and Agriculture Organisation (FAO), the German International Development Cooperation (GIZ), the Canadian International Development Agency (CIDA), and the World Food Programme (WFP). The projects and programs have generally sought to increase productivity and improve incomes for the attainment of food security as well as to reduce poverty. The Agricultural Services Subsector Investment Programme (AgSSIP), which closed in 2007, was a World Bank-led multi-donor support program that sought to build the capacity of both the public and private sectors through reforms. It had the goal of enhancing service delivery at all levels. The program empowered the private sector to participate in priority setting of adaptive research through research extension linkage committees in all ten regions. In addition, it revamped the horticulture industry through the Horticulture Export Industry Initiative (HEII). The HEII supported horticulture SMEs in PPPs to better access external markets at higher value growth segments. The horticulture component transformed Shed 9 at the Tema Port into a cold facility to maintain the quality of agricultural exports. It built the capacity of beneficiaries in food safety measures and increased farmers' access to an improved new variety of pineapple, MD2, the most acceptable variety in external markets. In addition, the AgSSIP expanded the capacity of the

seed store of the Oil Palm Research Institute (OPRI) of the CSIR to produce adequate seed nuts for the oil palm industry.

Some projects and programs supported by DPs were commodity specific. These included the NERICA Rice Dissemination Project and the Inland Valley Rice Development Programme, which were supported by the AfDB. The NERICA project enhanced farmers' access to high-yielding NERICA upland seed rice varieties for planting. The Root and Tuber Improvement and Marketing Programme (RTIMP) is an IFAD-supported program that upgrades the skills of small-scale operators in root and tuber processing, business, and marketing. It also supports increased commodity chain linkages and has developed several commodity value chains including those for gari, high quality cassava flour, bonding cassava flour for the plywood industry, and fresh yams, cassava, and sweet potatoes.

The West African Agricultural Productivity Programme (WAAPP) is a World Bank-supported sub-regional research program that focuses on the development and dissemination of high-yielding cassava varieties for which Ghana has a competitive advantage.

Other measures taken in recent years to support farmers to increase productivity and production in their respective ventures are in the areas of irrigation, agricultural mechanization, and input support. In the irrigation subsector, an assessment of the total agricultural land under irrigation was carried out by the Ghana Irrigation Development Authority (GIDA) and the International Water Management Institute (IWMI) in 2011. The results indicated that there is currently a total area of 206,868 ha of arable land under irrigation. This figure represents 2.6 percent of the total land area under cultivation and 41 percent of irrigable land. About 90 percent (186,000 ha) of the irrigated area was in informal irrigation schemes developed by private individuals with minimal support, if any, from the public sector. About 10,668 ha (5 percent) were in formal irrigation schemes developed by the GIDA and by NGOs for smallholder farmers. The remaining 10,200 ha (5 percent) were commercial schemes that were agribusiness-oriented and had been developed with little or no public support. The new figure on the area under irrigation far exceeds the normally quoted 38,000 ha, which represents less than 1 percent of agricultural land under irrigation. Government budgetary allocations are inadequate to fill the financial gap and ensure minimum adequate operations and maintenance (O&M) of the irrigation schemes. An increasingly larger share of GoG funding to the GIDA has been allocated to salaries, with less than 10 percent in 2003 and 3 percent or less between 2008 and 2010 of the operating budget left for system O&M.[8]

These new estimates bring to the fore the need to improve efficiency in the use and management of irrigation water and to further expand the development of additional small and micro irrigation schemes that could be easily managed by the beneficiaries with increased support from the public sector.

The Agricultural Engineering Services Directorate (AESD) of MOFA is mandated to ensure the availability of farm machinery and other engineering technologies with sound and sustainable environmental practices for all categories of farmers, fishermen, and agro-processors in Ghana for agricultural production and related activities. As part of the government's accelerated modernization policy to address the challenges confronting the comprehensive mechanization of agricultural

[8] Cited from MOFA/GIDA, Ghana Agriculture Water Management Investment Framework, Final Report, May 31, 2012.

production, the government, through AESD, initiated the concept of Agricultural Mechanization Services Centres (AMSECs) to assist the private sector to take a lead role in the provision of well-organized and commercially viable agricultural mechanization services.

The ultimate goal of the AMSEC program is to support the private sector to provide farmers with affordable and timely access to farm power machinery, such as tractors, for effective land preparation; planters for precision planting; boom sprayers and pumps for proper crop maintenance; and combine harvesters for effective harvesting. Other goals include increasing the low tractor to farmer ratio as well as reduce the drudgery and difficulties associated with manual farming operations. As of June 2012, the number of AMSECs stood at 89, distributed across regions as follows: Upper East 7; Upper West 9; Northern 28; Brong-Ahafo 13; Ashanti 5; Eastern 10; Volta 9; Greater Accra 3; Central 4; and Western 1. The AMSEC program has contributed to raising the average area mechanized by farmers from about 5.3 percent of acres in 2008 to 6.9 percent in 2009 and 7.8 percent in 2010.[9]

Agriculture machinery/equipment worth more than US$11.4 million has been received and distributed to farmers in specific regions.[10] The machinery/equipment deployed to farmers includes agriculture tractors and accessories, power tillers, rice mills, water pumps, combine harvesters, rice reapers, and rice threshers. To improve on debt recovery of subsidized MOFA machinery/equipment sold to farmers and agro-processors on high purchase basis, a number of reminder letters have been issued to beneficiaries requesting them to pay their respective balances to the Ministry. In furtherance to this, a number of debtors notices and defaulters lists have been published in newspapers. The outcome of this exercise has improved the recovery rate to about 70 percent. The exercise is ongoing. AESD is in the process of initiating draft proposals for the further achievement of Ghana's agricultural engineering/mechanization objectives.[11]

In response to the global food crisis experienced in 2007-2008, the GoG supported farmers with subsidized improved seed and fertilizer to facilitate increased productivity in their operations. The fertilizer subsidy program aimed to increase the national average rate of fertilizer application from 8 kg/ha to 20 kg/ha and to improve private sector development in the fertilizer market. The implementation of the fertilizer subsidy program indicated that the price of the subsidized fertilizer was about 64 percent of the market retail price. Quantities of subsidized fertilizer distributed increased from 43,176 mt in 2008 to 91,244 mt in 2010, registering an average change of 46.9 percent in supplies. The program yielded positive results in terms of crop output since farms with applied fertilizers had higher yields than those without fertilizer application. A benefit-cost ratio analysis of maize yielded a ratio of 1.7 under favorable conditions and 1.4 in a worst case scenario. The total cost of the program to the government in 2010 was estimated at GHC 37.9 million, representing 16.8 percent of the total MOFA budget in that year. The direct cost[12] of GHC 36.8 million was also estimated to represent 76.3 percent of the 2010 MOFA investment budget. The study projected that the fertilizer subsidy bill for MOFA could easily rise to GHC 136 million (in constant 2011 prices) and account for over 35 percent of the MOFA budget in 2020. In view of the profitability of the

[9] Service Ghana.Com – MOFA Establish Mechanization Centers, http://service Ghana.com

[10] Precise total figures could not be ascertained.

[11] Agricultural Engineering Services – MOFA, http://mofa.gov.gh/site

[12] Cost of subsidy excluding administrative and coordination costs.

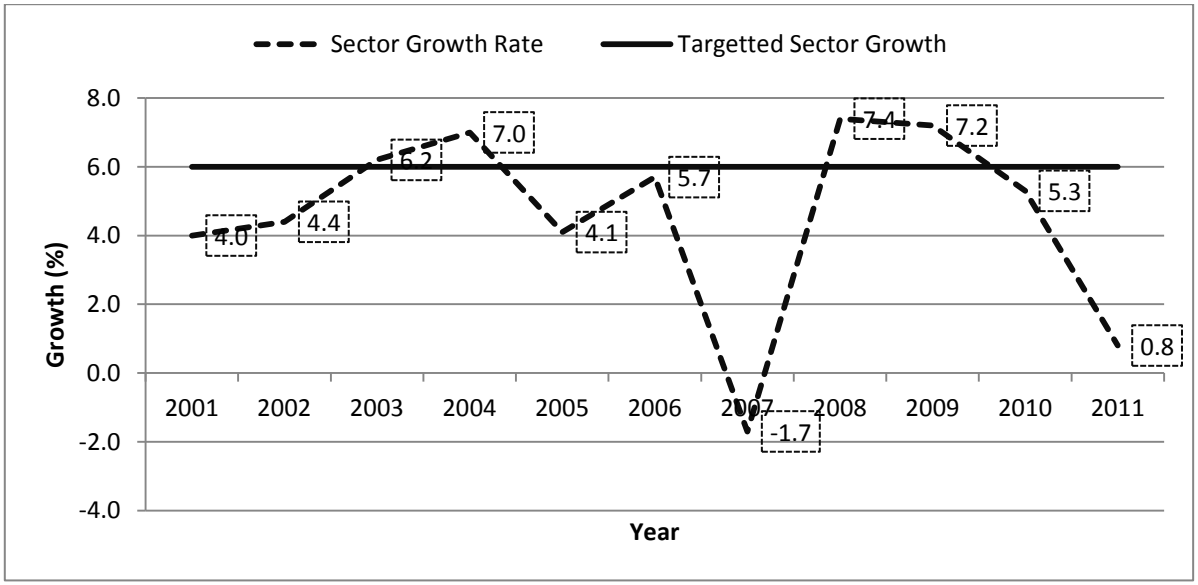
program to farmers and the burden on MOFA's budget, the study made recommendations for an exit strategy while ensuring sustainability of the program.[13]

Another intervention to increase agricultural productivity and production while creating jobs for youth was the establishment of the Youth in Agriculture Programme (YIAP). The YIAP has four components: block farms, fisheries, livestock, and agribusiness. Under the block farms, participants were provided with a complement of improved technologies (i.e., seed and planting materials, fertilizers and mechanized services) on credit, to be paid back in cash or in kind after harvest. An evaluation of the block farm initiative found production levels that indicated increased average yields of rice and soybeans on the block farms. Yields from the block farms were reported to be twice that obtained on plots not included in the YIAP, attributed to the application of the improved technologies. The results led to the confirmation of the need to improve farmers' access to improved technologies and to enhance their adoption rates for increased productivity.[14]

2.2.3 Performance of the Agricultural Sector in the Past Decade

The agricultural sector experienced steady growth in the first half of the decade, reaching a peak of 7.5 percent in 2004, and declined thereafter to attain a negative growth of -1.7 percent in 2007. However, the sector recovered the following year with a positive growth rate of 4.9 percent that increased further to 6.2 percent in 2009. Unfortunately, the impressive growth rates of 6.1 percent, 7.5 percent, and 6.2 percent attained in 2003, 2004, and 2009, respectively, could not be sustained to attain the ultimate annual targets of 6-8 percent envisaged in the sector policies and strategies (Figure 2.1).

Figure 2.1: Agriculture sector growth rates (%), 2001-2011

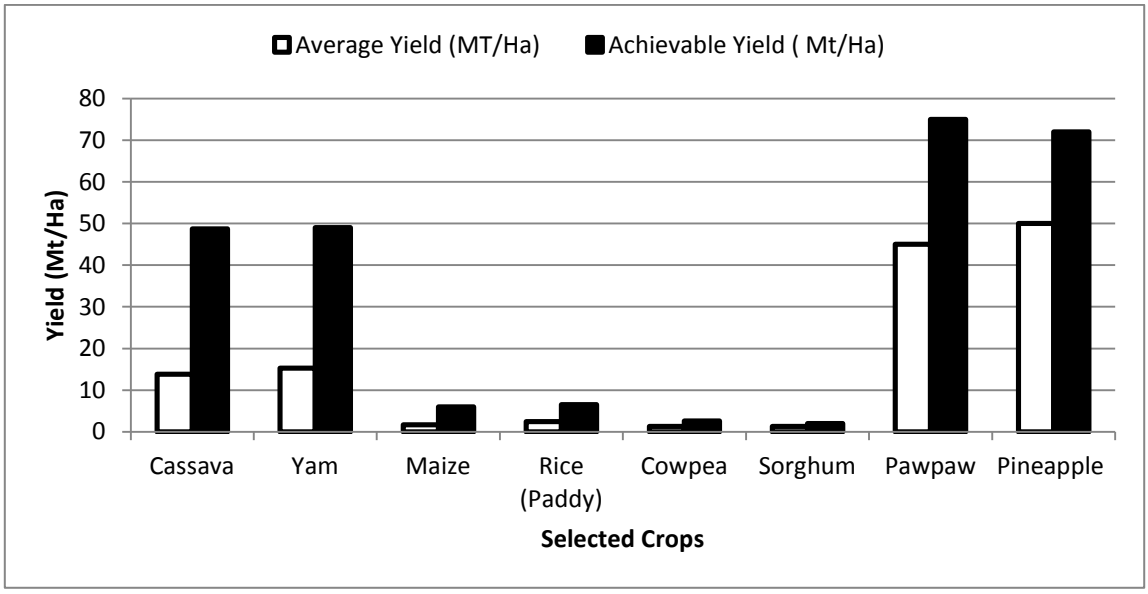


Source: Ghana Statistical Services; MOFA-SRID.

[13] Evaluation of Special Initiatives of the Ministry of the Ministry of Food and Agriculture, GoG, 12 March 2012.

[14] Ibid.

Figure 2.2: Actual yields compared to achievable yields of selected crops (mt/ha), 2010



Source: Constructed from SRID-MOFA data.

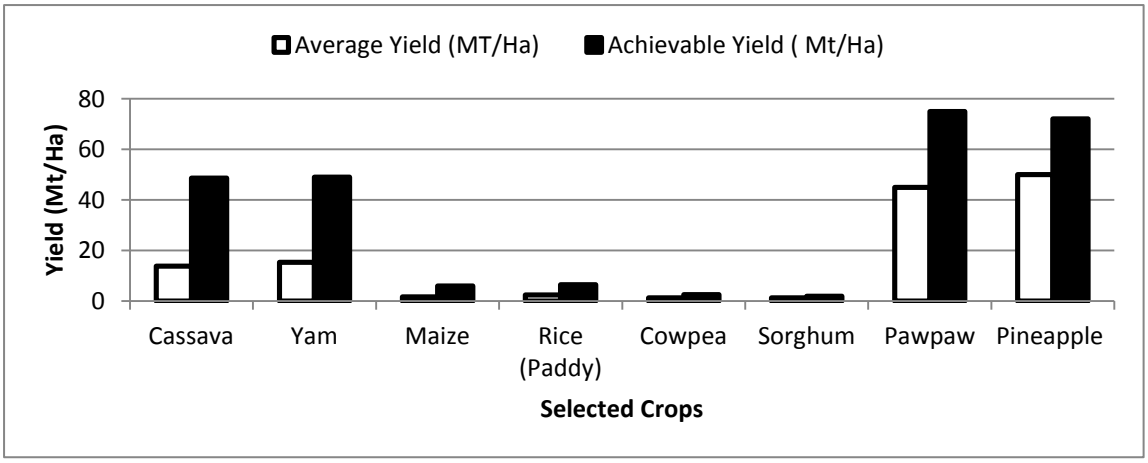
An assessment of available data reveals that the steady growth experienced in the agricultural sector in 2001-2002 was the result of positive trends registered in subsectors other than cocoa. Cocoa registered negative growth in both 2001 and 2002, but the subsector recovered strongly to reach a peak growth rate of 29.9 percent in 2004. The impressive performance of the cocoa subsector is attributed to the mass spraying of cocoa farms against pests and diseases and the application of high-technology inputs and improved husbandry practices. The average yield per hectare of cocoa in Ghana in 2010 was estimated by FAO to be 389 kg/ha, below that of Cameroon (394 kg/ha), Cote d'Ivoire (578 kg/ha), and Indonesia (790 kg/ha), suggesting the need to further increase cocoa productivity in the country. Coupled with the adoption of improved technologies was the coincidental rise in the world market price of cocoa, leading to a steady increase in the share of the producer price paid to farmers (World Bank 2012).

Growth rates in the crops and livestock subsectors and forestry were positive (though unstable) in the first half of the decade until 2007, when all subsectors except livestock had negative growth that translated into the overall negative growth of the sector. The poor performance of the sector in 2007 was partly due to floods that affected agricultural output. In the food crop subsector, for example, though maize output increased marginally by about 2.6 percent from 1,188,800 mt in 2006 to 1,219,600 mt in 2007, outputs of rice, millet, and sorghum declined by 25.9 percent, 31.5 percent, and 50.9 percent, respectively. Output of rice decreased from 250,000 mt in 2006 to 185,300 mt in 2007; millet decreased from 165,000 mt in 2006 to 113,000 mt in 2007; and sorghum decreased from 315,000 mt in 2006 to 154,800 mt in 2007. Roots and tubers experienced marginal increases in output in 2007. Yam production increased by 2 percent, from 4,288,000 mt in 2006 to 4,376,000 mt in 2007; cocoyam increased by 1.8 percent, from 1,660,000 mt in 2006 to 1,690,100 mt in 2007; and cassava had the highest increase, 6 percent, rising from 9,638,000 mt in 2006 to 10,217,900 mt in 2007.

Despite the low performance of the agricultural sector in 2007 and the unstable positive growth achieved during the past decade, available data (MOFA 2010) indicate that output of the major food

crops generally increased over the 2001-2010 period.[15] Increased production in the crop subsector is reported to be due to area expansion and increased yields to some extent. The Interim Completion Report (ICR) of the AgSSIP, for example, estimated an aggregate increase in agricultural production between 2000 and 2006 resulting from a 5.3 percent yield improvement and a 26.3 percent increase in cropped area. This achievement could be improved further through increased application of improved technologies. Figure 2.3 presents the average yields of selected crops in 2010 compared to the yields attainable with the application of improved agricultural technologies and farm practices.

Figure 2.3: Actual yields compared to achievable yields of selected crops (mt/ha), 2010



Source: Constructed from SRID-MOFA data.

A Food Balance Sheet developed for the period 2010/2011 indicated food self-sufficiency for cereals, starchy staples, and legumes. Total supply (local production and imports) of cereals including imported wheat amounted to 2,696,759 mt while the net consumption was 2,005,664 mt, leaving a net surplus of 691,094 mt. Despite the surplus obtained for the cereal group, rice and wheat registered net deficits of 41,835 mt and 36,899 mt, respectively. Ghana is a net importer of these two commodities. Total supply of the starchy staples was 18,506,342 mt, with a net consumption of 10,214,839 mt, leaving a net surplus of 8,291,503 mt. Legumes had a total supply of 791,847 mt and net consumption of 460,237 mt, for a net surplus of 331,610 mt.

Total meat production increased steadily from about 68,000 mt in 2001 to 112,000 mt in 2010, while fish production from marine and inland sources declined from 454,000 mt in 2001 to 415,436 mt in 2010. The performance of non-traditional agricultural exports has not been very impressive over the years. The share of non-traditional agricultural exports in total non-traditional exports decreased from 19.5 percent in 2005 to 10.1 percent in 2010. The decline was prominent in the pawpaw, pineapple, cotton, and fish subsectors. While the volume of exports decreased from 415.8 mt in 2005 to 299.5 mt in 2010, the value of exports increased by 8 percent, from US$151.9 million to US$164.9 million.

2.2.4 METASIP

METASIP is the implementation plan for the policies outlined in FASDEP II. Though FASDEP II targets an annual sector growth rate of 6-8 percent, its investment plan (METASIP) targets an annual sector growth rate of 6 percent with at least 10 percent expenditure of the national budget. The

[15] Facts and Figures, MOFA, 2010.

METASIP targets are in conformity with targets set by the National Development Planning Commission (NDPC), CAADP, and the ECOWAP of ECOWAS.

The first two programs of METASIP support selected commodities to attain food security while the next three programs support value chain issues for promotion of the selected commodities. The last program supports effective collaboration and coordination of programs in the sector.

The program on food security and emergency preparedness is supported by components based on the four pillars of food security: availability, accessibility, nutrition, and stability. These will be addressed respectively through: improved productivity; support for off-farm alternative livelihoods; support for improved nutrition; and improved storage and distribution to reduce post-harvest losses. Other components to support the program are improved accessibility to irrigation facilities and appropriate mechanized services. The emergency preparedness aspect of the program is being addressed through the establishment of national food strategic reserves and a national seed security stock for emergencies. The program on increased income growth reinforces food security through financial access to food and provides opportunities for diversification into cash crops, livestock, and value addition in a more business-oriented fashion.

2.2.4.1 METASIP cost estimates

The estimated indicative incremental cost of METASIP at its launch in 2010 was GHC 1,532.4 million for the 2011-2015 period. This excludes: existing commitments to recurrent costs and investments for ongoing programs; operational costs such as personal emoluments and administration of the implementing agencies; effects of inflation and depreciation of the cedi against the major foreign currencies; and investment in infrastructure such as power, water, and communications required to ensure efficient operation of the private sector within the government's market-oriented policy framework.

The above estimate thus refers to public funds channeled through the MDAs. It is expected that the private sector will be the main investor. It is also expected that NGOs and civil society will play their respective roles during plan implementation.

The government intends to meet METASIP costs through domestic and international sources. Domestic sources would be derived from increased government spending on rural development to reach the target of 10 percent of its total budget as agreed in the Maputo Declaration.

2.2.4.2 Funding from domestic sources

(i) *Increased budget allocation from government* – METASIP assumed that the 2009 budgetary allocation of GHC 630 million to agriculture (crops, livestock, fisheries, agriculture-related research, and feeder roads to farming areas) would increase by 10 percent to make available an additional amount of GHC 63 million for the implementation of the plan. This base additional fund is assumed to grow at the rate of 6 percent annually.

(ii) *Funding from cost-recovery activities* – It is envisaged that government investment in storage facilities, agricultural machinery, and equipment, including processing equipment in PPPs, will be recovered in part from private partners. The volume of outlays to be recovered will depend on the agreements reached with the private sector partners. An estimated 70 percent of the cost is expected to be recovered in three tranches, at the rate of 30 percent in year 1 after investment, 20 percent in year 2, and another 20 percent in year 3.

(iii) *Funding from other internally-generated funds (IGF)* – The agricultural sector currently generates, on average, GHC 5 million annually from the provision of goods and services as IGF. It is assumed that this amount will increase by 30 percent annually in proportion to the increase in MOFA expenditure under METASIP.

The estimated funding gap after considering the funding sources is GHC 1,015.5 million (Table 2.1).

Table 2.1: METASIP funding proposal, 2011-2015

Source	Funding gap (GHC million)
GoG increased allocation	376.4
Cost Recovery: PPPs	132.0
Other IGFs	8.5
Total funds from domestic sources	516.9
Estimated METASIP cost	1532.4
Funding gap	**1,015.5**

Source: MOFA, METASIP 2011-2015, September 2010.

METASIP plans to develop detailed financial and economic analyses at the project level when implementation plans are being rolled out.

The program on food security and emergency preparedness and the program on increased growth in incomes have been identified as key programs that require priority consideration by the government and DPs. Selected components from the other programs that impact directly on the attainment of the outcomes of the priority programs have also been identified for implementation in the medium term.

Implementation of METASIP commenced in 2011 using existing structures, with MOFA leading the process in collaboration with DPs and other stakeholders.

2.2.4.3 METASIP – A First Year Assessment

The level of budgetary allocations and the corresponding actual expenditures post-METASIP (2011) in the agricultural sector show an increase over the 2010 figures, though some subsectors had relatively lower budgets and expenditures.

A comparison of budgetary allocations (in 2001 constant prices) to the agricultural sector in the pre-METASIP and METASIP eras shows a decrease in budget in 2011 (GHC 404.4 million), below the 2010 level (GHC 411.0 million) by 1.6 percent. Expenditure in 2011 (GHC 394.9 million) exceeded the 2010 level (GHC 356 million) by 10.9 percent. Budgetary allocation to MOFA excluding fisheries (GHC 125.1 million) in 2011, represented only 79 percent of the allocation made in 2010 (GHC 158.9 million) and an increase of 7.1 percent over the 2009 allocation of GHC 109.9 million. MOFA's expenditure in 2011 (GHC 137.8 million) exceeded its budget (GHC 125.1 million) by 10 percent and its 2010 expenditure (GHC 102.9 million) by 34 percent.

Budgetary allocation to the subsectors in 2011 fell below the 2010 levels, except in the cocoa, non-crops, and forestry subsectors, which exceeded their 2010 allocations by 5.0 percent, 3.9 percent, and 35.7 percent, respectively. Compared to 2009, the 2011 budget to the non-cocoa crops and forestry subsectors increased by 33.5 percent and 87.9 percent, respectively. Budgetary allocation to the other subsectors in 2011 fell below the 2009 levels.

A matrix prepared by MOFA indicates reasons why only marginal progress has been attained in the priority areas. Reasons include: the challenge in financing inputs as well as putting in place basic

infrastructure such as irrigation, mechanization, storage facilities, and distribution systems; and the cost of credit and lack of basic infrastructure for commercial agriculture. It was also noted that research institutions' funding only covers administrative costs and salaries. There are no funds for actual research work except for small grants from international institutions. Most of the significant research work has been funded under MOFA projects.

The Agriculture Sector Working Group (ASWG) offers the following additional challenges and recommendations for the successful implementation of METASIP. Funding of METASIP and its steering /governance structures remains seriously inadequate. Overall GoG discretionary budget allocations to MOFA (in 2011) showed a significant decline (30 percent) in resources for agricultural investments versus a substantial increase in personal emoluments. The implementation of the METASIP is intended to drive the application of a SWAp as a funding mechanism and coordination tool. The process has slowed down and needs to be fast tracked. Modernization of the agricultural sector requires well-functioning markets that are predictable and rules-based, with standard trade regimes. This is a precondition for the agricultural commercialization process and the establishment of a commodities exchange, which the GoG is keen to establish. The need for improvement in data/statistics is paramount in supporting the commercialization process and decision making in the sector.

METASIP has been endorsed as a strong overarching investment plan for the entire agricultural sector, not just MOFA. It requires the commitment and participation of all stakeholders, especially financial service providers, for better delivery of financial services and products as new programs initiated by the GoG would require medium- to long-term lending instruments.

The implementation of PPPs in agriculture would require MOFA to enhance its skills to better facilitate the process. A communication strategy drafted by MOFA to guide the implementation of METASIP has stalled. The strategy seeks to reinforce decentralized planning and review processes with local actors at the district and regional levels. MOFA is encouraged to implement this strategy and ensure efficient coordination mechanisms that link outcomes and impact measurements to the national M&E framework. Finally, the ASWG strongly recommends that rural and agricultural development needs a strong MOFA with qualified, dedicated, and well guided staff.

A mid-term review of METASIP is scheduled for 2013. Meanwhile, a multi-stakeholder Steering Committee has been put in place to provide oversight and strategic direction for the implementation of METASIP.

2.3 INSTITUTIONAL GOVERNANCE AND FINANCIAL MANAGEMENT

2.3.1 Current Organizational Structure

MOFA has four Line Directorates as stipulated in the Civil Service Law 1993 (PNDCL 327, Section 12 (1); eight Technical Directorates; five subvented agencies; and one State-Owned Enterprise. The four Line Directorates are: (i) Finance and Administration; (ii) Policy Planning, Monitoring and Evaluation; (iii) Human Resource Development and Management; and (iv) Statistics, Research, Information and Public Relations. The eight Technical Directorates are: (i) Animal Production Directorate (APD); (ii) Veterinary Services Directorate (VSD); (iii) Women In Agriculture Development (WIAD); (iv) Plant Protection and Regulatory Services Directorate (PPRSD); (v) Agricultural Engineering Services Directorate (AESD); (vi) the Directorate of Agricultural Extension Services (DAES); (vii) Directorate of Crop Services (DCS); and (viii) Fisheries Directorate. The five

subvented organizations are: (i) the Ghana Irrigation Development Authority (GIDA); (ii) the Grains and Legumes Development Board (GLDB); and (iii) the Irrigation Company of Upper Region (ICOUR); (iv) the Veterinary Council; and (v) the Fisheries Commission. The State-Owned Enterprise is the National Food Buffer Stock Company (NAFCO). MOFA is represented by the RADUs at the regional level and by the DADUs at the district level.

The 10 RADUs, headed by Regional Directors, are responsible for coordination and monitoring of agricultural programs and projects in the regions and districts and for backstopping the DADUs. The DADUs serve as delivery units, and are assigned the role of managing projects and programs, decentralized planning, and implementing national agricultural policies and decisions at the district level.

The reporting and disbursement procedures between MOFA Headquarters, RADUs, and DADUs have changed over the years. Between 2001 and 2007, the districts reported to the regions but received funds directly from Headquarters. Between 2007 and 2011, district fund allocations were routed from Headquarters through the regions. Since 2011, district fund allocations have been routed directly from the Controller and Accountant-General's Department (CAGD) to the districts. A detailed analysis of the amounts transferred to the districts and regions is presented in Chapter 3.

Challenges associated with decentralization include: a possible conflict of local priorities with national priorities in such areas as disease surveillance and research; a lack of appropriate technical capacity and expertise at the district level to resolve agro-ecological and marketing problems; the rational allocation of funds between the center and the districts; technical departments feeling sidelined to staff positions from line positions in which they were directly involved in delivery of services; and the bypassing of Technical Directorates by MOFA leadership in implementing programs.

A detailed handbook on the roles and responsibilities of MOFA staff under decentralization has been prepared, under which the national directorates are assigned the roles of policy formulation, program planning, facilitation, technology resourcing, market promotion and accessibility, exercise of oversight responsibility over the regions, coordination, and M&E of outcomes.

In FASDEP I, MOFA was required to establish an interagency committee that includes representatives of the private sector as a national agricultural committee to oversee METASIP implementation. This committee was not established, but a Steering Committee was put in place in 2011 to oversee the implementation of METASIP.

2.3.2 Sector Budget Framework

The agricultural budget framework is informed by the government's Medium-Term Expenditure Framework (MTEF) process, which began in the late 1990s. The MTEF of all MDAs in the agriculture sector has been influenced by the policy and development plans of the government over all years under review in this AgPER.

Since 2000, the government has launched development plans such as the Ghana Poverty Reduction Strategy (GPRS I), the Growth and Poverty Reduction Strategy (GPRS II), and the Ghana Shared Growth and Development Agenda (GSGDA). In the agricultural sector, the FASDEP I and II have been the key policy documents implemented. Thus, the budgets in the sector were prepared to achieve the goals and objectives set out in these policy documents, a sector-wide task requiring joint planning

by all stakeholders (MDAs, DPs, the private sector, CSOs, Farmer Based Organizations, etc.) to develop annual work plans for implementation.

In light of this, there is a need to develop a common framework that addresses policy planning and reviews, budget execution, tracking of expenditure in the agricultural sector, and more effective intra- and inter-sectoral coordination as envisaged in these policies and plans. This approach is expected to stimulate greater resource allocation from the GoG, foreign direct investment (FDI), the private sector, and donors and to enhance harmonization and alignment of resources for the implementation of strategies in the sector.

This approach will inform agriculture-related MDAs and MMDAs on the magnitude of funds allocated to the identified programs for implementation of plans such as METASIP, among others. This in turn will enable the tracking of budgetary allocation and spending by the government to the sector. This results-oriented approach to budgeting will also enable the sector to better measure its annual growth rate.

2.3.3 Institutional Mechanisms

The NDPC sets the agenda for policies and strategies for the overall development of the economy. MDAs prepare investment plans that are in sync with the policies and strategies of the government's agenda. The rolling out of MDAs' annual plans and budgets using the MTEF also take its root from the budget guidelines circular issued by MOFEP, also based on the government's agenda as established by the NDPC.

The 10 RADUs are headed by regional directors who manage a staff of regional agricultural officers. Neither the Local Government Act, 1993, Act 462, nor the Local Government Service Act, 2003, Act 656, establish departments of the Regional Coordinating Councils (RCCs) even though section 17 (1) of the Local Government Service Act provides that government departments in any region of the civil service shall be known as departments of the RCC. This implies that the departments of the RCCs shall continue to exist as deconcentrated departments reporting to their national headquarters but through the RCCs.[16]

The passage of L.I. 1961, Local Government (Departments of District Assemblies Commencement Instrument, 2009) achieved the following four objectives: (i) the commencement of the functioning of the decentralized departments at the district level as departments of the District Assemblies; (ii) transfer of the functions of the departments set up in L.I. 1961 to the relevant departments of the District Assemblies; (iii) introduction of the composite budget system at the district level by integrating budgets of the departments of the District Assemblies into the budgets of the District Assemblies; and (iv) transfer of staff of the departments of the District Assemblies from the civil service to the local government service.

2.3.4 MOFEP Procedures and Guidelines

Table 2.2 shows a typical budget cycle, which guides most MDAs through the budget preparation process.

[16] Memorandum to L.I. 1961, page iv.

Table 2.2: Typical budget cycle for MDAs in Ghana

Period	Activity	Responsible agency
January – March	Macro-economic review	MOFEP
April/May	Policy review and development of strategic plans	MDAs
May/June	Issuance of guidelines for budget preparation	MOFEP
August/September	Policy and technical hearings	MOFEP, MDAs
September	Submission of draft budget to MOFEP	MDAs
September	Submission of appropriation bill to Parliament	MOFEP
November/December	Parliamentary hearing	Select committees, MDAs
December	Submission of final budget to MOFEP	MDAs

A typical cycle for budget preparation begins with MOFEP reviewing the macro-economic environment of the country during the first quarter of the implementing year to inform the programs of the ensuing years. MDAs are expected to review their policies to inform the next three-year strategic plan.

However, MOFEP issues budget guidelines in May/June as input for the preparation of MDAs' budgets. The guidelines summarize the government's policy agenda for the medium term (three years). In August/September, policy and technical hearings are scheduled for MDAs to defend the direction of their policies. After the hearing, MDAs are expected to submit a draft budget to MOFEP for consideration in September. The outcome of these drafts informs the appropriation bill submitted by MOFEP to Parliament by November 30th each year, a constitutional requirement. At this stage, Parliament hearings begin. After the Parliamentary hearings and approval, MDAs submit their final budgets to MOFEP.

The enabling legislation of certain MDAs makes provision for different budget cycles and funds release procedures. As an illustration, COCBOD's process is described in Section 2.3.6.

2.3.5 Budget Performance: Flow of Funds to Operational Units

Flow of funds to about 250 cost centers in the MOFA are at three levels (national, regional, and district). Releases are done with respect to the four items of the budget, namely:

- Personnel Emoluments Expenses (Item 1);
- Administration Expenses (Item 2);
- Service Expenses (Item 3); and
- Investment Expenses (Item 4).

2.3.5.1 Personnel emoluments and administration expenses

Releases begin when the MOFEP gives monthly cash flow ceilings to the MDAs based on the approved budget. However, Items 1 and 2 are centrally controlled by the CAGD. Payment of Item 1 is based on data available at CAGD through the information submitted at the Integrated Personnel and Payroll Database (IPPD) sections of MDAs. Similarly, Item 2 is controlled at the CAGD through its treasury system.

2.3.5.2 Service expenses

With regard to Items 3 and 4, MOFA is in charge of the releases to the cost centers. In the case of service expenses release, cost center managers at the district level apply quarterly using an Activity and Expenditure Initiation Form (AEIF) through their respective regional offices. These are collected

and sent to the Chief Director of MOFA. The National Directorates and other cost centers also apply quarterly to the Chief Director. Applications are then forwarded to the Head of Budget Unit through the Policy Planning, Monitoring and Evaluation Directorate (PPMED). These requests are compiled and processed for release to MOFEP based on the approved budget and cash flow ceilings to the MDAs.

A release letter supported by a General Warrant is addressed to the CAGD and a copy issued to the Minister of Food and Agriculture. The CAGD then authorizes the Bank of Ghana (BoG) to credit MOFA's account with the release. Upon receipt of the release letter from MOFEP, the Chief Director instructs the Budget Unit of PPMED to allocate the cost centers' ceilings for approval. If approval is given, the Financial Controller (FC) of MOFA writes checks to the 10 regional offices with a schedule attached. The Regional Directors also write checks to their respective cost centers with the schedule. Similarly, checks are written to the National Directorates and other cost centers for their service operations.

2.3.5.3 Investment expenses

The release of funds for investment activities begins with the cost center manager seeking approval from either the Chief Director or the Minister of Food and Agriculture. If approval is given and depending on the threshold, the item is either procured at the local level or is referred to the Procurement Unit of MOFA at the national level for the procurement process to start.

However, the process for the release of funds for investment activities at MOFEP has two parts. The first is to seek for Commencement Certificate or Specific Warrant and the second is to request for release of funds for payment. In seeking a Commencement Certificate, the following key documents, among others, are required: a contract agreement; an evaluation report; and a contract award letter. A contract can only be executed upon receipt of the Commencement Certificate.

An investment activity could be either a supply item or a construction project. For the former, it is after the item(s) is received by the client that a request for a payment is made to MOFEP through the Minister. The main documents that should accompany the request are the Specific Warrant, Stores Received Advice (SRA), and a VAT receipt, among others. In the case of a construction project, it is upon receipt of a certificate of work done raised by the supervising firm of the construction works that application for payment can be made to MOFEP through the Ministry. In both cases, MOFEP gives a release letter to the CAGD, copied to the Ministry. The CAGD then advises the BoG to release the funds involved to the Ministry for payment to be made to the supplier or the contractor.

2.3.6 COCOBOD's Budget Preparation Cycle and Processes

2.3.6.1 COCOBOD's budget cycle

COCOBOD's Director of Finance writes to COCOBOD Head Office departments and divisions to submit budget proposals based on estimated production tonnage, the free on board (FOB) price per ton, and the projected cedi/dollar exchange rate for the budget year under consideration. This takes place in March/April. The budget year is 1st October to 30th September.

The timetable for the departments to defend their budgets (in May/June) is included in the budget invitation letter. The departmental budgets are consolidated into a composite budget for COCOBOD's head office in July after they have been defended by the heads of departments and finalized with the Finance Department, which is responsible for compiling the budget.

Similar invitation letters are sent to the divisions/subsidiaries of COCOBOD, with a timetable to defend the budgets to be submitted. Upon completion of the budget defense, it is consolidated in July. The budget is then submitted to COCOBOD's Board of Directors for provisional approval in August. COCOBOD's Board of Directors refers the draft budget to its Sub-Committee on Finance for review. The Sub-Committee on Finance ensures that the draft budget contains the correct amount for COCOBOD's share of FOB as per the Producer Price Review Committee (PPRC) distribution of expected cocoa sales revenue. The Sub-Committee on Finance then refers the draft budget back to the Board of Directors, which considers it and then submits same to the MOFEP for approval in September, for implementation on 1st October.

2.3.6.2 Processes for the release of funds to COCOBOD's divisions and subsidiaries

Each division/subsidiary writes to COCOBOD every month requesting a release of funds for operational activities and staff emoluments based on its approved budget for the various budget lines. The request is approved and the funds are released for recurrent expenditure, taking into account the approved budget for the division or subsidiary.

With respect to capital expenditure, the request is made by the division/subsidiary as and when the need arises to purchase a capital item. The department/unit submits the request to the head of the division/subsidiary, who refers it to a Procurement Committee to go through the procurement process to select the most competitive bidder. The division/subsidiary submits the request to COCOBOD's head office taking into consideration the recommendations of the Procurement Committee, and COCOBOD's head office releases funds to the division/subsidiary in line with the approved budget for the item requested.

2.3.7 Decentralized Budget Mandate, Processes, and Composite Budgeting

Section 10 (3) of the Local Government Act (1993) Act 462 enjoins the District Assembly to be responsible for the overall development of the district and to ensure the preparation and submission through the RCC of development plans of the district to the NDPC for approval, and of the budget of the district related to the approved plans to the Minister responsible for Finance for approval. The District Assemblies are further enjoined to: formulate and execute plans, programs, and strategies for the effective mobilization of the resources necessary for the overall development of the district; promote and support productive activity and social development in the district; and remove any obstacles to initiative and development. Other responsibilities of the District Assemblies include: initiating programs for the development of basic infrastructure and provision of municipal works and services in the district; and the development, improvement, and management of human settlements and the environment in the district. In cooperation with the appropriate national and local agencies, District Assemblies are to maintain security and public safety in the district; ensure ready access to courts in the district for the promotion of justice; initiate, sponsor, or carry out studies that are necessary for the performance of a function conferred by the Act or by any other enactment; and perform any other functions provided for under any other enactment.

Section 12 of Act 462 establishes the District Assembly as the District Planning Authority. To achieve this planning role, Section 92(3) of the Act states that "The budget for a district shall include the aggregate revenue and expenditure of the departments and organizations under the District Assembly and the district coordinating directorate, including the annual development plans and programs of the departments and organizations under the Assembly."

Until 2012, district level budgeting was fragmented. Most departments (including agriculture) adopted a sector-based approach for the resources allocated to them while districts also followed their Medium-Term Development Plan process for allocation of their IGF and central government transfers. There was therefore no single district-based budget that addressed the utilization of funds in a district and reflected both national and local priorities.

The "composite budget" concept is used to ensure the implementation of Section 92(3) of Act 462, whereby the planning and budgeting process will be district-based and informed by district and national priorities, and also reflects the same three-year rolling period as adopted in the MTEF. The composite budget is an integration of the projected revenue and expenditure of the MMDAs, including decentralized departments, with the view to minimizing duplication and ensuring cost effectiveness, efficiency, and the economy so as to achieve set targets and goals. Composite budgeting has been on the drawing boards of successive governments since the implementation of local law PNDC Law 207 of 1988. It has been piloted in about 25 MMDAs since 2003. The willpower to replicate it to cover all MMDAs had been absent until the passage of L.I. 1961.[17] The passage of L.I. 1961 integrated the activities of all decentralized departments into the MMDAs and triggered the implementation of composite budgeting to be effected from 2012. A list of the 16 district departments provided by L.I. 1961, including agriculture, is found in Annex 4.

Before the implementation of composite budgeting, departments of MMDAs got their budgets from the respective MDAs to which they had allegiance, but these did not form part of the budgets of the MMDAs. These budgets are now to be integrated into those of the MMDAs. At the commencement of the 2012 budget preparation process, MOFEP engaged MDAs under the departments of the District Assemblies to decouple their budgets and to furnish MOFEP with budgetary resources allocated to the districts. All affected MDAs' decoupled budgets to districts will set the basis for allocation of budget ceilings for each MMDA in the country. For the preparation of the 2013 budgets, each of the MMDAs has been given a budget ceiling that includes that of the decentralized department, and MMDAs have prepared their budgets (draft) reflecting these ceilings.

Just like MDAs at the national level, MMDAs also currently use the "Activate" software to prepare their budgets. MMDAs' expenditure budgets are categorized into Compensation of Employees, Goods/Services, and Assets items. Under the system, MMDAs are required to disaggregate and budget for projects under the appropriate cost center. For example, construction for a specified unit of classroom blocks will be budgeted under the education cost center regardless of the funding source. However, sources of funding will still be indicated. The summary sheet of the district thus readily informs how much of the district's resources are going to education, health, agriculture, etc.

On funds transfer under the composite budget, MOFEP, through the CAGD, is expected to make direct quarterly transfers to MMDAs' Special Collection accounts. This transfer does not, however, include statutory transfers such as the District Assemblies' Common Fund (DACF).

2.3.8 The District Assemblies' Common Fund

The DACF is a pool of resources created under section 252 of the 1992 Constitution of Ghana. It is a minimum of 5 percent of total national revenue set aside to be shared among all District Assemblies in

[17] Michael K. Obeng, Metropolitan Finance Officer, Cape Coast Metropolitan Assembly. Posted by Central Press Newspaper, Cape Coast on 15 November 2011. Cited from http//:centralpressnewspaper.blogspot.com/2011/11/focus-on-composite-budgeting.html.

Ghana with a formula approved by Parliament, and utilized based on guidelines issued by MLGRD and MOFEP. No direct specific allocation is made for agriculture in the formula. The DACF Administrator is appointed by the President. In 1992, there were 110 MMDAs; this increased to 138 in 2006, and to 170 in 2008. Parliament increased the DACF from 5 percent to 7.5 percent as of January 1, 2008.

The DACF enables the use of the nation's wealth throughout Ghana to the benefit of all citizens. However, information at the national level is not amenable to classification of expenditure by program categories to enable linking plan and policy objectives directly to budget provision for the running of development programs. The District Assemblies have two major expenditure classification systems: the main budget classification and the supplementary budget expenditure classification for accessing and utilizing the DACF. The supplementary budget is DACF expenditure covering projects envisaged by the District Assemblies in the ensuing year. It also covers recurrent expenditure permitted under the guidelines for utilization of the DACF issued by MLGRD and MOFEP.

Other organizations and DPs implement programs outside the budgeting framework of the District Assemblies. The District Assemblies could be aware of the types and levels of expenditure by the organizations and DPs, but may not have direct control over them. As such, it is difficult to assess the real volume of financial flows to the jurisdictions of the different District Assemblies. By way of comparison, the total amount of money spent by the District Assemblies is estimated at about 6.5 percent of national government expenditure and about 1.8 percent of total GDP.[18]

2.3.9 Basic Public Financial Management Capacity: Accounting and Reporting

MOFA's Finance and Administration Directorate is responsible for the Ministry's financial management and production of consolidated financial statements and reports. The report covers about 250 cost centers made up of Headquarters, Technical Directorates, RADUs, and DADUs. All cost centers submit monthly returns made up of revenue and expenditure statements, trial balance, and bank reconciliations supported with bank statements. Most of the cost centers use the Easybooks Accounting Software to keep their records. A few use a standardized reporting format generated in Excel.

The Finance and Administration Directorate prepares quarterly and annual financial reports. At the end of the financial year, the Finance and Administration Directorate organizes a validation exercise on a regional basis to ascertain the accuracy of the financial data submitted. This is achieved by extracting data from their prime books of entry. The prime books of entry are the Vote Books, the Salary Abstract, and the Cash Books. A Schedule of Releases and Direct Payments from MOFEP and the CAGD is also taken to confirm the actual receipts and payments of the Ministry.

Returns received from projects capture information on donor and GoG funds. The project returns come in the form of receipts and payments. Capture of receipts/inflows is based on the sources of funds, which are donors, GoG, IGF, and other income, while expenditure is based on the government expenditure classification of: (i) personnel emoluments; (ii) administration; (iii) service; and (iv) investment. The Finance and Administration Directorate collates the financial data of the cost centers and summarizes them in an Excel Spreadsheet to ascertain the total and consolidated inflows and outflows.

[18] Isaac Akoto, Robert Darko Osei, William Quarmic, George Adayi-Nwosa Adiah, Public Spending at the District Level in Ghana, ISSER/IFPRI, 2007. http://www.ifpri.org/themes/gssp/gssp.htm

Financial management challenges encountered by MOFA include: untimely submission of reports; submission of inconsistent data; disagreement between revenue and expenditure statements and bank reconciliation statements; lack of preparation of bank reconciliation statements; a lack of computers in some cost centers; a paucity of accountants trained in the Easybooks Accounting software; and difficulty in consolidating data from about 250 cost centers to generate a consolidated financial report as no accounting software is being used.

To address this, in October 2011, the Japan International Cooperation Agency (JICA) undertook a project to improve financial management in MOFA. The specific objectives of the scope of work (SoW) under MOFA's Financial Management Improvement Project were, by February 2013 (Phase 1), to strengthen MOFA's Monitoring and Evaluation (M & E) management by implementing activities:

(1) To enhance the function of Easybooks with the following:
   a. Reflection of a new Chart of Accounts (hereinafter referred to as the "CoA") which has been provided by MOFEP for use after 2012;
   b. Introduction of a data consolidation function at regional and national levels; and
(2) To roll out the revised Easybooks with a new CoA and data consolidation function to the Central, Ashanti, Western, and Volta Regions.

An Accounting Guidebook was produced with implementation initiated in October 2012 to standardize the various accounting related procedures of MOFA. The guidebook targeted the practitioners of cost center accounting and asset management. Training on the Accounting Guidebook is ongoing. Accountants in the Central, Western, Volta, Eastern, and Greater Accra Regions have been trained. The Northern, Upper East, Upper West, Ashanti, and Brong Ahafo Regions are next on the training schedule. JICA intends to help MOFA train all accountants, directors, and other stakeholders in using the Easybooks Accounting Software. To complement and enhance the capacity building exercise, JICA has provided to each cost center a desktop computer and an Uninterrupted Power Supply (UPS).

2.3.10 Procurement

Pursuant to the Ghana's Public Procurement Law, Act 663, 2003, MOFA has established a centralized procurement unit with the required structures, including a fully staffed procurement personnel office, an entity tender committee, and tender review committees. MOFA has also adopted and uses the national comprehensive procurement manual by the Public Procurement Authority to complement the Public Procurement Act. The manual details all procurement and supply management functions of the Ministry's procurement unit. The manual lays out: the legal framework for undertaking procurement; processes and procedures of procurement cycle management; technical and administrative reviews for quality control; approval processes, authority and thresholds; appeal mechanisms; warehousing and stores management; and contract management responsibilities.

The key identified procurement risks are that: (i) since the central procurement unit handles procurement management for all directorates in the Ministry, there have been delays in processing procurement documents due to the high volume of work; (ii) the lack of knowledge of staff who are not yet conversant with a specific DP's procurement procedures and processes create delays; (iii) there is inadequate capacity to handle the volume of procurement at the procurement unit of MOFA under the various projects; (iv) possible delays in evaluation of bids and technical proposals lead to implementation delays and poor quality of contract deliverables; and (v)

there are inconsistencies between national procurement procedures and DPs' procurement guidelines for the use of National Competitive Bidding (NCB).

To address the above risk areas, the following actions have been recommended: (i) appointment of a proficient and experienced procurement specialist to augment MOFA's Procurement Unit's present procurement capacity throughout project implementation; (ii) appointment of a focal person at MOFA to coordinate activities and follow up on all procurement issues with the procurement unit; (iii) preparation of an Operational Manual with a section on procurement detailing out instructions for handling procurement, which would be disseminated to all staff involved in the project implementation at project launch; (iv) organization of procurement training workshops to explain/train/raise awareness of all staff involved in project implementation by the first quarter of project implementation; (v) close monitoring of procurement plans on a monthly basis and close monitoring and exercise of quality control on all aspects of the procurement process, including evaluation, selection, and award; and (vi) preparation of standard bidding documents for NCB procurement under specific DP procurement guidelines, which incorporate a list of identified exceptions to the national procurement procedures under the national procurement law, Procurement Act 2003, Act 663, to take account of DPs' fraud, anti-corruption, and other procurement provisions.[19]

2.3.11 Internal Control, Internal Auditing, and External Auditing

The internal control, internal auditing, and external auditing of MDAs and MMDAs in the agriculture sector rely to a large extent on the government-established accounting and internal control guidelines as documented in the Financial Administration Act (2003), the Financial Administration Regulation (2004), the Audit Service Act 2000 (Act 584), the Internal Audit Agency Act 2003 (Act 658), and their related regulations (L.I.'s), manuals and guidelines, and the enabling legislation of the relevant agencies. The MOFA has a functional internal audit unit, tasked with internal control and internal audit of MOFA and oversight of the internal control environment of projects in the sector.

The Auditor General (Ghana Audit Service) is primarily responsible for auditing all MDAs, MMDAs, and government projects. However, due to capacity constraints, it is common for the Auditor General to subcontract the audit of donor-funded projects to private audit firms. Under such circumstances, the outsourced audit arrangements to be followed are subject to the donor's necessary procurement and technical clearance of the TOR for the engagement of the audit firm. The TOR is normally agreed during the negotiations of the project (if the process has not started) and auditors are expected to be in place within six months after effectiveness.

2.3.12 The Agriculture Sector Working Group

The Agriculture Sector Working Group (ASWG) collaborates with MOFA to achieve better alignment and results from ASWG member financial contributions to agricultural sector public expenditure. According to the 2011 budget, DPs provided about GHC 117.37 million of a total MOFA budget of GHC 221.55 million. This is in addition to direct General Budget Support and other funding instruments outside GoG financial management systems. The ASWG is also a policy dialogue platform for engaging the GoG and DPs on delivering on Chapter 4.1 of GSGDA (2010-2013) – "Accelerated Agricultural Modernisation." Items therein include: accelerating the modernization of agriculture through implementation of the FASDEP II; supporting the

[19] Report No. 57898-GN, Ghana Project Under the West Africa Regional Fisheries Program, June 17, 2011.

implementation of the corresponding investment plan as detailed in the METASIP; ensuring an effective linkage between agriculture and industry; and promoting effective communication and learning with DPs and other stakeholders.

Membership of the ASWG includes 11 OECD-DAC members (see Annex 1). A number of other DPs from philanthropic foundations, NGOs, and CSOs also participate in the dialogue process. There is increased interest from the private sector to invest in food production and processing in Ghana as well as in agro-fuels and other raw materials. Achievements of the ASWG include: finalization of METASIP with cost estimates, based on FASDEP II, with official endorsement from the GoG, DPs, ECOWAS, and CAADP; and establishment of a CAADP Country Team to oversee the implementation and management of METASIP.

In line with enhanced sector coordination, the ASWG supports MOFA to conduct annual Joint Sector Reviews (fourth JSR in June 2011) with joint recommendations to steer investments in the sector. The ASWG dialogue structure includes Multi Donor Budgetary Support (MDBS) consultations and negotiations coordinated by MOFEP and the MDBS Core Group based on prior consultation at the sector level; and monthly meetings of the DPs' Agriculture Sector Group, jointly chaired by rotating DP representatives and MOFA. There are three thematic MOFA-DP sub-groups, chaired jointly by a MOFA Director and a DP, for: (i) policy, harmonization, and M&E issues; (ii) human resource, development, and management; and (iii) public finance and administration. These groups have met irregularly on demand, mandated by the dynamics of the issues at stake.

Apart from the above joint engagements, there are exchanges and dialogues between the individual DPs (or their agents) and MOFA on a broad variety of issues, from policy to implementation issues and administrative requirements of individual DPs and their project implementation arrangements. These intensive exchanges are crucial for harmonized and effective DP contributions to the government's development efforts.[20]

2.3.13 METASIP Implementation Mechanism/Steering Committee[21]

The METASIP Implementation Strategy identifies the various stakeholders responsible for ensuring effective implementation at the various levels of governance, the arrangement for engaging the stakeholders at the various levels, and the functions of the various levels of the implementation arrangements.

To ensure stakeholders' participation and coordination of the Investment Plan, a country team has been established. The team consists of members who were signatories to the pact between the government and stakeholders for the implementation of the agricultural sector plan, and a Strategic Analysis and Knowledge Support System (SAKSS).

Four levels of implementation governance have been set up for smooth implementation of METASIP:

1. A Steering Committee/Board
2. A Policy Dialogue Group
3. A National Strategic Analysis and Knowledge Support System (SAKSS) and
4. A Secretariat

[20] http://mofa.gov.gh/site/?page_id=3575

[21] METASIP, MOFA, September 2010.

The guiding principles of the implementation governance team are to:

- Build on existing institutional provisions
- Not create parallel structures
- Use as much as possible mainstream mechanisms for sustainability
- Promote ownership by the MOFA
- Ensure the participation of key groups under the compact
- Enhance complementarities among partners
- Facilitate networking among stakeholder members and grassroots participation
- Develop institutional roles/capacities to leverage skills and build on synergies

The roles and responsibilities of the Steering Committee include promoting ongoing interaction between MOFA and stakeholders; advising the Minister on adjustments in policy direction, planning objectives and operational strategies; and identifying opportunities and constraints to improve impact.

The composition of the Steering Committee is as follows: (i) key ministries (MLGRD, MOTI, Ministry of Lands and Forestry (MLF), Ministry of Environment and Science (MES), MOFEP); (ii) the Parliamentary Select Committee on Agriculture and Cocoa Affairs; (iii) key private sector signatories to the CAADP Compact (i.e., National House of Chiefs, Food Security and Advocacy Network (FOODSPAN), Ghana Agricultural Workers' Union (GAWU), FBO, PEF); and (iv) DPs, MOFA Deputy Ministers, and the MOFA Chief Director.

3. GHANA'S AGRICULTURE PUBLIC EXPENDITURE REVIEW

3.1 INTRODUCTION

Chapter 3 presents the results from both the qualitative and quantitative analyses of Ghana's agricultural sector budget and expenditure. Trends in budgetary allocation and expenditure in the agricultural sector were established in nominal and real terms to assess the share of approved and actual expenditure in the overall national budget. Attempts have also been made to align expenditure to the agricultural sector and subsectors' goals and priorities.

Trends in the agricultural sector budget and expenditure were analyzed to assess:

- Proximity to attaining the 10 percent budgetary allocation and the 6 percent agricultural sector growth rate target
- Attainment of food security and other sector goals
- Allocative efficiency
- The functional composition of public expenditure
- The effectiveness of the budget process/budget performance
- Equity in expenditure
- Sources of financing the budget
- Other sources of expenditure in the budget

3.2 TRENDS IN THE AGRICULTURAL SECTOR BUDGET AND EXPENDITURE

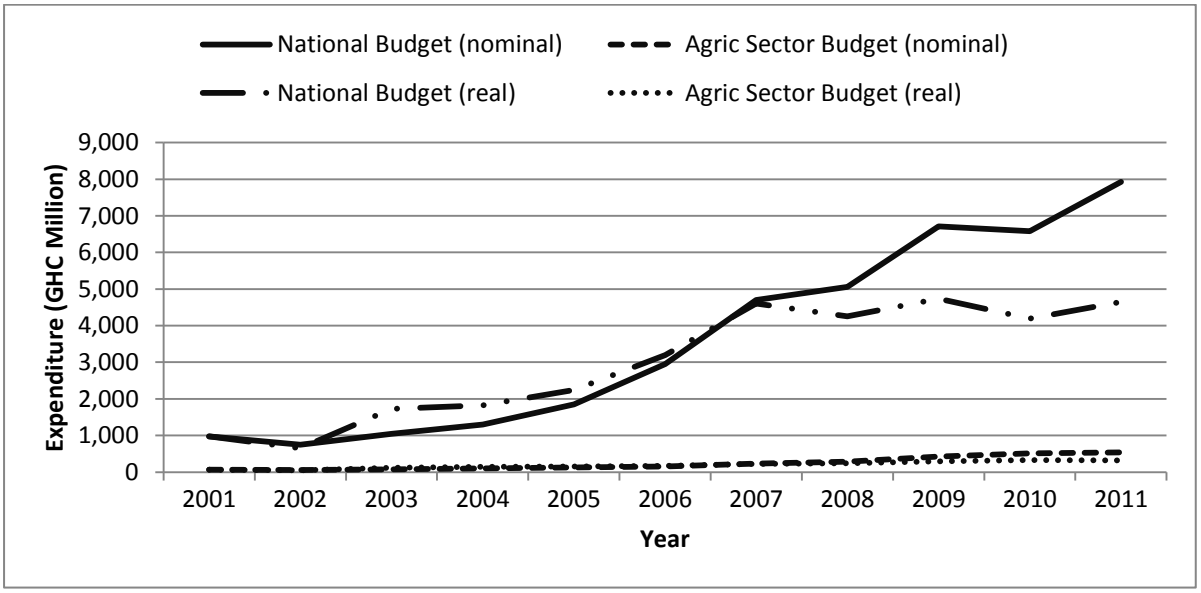
The analyses of the levels of the budget and expenditure in the agricultural sector were based on the COFOG definition of agriculture. However, results of the analyses based on COFOG plus are presented as a line item in Table 3.4 to facilitate comparison with the COFOG results. The budget and expenditure figures in the analyses are presented in 2001 constant prices unless otherwise stated. Data for the study were obtained from MOFA, COCOBOD, the Forestry Services, the Fisheries Commission, the CSIR, Kwame Nkrumah University of Science and Technology (KNUST), University of Ghana (UG), University College of Cape Coast (UCC), University for Development Studies (UDS), the MIDA, and MOTI.

3.2.1 Trends in the Agricultural Sector Budget[22]

The budgetary allocation to the agricultural sector in the period 2001-2011 averaged GHC 193 million (in 2001 constant prices). The agricultural sector budget increased in both nominal and real terms over the period (Figure 3.1 and Figure 3.2). Real budgetary allocation increased nearly five times, from GHC 65 million in 2001 to GHC 315 million in 2011. The budgetary allocation to the agricultural sector is presented in both nominal and real terms in Figure 3.2.

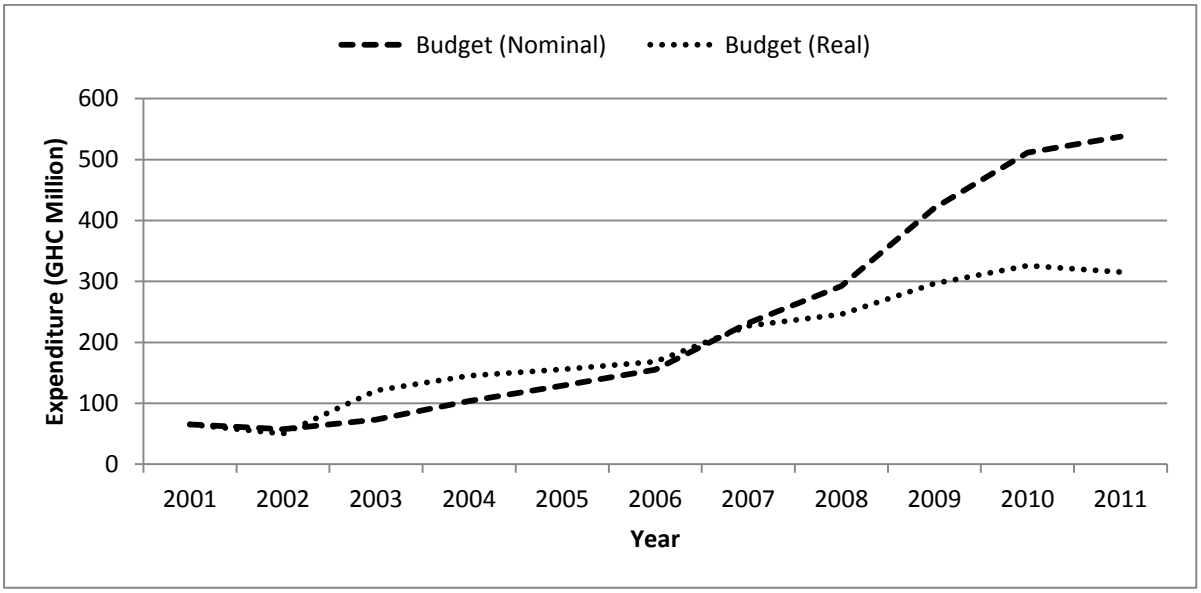
[22] Budget data for the MIDA were available for the project period 2007 to 2011.

Figure 3.1: Trends in agricultural sector and national budgets (in 2001 constant prices), GHC million, 2001-2011



Source: Data from sector MDAs, CAGD, MOFEP.

Figure 3.2: Trends in nominal and real budgetary allocation to the agricultural sector (in 2001 constant prices), GHC million, 2001-2011

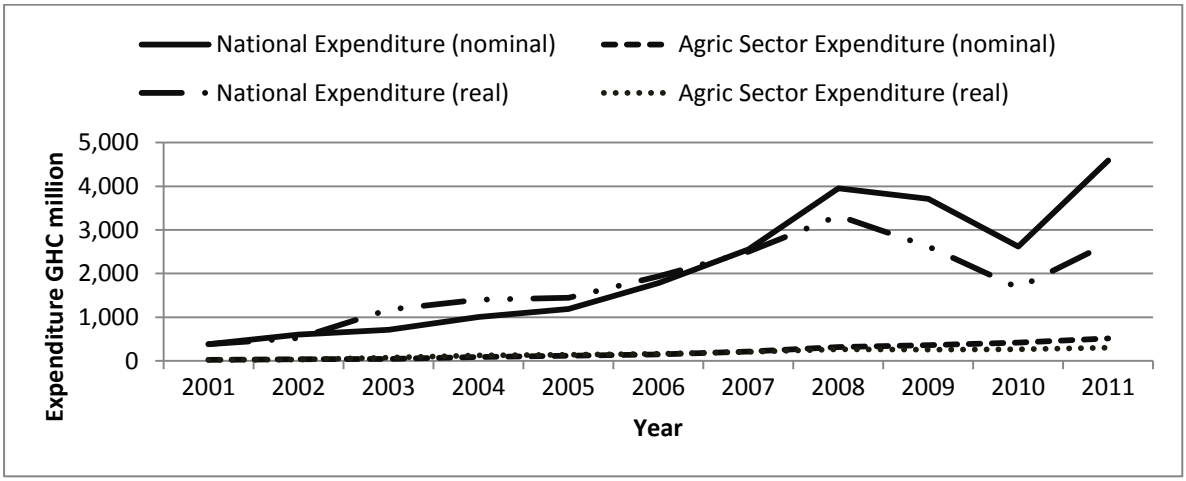


Source: Data from sector MDAs, CAGD, MOFEP.

3.2.2 Trends in Agricultural Sector Expenditure

Real expenditure in the agricultural sector averaged GHC 169 million per annum, increasing from GHC 25 million in 2001 to GHC 303 million in 2011 (Figure 3.3 and Figure 3.4).

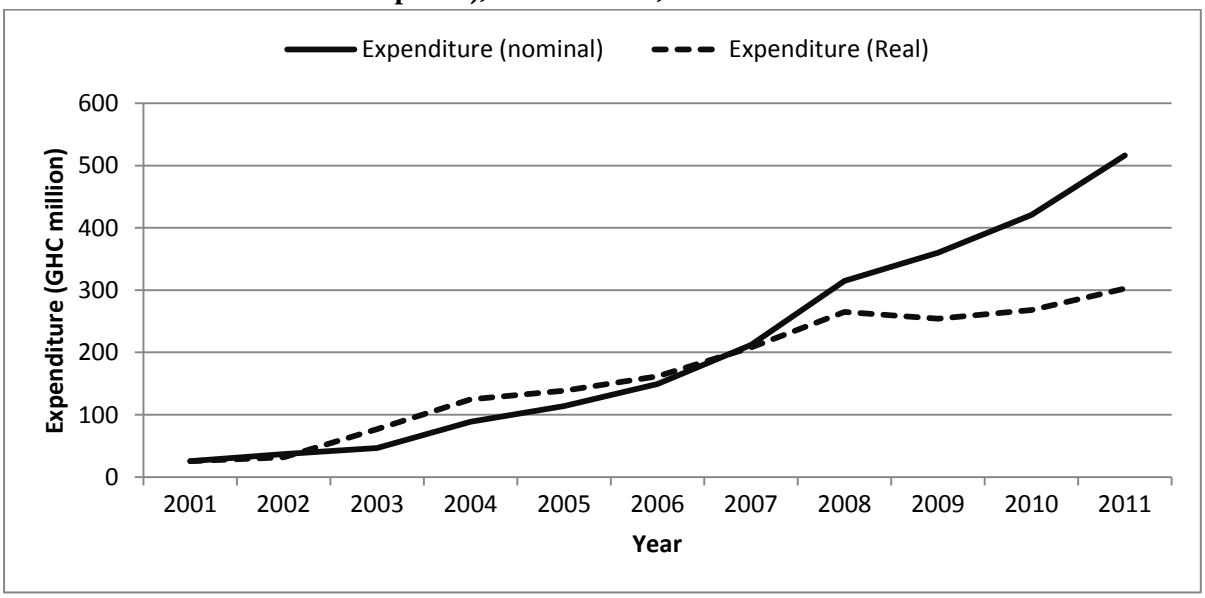
Figure 3.3: Trends in nominal and real national and agricultural sector expenditure (in 2001 constant prices), GHC million, 2001-2011



Source: Data from sector MDAs, CAGD, MOFEP.

Figure 3.4 is a trend of nominal and real expenditure in the agricultural sector over the 2001-2011 period.

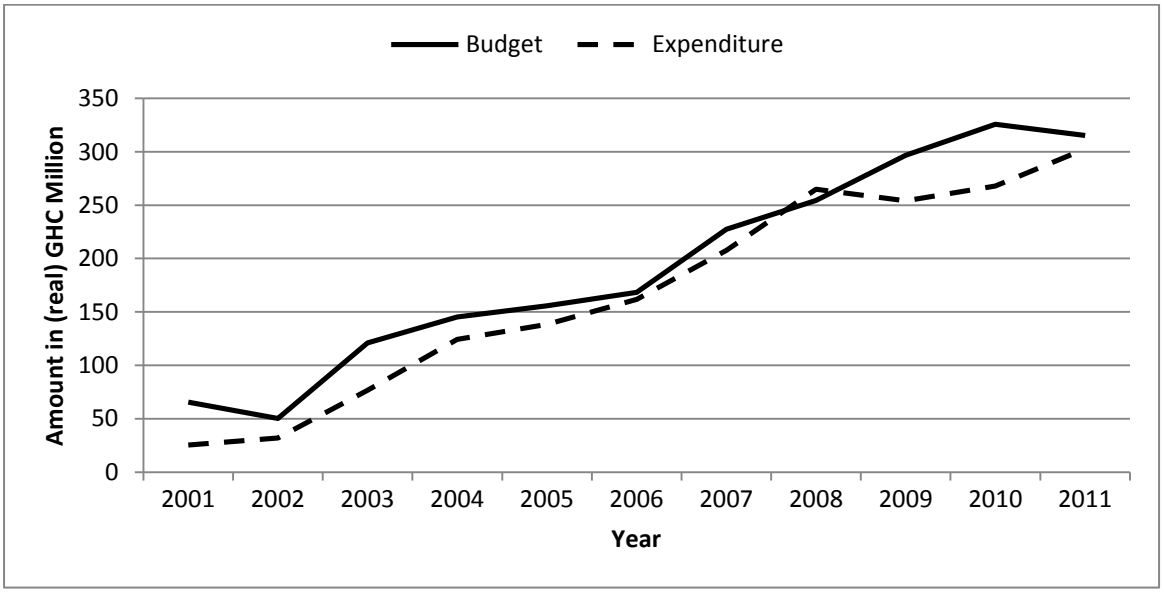
Figure 3.4: Trends in nominal and real expenditure in the agricultural sector (in 2001 constant prices), GHC million, 2001-2011



Source: Data from sector MDAs, CAGD, MOFEP.

A comparison of real budgetary allocation and expenditure shows increasing trends, with expenditure falling below the budget except in 2008, when expenditure exceeded the budget by GHC 11 million (Figure 3.5). The over-expenditure in 2008 was made on personnel emoluments and non-wage technical service delivery, mainly by MOFA and COCOBOD.

Figure 3.5: Trends in levels of agricultural sector budget and expenditure (in 2001 constant prices), GHC million, 2001-2011

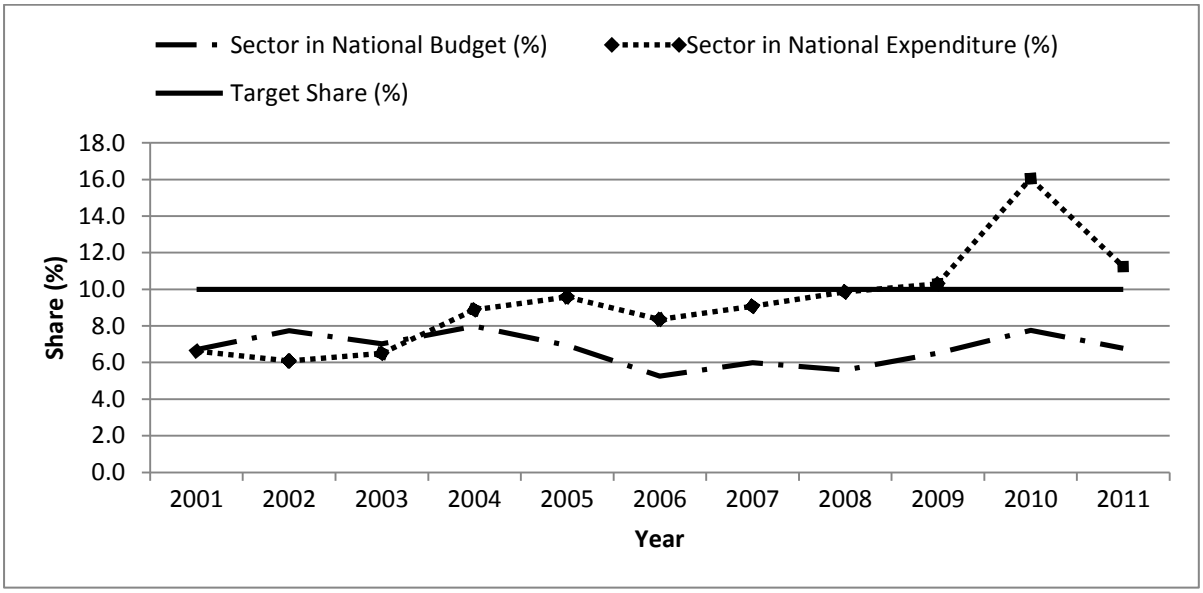


Source: Data from sector MDAs, CAGD, MOFEP.

3.2.3 Share of the Agricultural Sector in the National Budget and Expenditure

The shares of the agricultural sector in the national budget and expenditure over the 2001-2011 period averaged 6.8 and 9.3 percent, respectively, falling below the 10 percent target envisaged for the sector (Figure 3.6). Annual agriculture sector shares in the national expenditure reached the 10 percent target in 2009 (10.3 percent), 2010 (16.0 percent), and 2011 (11.2 percent).

Figure 3.6: Shares of agricultural sector in the national budget and expenditure (%), 2001-2011

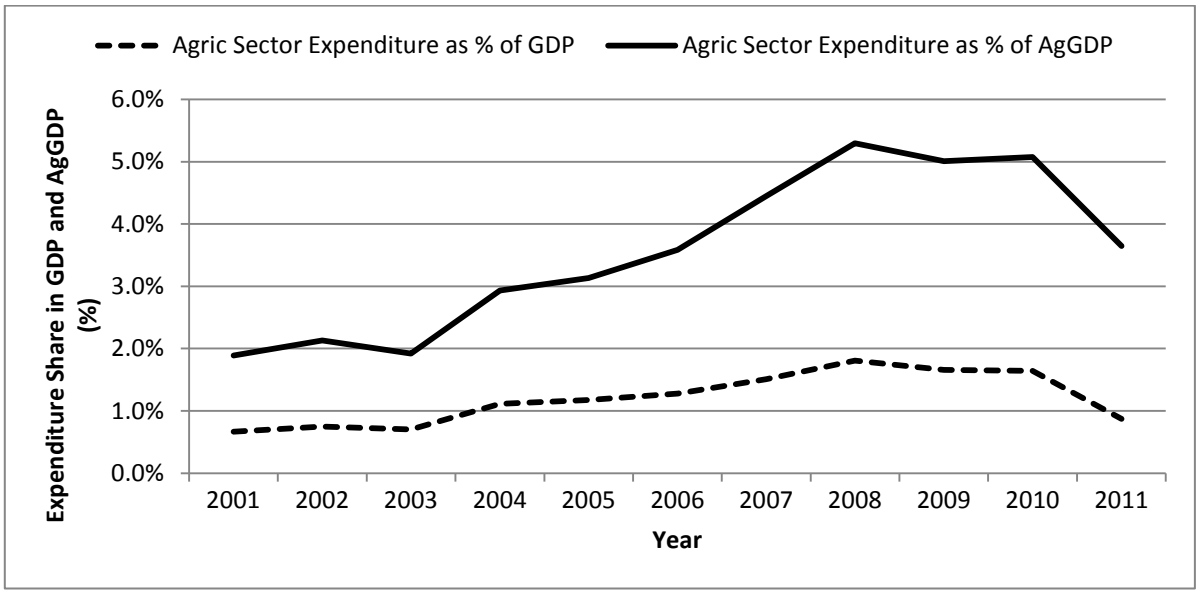


Source: Data from MDAs, budget documents, CAGD, GSS.

3.2.4 Share of Agriculture Expenditure Relative to GDP and AgGDP

Indicators of the share of the government's expenditure in agriculture relative to GDP and AgGDP show the relative importance of the agricultural sector to government as far as the country's economy is concerned. Government expenditure in the agricultural sector as a percentage of GDP measures the proportion of government spending in the sector relative to the size of the economy as a whole. Likewise, expenditure in the agricultural sector as a percentage of AgGDP measures government spending in agriculture relative to the size of the sector. Results from the analyses indicate that an average share of 1.2 percent relative to GDP was spent in the agricultural sector while the share for AgGDP was 3.6 percent. The shares for both GDP and AgGDP increased from 2001 to 2008 and declined in subsequent years (Figure 3.7). Expenditure relative to GDP increased from 0.7 percent in 2001 to 1.8 percent in 2008 and declined in subsequent years, falling to 0.9 percent in 2011. The relative share of agriculture expenditure in AgGDP increased from 1.9 percent in 2001 to 5.3 percent in 2008 and declined to 3.6 percent in 2011.

Figure 3.7: Trends in agricultural sector expenditure as a percent of GDP and AgGDP, 2001-2011



Source: Authors' calculations based on data from sector MDAs and GSS.

Table 3.1: Government expenditure in the agricultural sector, 2001-2011

	Year										
COFOG	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Ag. expenditure (nominal) GHC million	25	37	46	89	114	149	212	315	360	421	516
Ag. expenditure (in 2001 constant prices) GHC million	25	32	77	124	138	162	208	265	254	268	303
National expenditure (in 2001 constant prices) GHC million	382	524	1,177	1,402	1,444	1,937	2,504	3,324	2,620	1,670	2,693
Share of ag. in national expenditure (%)	6.6	6.1	6.5	8.9	9.6	8.4	9.1	9.9	10.3	16.0	11.2
Expenditure share in GDP (%)	0.7	0.7	0.7	1.1	1.2	1.3	1.5	1.8	1.7	1.6	0.9
Expenditure share in AgGDP (%)	1.9	2.1	1.9	2.9	3.1	3.6	4.5	5.3	5.0	5.1	3.6

Source: Data from sector MDAs, CAGD, MOFEP.

The increased budgetary allocation to the agricultural sector and the corresponding increased expenditure show some commitment by the government to the agricultural sector (recall Figure 3.5). Though the shares in budgetary allocation and expenditure fluctuated over the period, they declined in 2011, the commencement year for the implementation of METASIP.

A comparison of Ghana's and other countries' share of public agricultural expenditure relative to GDP and AgGDP for the period 2002-2004 is presented in Table 3.2.

Table 3.2: International comparison of relative public expenditure in agriculture, 2002-2004

Region/Country	Agriculture contribution to GDP	Share of agriculture expenditure in GDP	Share of agriculture expenditure in AgGDP
High-income countries			
Australia	3.0%	0.3%	10.0%
Canada	2.3%	0.5%	22.0%
EU	2.3%	0.7%	28.0%
U.S.	1.6%	0.7%	46.0%
Middle-income countries			
Turkey	13.0%	2.0%	15%
Mexico	4.0%	0.7%	18%
Vénézuela	5.0%	0.5%	12%
China	15.0%	1.2%	8%
Brazil	9.3%	0.7%	8%
Russia	6.0%	1.0%	16%
Ukraine	11.6%	1.3%	11%
Ghana 2002-2004	36.5%	0.9%	2.3%
Ghana 2005-2007	35.7%	1.3%	3.7%
Ghana 2008-2010	33.2%	1.7%	5.1%
Low-income countries			
Burkina Faso 2004-2011	33.0%	2.7%	8.2%
Uganda	32.0%	1.5%	5.0%
Tanzania	45.0%	1.2%	3.0%
Ethiopia	44.0%	2.7%	6.0%
Kenya	29.0%	1.3%	4.0%
Togo	41.0%	1.9%	3.9%

The contribution of Ghana's agricultural sector to GDP between 2002 and 2004 averaged approximately 37 percent, comparable to that of the Sub-Saharan African countries listed in Table 3.2 within the same period. The contribution of the agricultural sector to GDP declined in the period 2005-2007 to 35.7 percent and to 33.0 percent in 2008-2010. Expenditure in the agricultural sector relative to GDP increased from an average of 0.9 percent in the period 2002-2004, to 1.3 percent in 2005-2007, and to 1.7 percent in 2008-2010. Expenditure relative to AgGDP increased from 2.3 percent to 3.7 percent to 5.1 percent for the same three periods, respectively.

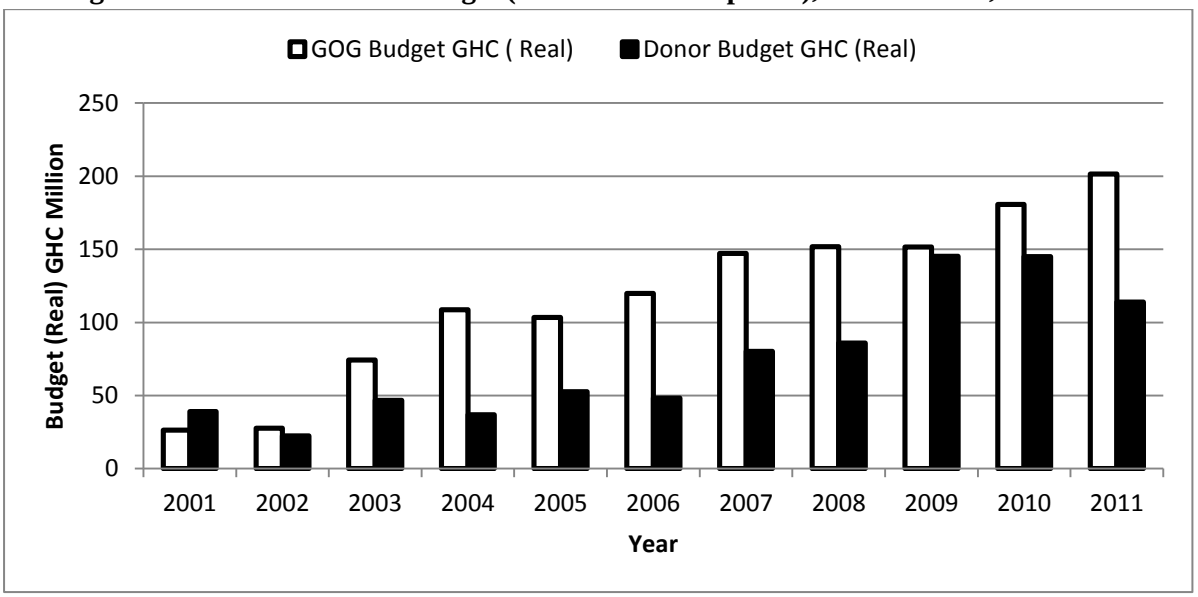
3.2.5 Balance between Government and Donor Funds

The agricultural sector is supported with financial and technical resources from the GoG and DPs. Financial resources from these sources are used to provide public goods and services and in some instances private goods to support private sector operators who are the major stakeholders in the sector.

The GoG contributed an average of GHC 119 million in real terms annually to the sector budget, while donors contributed GHC 74 million (Figure 3.8). The shares of the GoG and donors in the annual budget were 62 percent and 39 percent, respectively. Both GoG and donor budgetary allocations to the agricultural sector increased in real terms over the 11-year period. The GoG's allocation increased from GHC 26 million in 2001 to GHC 201 million in 2011. The allocation of

donors increased from 39 million in 2001 to GHC 114 million in 2011. The highest donor allocations (GHC 145 million) were made in 2009 and 2010.

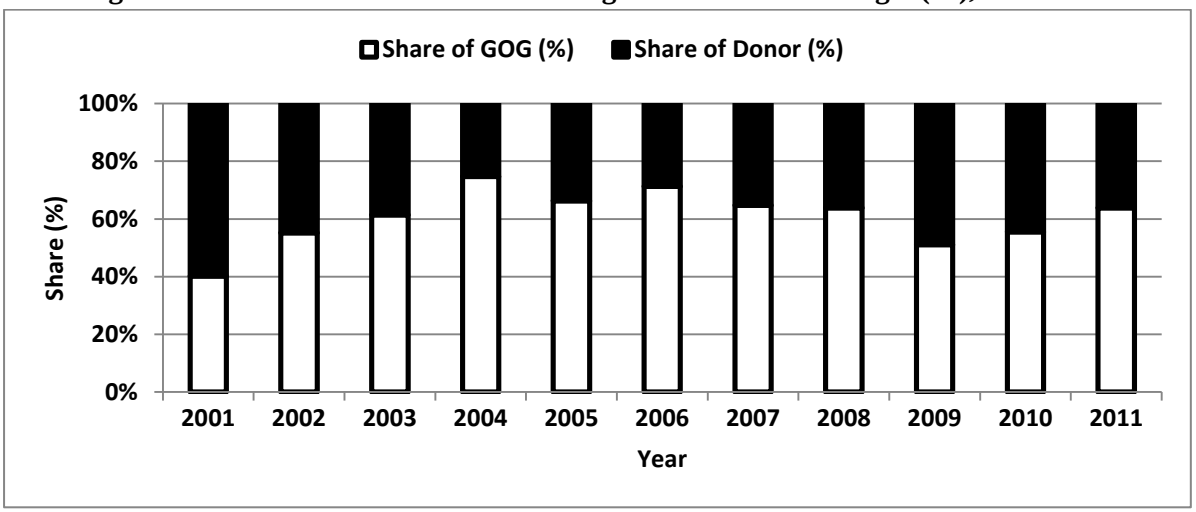
Figure 3.8: GoG and donor budget (in 2001 constant prices), GHC million, 2001-2011



Source: Data from sector MDAs, budget documents, CAGD.

The GoG share in the sector budget almost doubled between 2001 and 2004 but declined to 51 percent in 2009 and increased to 64 percent in 2011 (Figure 3.9). The donor share declined from 60 percent in 2001 to 25 percent in 2004, almost doubled in share to 49 percent in 2009, and declined to 36 percent in 2011.

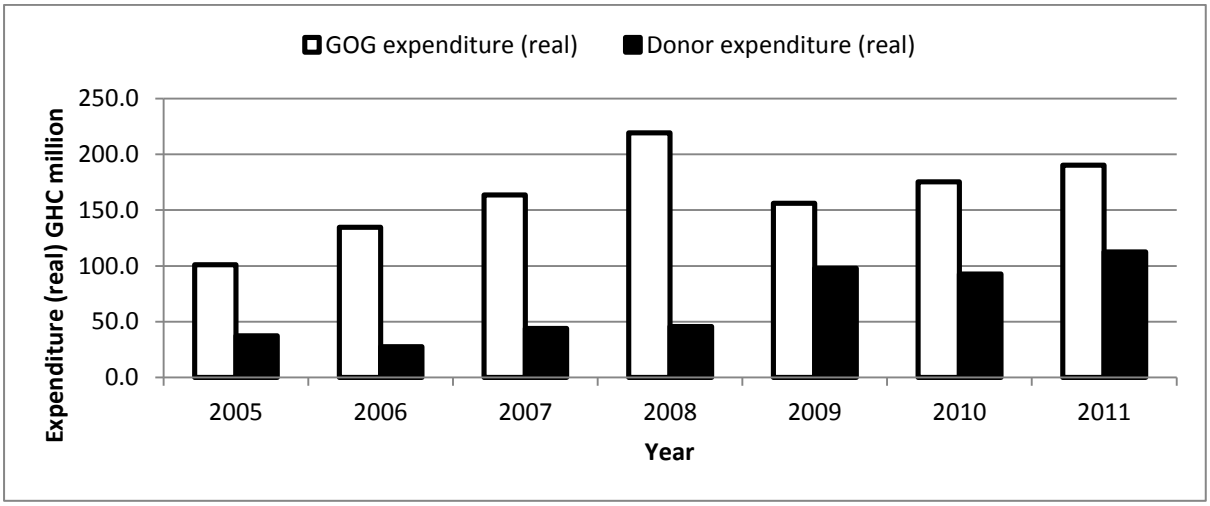
Figure 3.9: Share of GoG and donors in agricultural sector budget (%), 2001-2011



Source: Data from sector MDAs, CAGD, MOFEP.

Donor expenditure data were not available for some of the MDAs for 2001 to 2004. For this reason, the comparison between GoG and donor expenditure is based on the 2005-2011 period.

Figure 3.10: GoG and donor expenditure (in 2001 constant prices), GHC million, 2005-2011



Source: Data from sector MDAs, CAGD, MOFEP.

The GoG accounted for GHC 157 million of the agricultural sector expenditure, which represented 69 percent of the annual average expenditure in 2005-2011 (Figure 3.10). The donor expenditure of GHC 71 million represented 31 percent of the total amount. While the GoG expenditure almost doubled (GHC 101 million in 2005 to GHC 190 million in 2011), the donor expenditure tripled (GHC 37 million in 2005 to GHC 112 million in 2011) within the same period (Table 3.3).

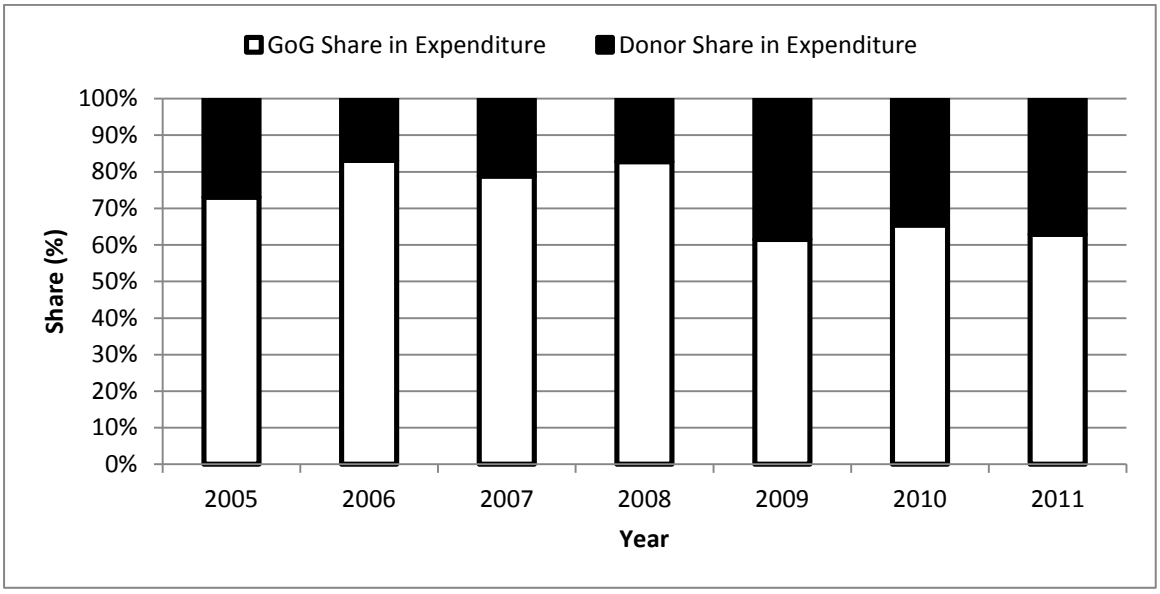
Table 3.3: GoG and donor expenditure (in 2001 constant prices) in agriculture, 2005-2011

Year	Agriculture sector expenditure (GHC million)	Source of funds	
		GoG (GHC million)	Donors (GHC million)
2005	138.3	101.0	37.3
2006	161.9	134.5	27.4
2007	207.7	163.7	44.0
2008	265.0	186.5	78.5
2009	254.1	156.1	97.9
2010	268.0	169.1	98.9
2011	302.7	190.3	112.4

Source: Sector MDAs, CAGD.

Despite the increased expenditure made by the GoG over the period, its share in the sector expenditure declined from approximately 73 percent in 2005 to 63 percent in 2011 (Figure 3.11). Donor expenditure, on the other hand, increased from 27 percent in 2005 to 37 percent in 2011.

Figure 3.11: Share of GoG and donors in agricultural sector expenditure (%), 2001-2011



Source: Data from sector MDAs, CAGD, MOFEP.

The low level of donor expenditure could be explained by the operation of the MDBS, whereby some donor funds are released through MOFEP and subsequently through the treasury system as government funds.

3.3 ATTAINING FOOD SECURITY AND OTHER SECTOR GOALS

The main goal of Ghana's agricultural development is to accelerate modernization of the sector to eventually culminate in a structurally transformed economy, evidenced by greater food security and employment opportunities and reduced poverty.[23]

The policy for the food subsector (food crops, livestock, and fisheries) seeks to accelerate modernization through the application of science and technology and the sustainable management of natural resources. This strategy aims to increase agricultural productivity towards the attainment of greater food security, enhanced incomes, and increased access to both domestic and international markets, as outlined in FASDEP II and the first three METASIP programs. The other three METASIP programs (sustainable management of land and environment; science and technology for food and agriculture development; and institutional coordination) are expected to support the attainment of the goals of the first three programs. In achieving this, the crops and livestock subsectors are targeted to grow at annual rates of 6 percent each, while the rate of growth of cocoa remains robust, and the fisheries and forestry subsectors grow at 5 percent each.[24]

Thus the priorities in the food subsector are: improved productivity and production of food crops, livestock, and fisheries; improved nutrition; application of improved technologies such as irrigation, mechanization services, and improved seed and planting materials; application of fertilizers and other agro-chemicals; and use of agricultural research and extension services.

[23] MOFA, FASDEP II, August 2007, page 20.

[24] MOFA, FASDEP II, August 2007, page 22.

Adequate resource allocation to the agricultural sector and its efficient utilization are therefore paramount in contributing to the attainment of sector goals. To assess the alignment of expenditure to sector goals and priorities, this section assesses the sector expenditure shares of subsectors, MDAs in the sector, the functional groups, and the decentralized units.

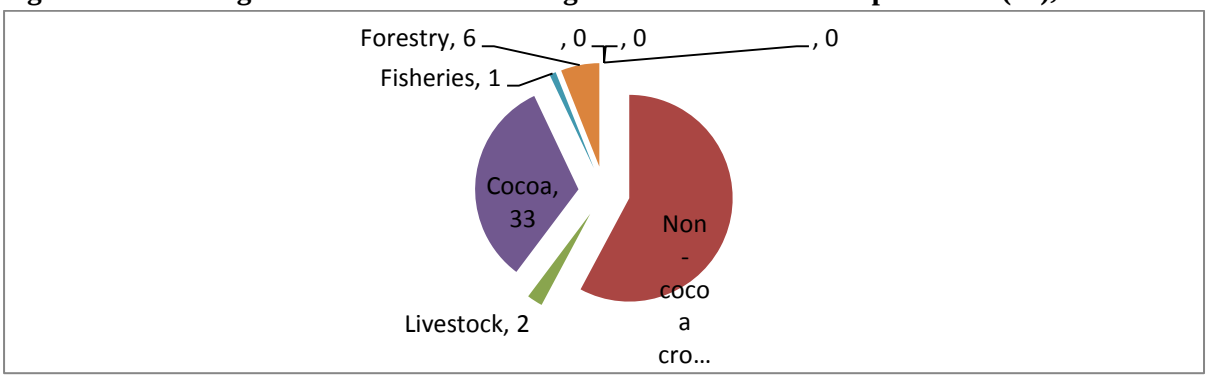
3.3.1 Subsector Expenditure

The key subsectors in Ghana's agricultural sector are non-cocoa crops, cocoa, livestock, fisheries, and forestry. The assessment of subsector expenditure is made over two periods (2001-2011 and 2005-2011). The 2005-2011 period was selected to facilitate a fair comparison in expenditure between the fisheries and other subsectors. [25]

3.3.1.1 Share of subsectors in sector expenditure

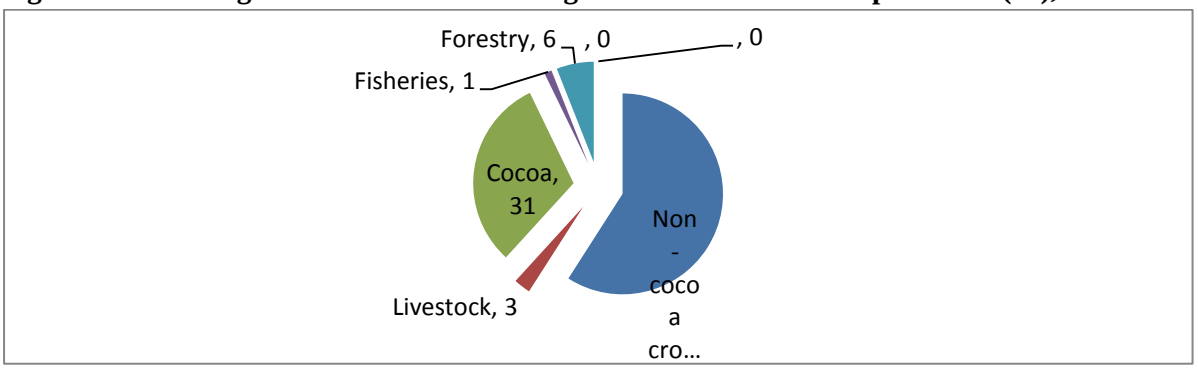
The non-cocoa crops subsector accounted for an average share of 58.0 percent of the real sector expenditure over the 2001-2011 period (Figure 3.12). Cocoa had the next biggest share (33 percent), followed by forestry (6 percent) and livestock (2 percent). Fisheries had the lowest share, at 1 percent.

Figure 3.12: Average share of subsectors in agricultural sector real expenditure (%), 2001-2011



Source: Data from sector MDAs, CAGD, MOFEP.

Figure 3.13: Average share of subsectors in agricultural sector real expenditure (%), 2005-2011



Source: Data from sector MDAs, CAGD, MOFEP.

Comparing the average shares of subsector expenditure over the periods 2001-2011 and 2005-2011, the non-cocoa crops accounted for a much larger share (59 percent) in the 2005-2011 period (Figure 3.13). The average share of cocoa over the 2005-2011 period was 2 percentage points below its share

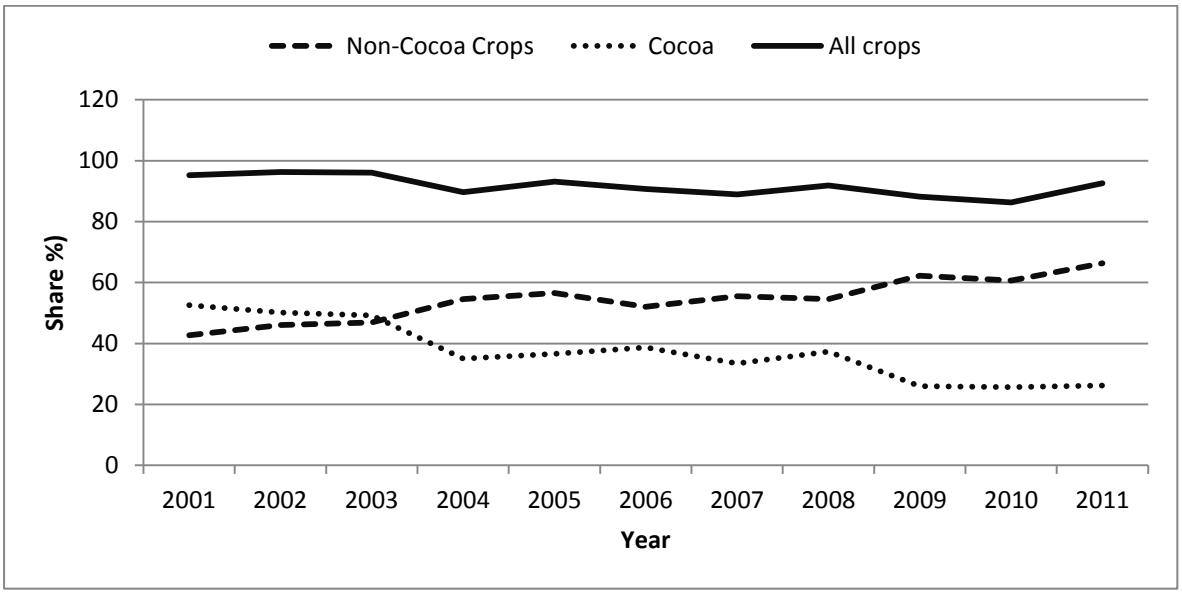
[25] Fisheries data were only available from 2005-2011.

in the 2001-2011 period. The shares of the forestry and fisheries subsectors remained unchanged, at 6 percent and 1 percent, respectively, while the share of livestock increased to 3 percent over the 2005-2011 period.

3.3.1.2 Trends in share of cocoa and non-cocoa crops in sector expenditure

The share of cocoa in agricultural sector expenditure exhibited a downward trend, from 53 percent in 2001 to 26 percent in 2011 (Figure 3.14). The share of non-cocoa crops fluctuated but increased from its lowest share (43 percent) in 2001 to its highest share (66 percent) in 2011.

Figure 3.14: Share of cocoa and non-cocoa crops in agricultural sector expenditure (%), 2001-2011

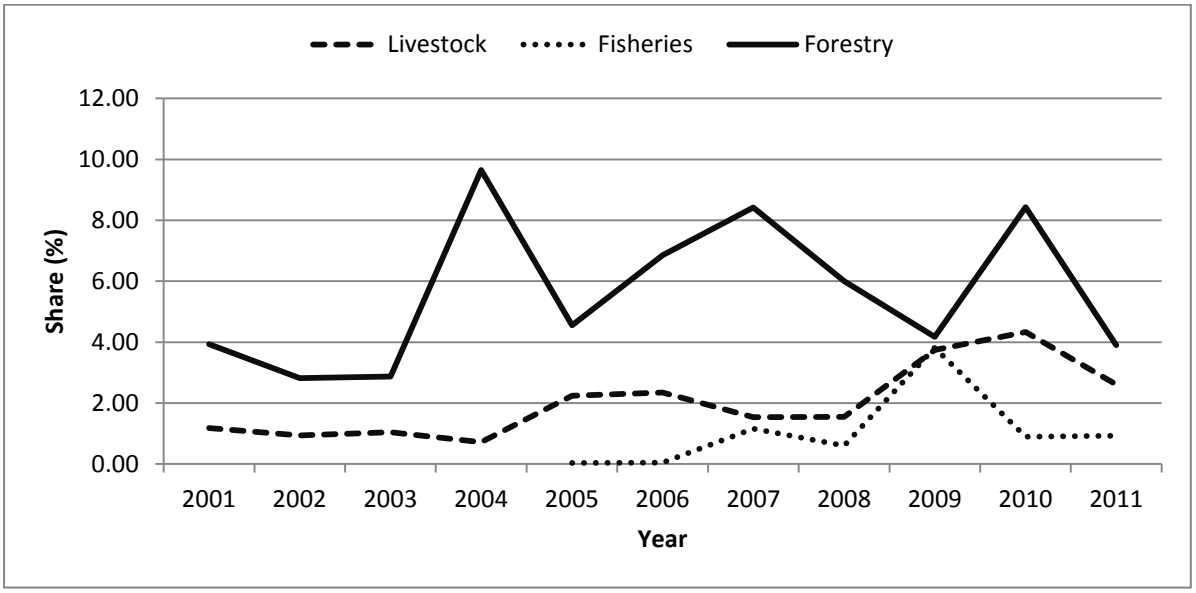


Source: Data from sector MDAs, CAGD, MOFEP.

3.3.1.3 Trends in share of livestock, fisheries and forestry subsector expenditure

The shares of livestock fisheries and forestry fluctuated over the period (Figure 3.15). The livestock share increased from 1 percent in 2001 to its highest share (4.3 percent) in 2010. The share of fisheries reached a high of 3.9 percent in 2009, from a near zero share in 2005.

Figure 3.15: Trends in share of livestock, fisheries, and forestry in agricultural sector expenditure (%), various years

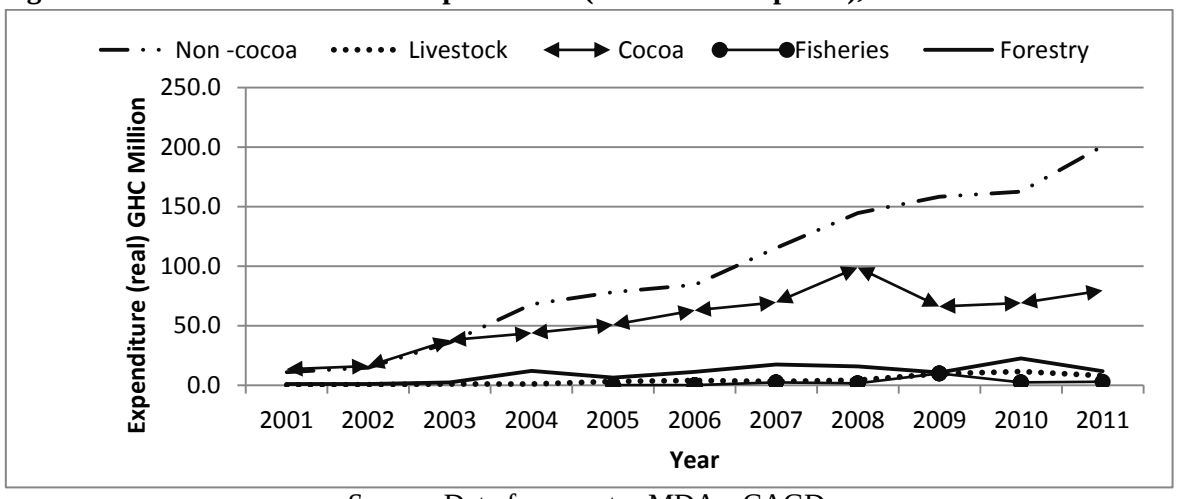


Source: Data from sector MDAs, CAGD, MOFEP.

3.3.1.4 Actual expenditure of subsectors

The non-cocoa crops subsector had an average real expenditure of GHC 97.5 million per annum. Over the 2001-2011 period, non-cocoa crops expenditure reached GHC 200.8 million from a level of GHC 10.8 million in 2001 (Figure 3.16). The cocoa subsector averaged GHC 55 million in annual expenditure, increasing from GHC 13.3 million in 2001 to GHC 98.9 million in 2008, but dropped to GHC 79 million in 2011. Expenditure in the livestock subsector averaged GHC 4 million. It increased from GHC 0.3 million in 2001 to GHC 11.6 million in 2010 and dropped to GHC 7.9 million in 2011. Average expenditure in the forestry subsector over the same period was GHC 10.2 million. The subsector experienced an increasing but fluctuating trend in expenditure, from GHC 1.0 million in 2001 to GHC 22.6 million in 2010, but this dropped to GHC 11.8 million in 2011.

Figure 3.16: Trends in subsector expenditures (2001 constant prices), GHC million 2001-2011



Source: Data from sector MDAs, CAGD.

Expenditure in the fisheries subsector was relatively low and unstable, with an average annual amount of GHC 2.7 million spent between 2005 and 2011. Part of the high expenditure (GHC 9.7 million)

made in 2009 was utilized as partial payment for two new patrol vessels to enhance monitoring and surveillance activities in the subsector.

A comparison of subsector average expenditure in the 2001-2011 and the 2005-2011 periods shows increased expenditure in the latter period for all subsectors except fisheries. Real expenditure of the non-cocoa crops, cocoa, livestock, and forestry subsectors in the 2005-2011 period averaged GHC 134.8 million, GHC 70.9 million, GHC 6.2 million, and GHC13.7 million, respectively. The average expenditure of fisheries remained unchanged (GHC 2.7 million) over the two periods.

A summary of agricultural subsector real expenditure is presented in Table 3.4.

Table 3.4: Agricultural subsector expenditure (in 2001 constant prices), GHC million, 2001-2011

Year	Non-cocoa crops	Cocoa	Live-stock	Fisheries	Forestry	Ag. Sector	Ag. Sector (COFOG +)
2001	10.8	13.3	0.3		1.0	25.3	25.6
2002	14.7	16.0	0.3		0.9	31.9	45.2
2003	35.9	37.7	0.8		2.2	76.6	97.2
2004	67.9	43.6	0.9		12.0	124.4	145.7
2005	78.2	50.6	3.1	0.1	6.3	138.3	194.1
2006	84.2	62.7	3.8	0.1	11.1	161.9	208.8
2007	115.2	69.5	3.2	2.4	17.5	207.7	255.2
2008	144.5	98.9	4.1	1.6	15.9	265.0	430.4
2009	158.2	66.0	9.5	9.7	10.6	254.1	334.8
2010	162.5	68.9	11.6	2.4	22.6	268.0	353..4
2011	200.8	79.4	7.9	2.8	11.8	302.7	394.8
Avg.	**97.5**	**55.1**	**4.1**	**2.7**	**10.2**	**168.7**	**225.9**

3.4 COMPARING EXPENDITURE TO SUBSECTOR SIZE AND GROWTH RATES

This section first compares the average share of subsectors in agricultural sector expenditure to the contribution of the subsectors to AgGDP for the period 2006-2011. Next, the trends in the share of subsector expenditures are compared with their respective growth rates, primarily to assess the direction of their movement.

3.4.1 Comparison of Subsector Shares in Sector Expenditure and AgGDP (2006-2011)

The agricultural sector contributed an average of GHC 5,923.6 million (2006 constant prices) to GDP between 2006 and 2011, representing 27.8 percent of GDP. Within that, the non-cocoa crops subsector contributed an average of 62 percent to AgGDP between 2006 and 2011. Forestry contributed 12 percent, followed by cocoa with an average of 10 percent. The livestock and fisheries subsectors contributed 8 percent each.

Non-cocoa crops accounted for the biggest average share (58.5 percent) in agricultural sector expenditure over the same period. The share of cocoa was 31.2 percent. Forestry accounted for 6.3 percent, while the livestock subsector had an average share of 2.7 percent. Fisheries had a share of 1.2 percent.

Table 3.5 presents the subsector ratio of shares in sector expenditure relative to the subsector's contribution to AgGDP.

Table 3.5: Comparison of subsector shares in expenditure and contribution to AgGDP, 2006-2011

	(a)	(b)	(c=a:b)
Subsector	**Average share in sector expenditure (%) 2006-2011**	**Average contribution to AgGDP (%) 2006-2011**	**Share in expenditure relative to contribution to AgGDP**
Non-cocoa crops	58.5	62.0	0.9:1
Cocoa	31.2	10.0	3.1:1
Livestock	2.7	8.0	0.3:1
Fisheries	1.2	8.0	0.2:1
Forestry	6.3	12.0	0.5:1
Total	99.9	100.0	

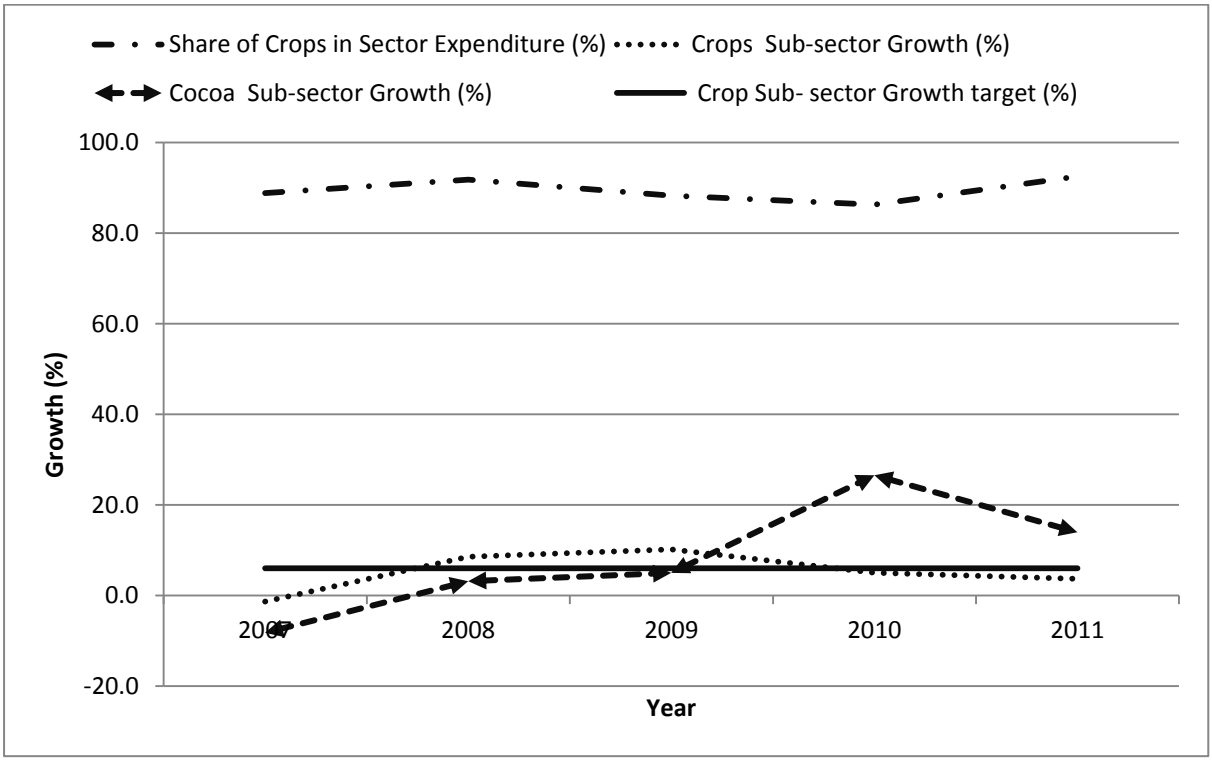
The possible existence of expenditure allocation misalignment emerges from this comparison. The comparison reveals the cocoa subsector to have the biggest ratio (3.1:1). This means for every unit contributed to AgGDP, the cocoa subsector utilized over three units of resources, whereas non-cocoa crops and the other subsectors utilized less than a unit each. The contribution of non-cocoa crops to AgGDP was about six times the contribution made by the cocoa subsector. However, the share of non-cocoa crops in agricultural sector expenditure was less than double the share of the cocoa subsector. The ratios of expenditure shares of the livestock, fisheries, and forestry subsectors relative to their contribution to AgGDP were 0.3:1, 0.2:1, and 0.5:1, respectively. This observation raises the issue of allocative efficiency of budgetary resources to the subsectors and subsequent equity in expenditure.

3.4.2 Aligning Shares in Expenditure to Subsector Growth Rates

3.4.2.1 Growth in the crops subsector

Prior to 2007, the computation of growth rates was combined for the crops and livestock subsectors (then referred to as the crops subsector). From 2001 to 2006, the crops subsector (crops and livestock) experienced positive growth rates, with an average rate of 3.7 percent. This growth improved to reach a level of 10.2 percent in 2009 (Figure 3.17). The crops subsector experienced a decline in growth after 2009 but was positive by 2011. Overall, the crops subsector only attained its target growth of 6 percent in 2008 (8.6 percent) and 2009 (10.2 percent). The negative growth of the cocoa subsector in 2001 and 2002 was reversed in 2003, increasing until 2007. The cocoa subsector recovered again the following year and continued in a positive direction until 2010, after which its growth declined.

Figure 3.17: Crops subsector growth in relation to share in sector expenditure and targeted growth, 2007-2011



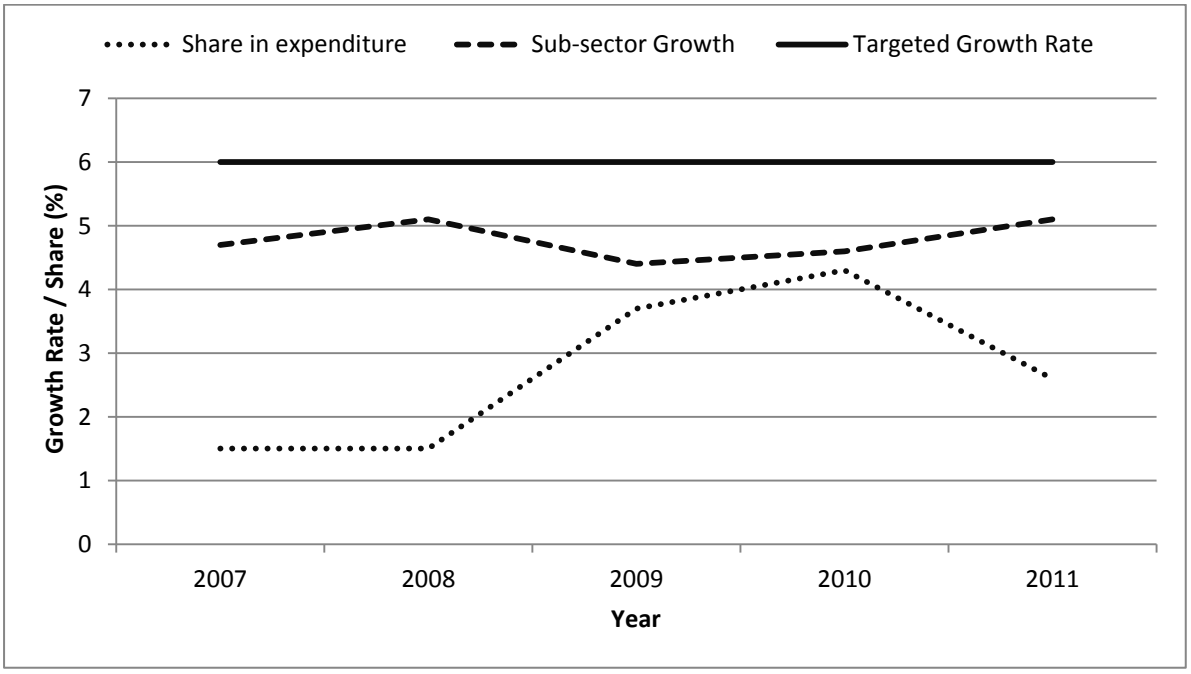
Source: Data from GSS, MOFA Facts and Figures 2010.

The share of crops subsector expenditure and the growth rates of cocoa and all crops moved positively in the same direction from 2007 to 2008. The crops subsector expenditure share declined after 2008 until 2010. During this period, growth in the entire crops and cocoa subsectors continued in an upward trend until 2009, when growth in the entire crops subsector started falling; cocoa followed in the same direction in 2010. The share of the crops subsector expenditure, on the other hand, had positive growth between 2010 and 2011. The movements suggest some linkage between growth rates and expenditure shares. However, the performance of the crops subsector cannot be attributed entirely to the level and share of public expenditure in agriculture. Other factors, including weather conditions, input prices, and the decision of farmers to invest in improved technologies and adopt improved husbandry practices, affected production and subsequently, subsector performance.

3.4.2.2 Growth in the livestock subsector

The average share of the livestock subsector in agricultural sector expenditure between 2007 and 2011 was 2.7 percent (Figure 3.18). The livestock subsector experienced increased growth between 2007 and 2011, with an average growth rate of 4.8 percent. However, growth in the subsector was below the targeted rate of 6 percent. Trends in the subsector growth and its share in sector expenditure over the period suggest the likelihood of a relationship between them.

Figure 3.18: Livestock subsector growth in relation to share in sector expenditure and targeted growth, 2007-2011

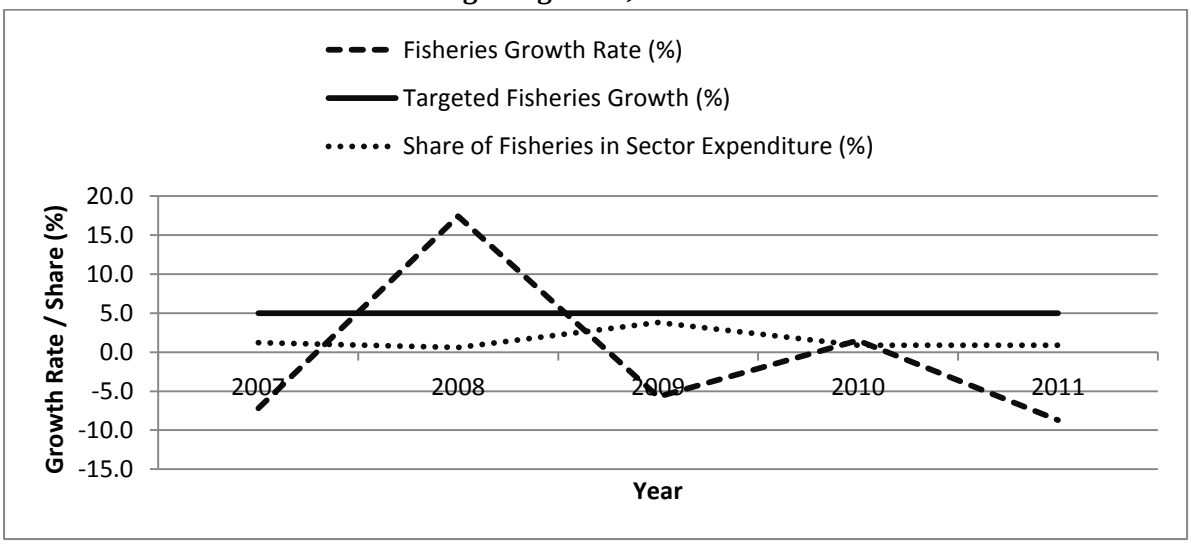


Source: Data from, MOFA, CAGD, MOFEP, GSS.

3.4.2.3 Growth in the fisheries subsector

Expenditure in the fisheries subsector between 2007 and 2011 was very low. The average share of fisheries in the agricultural sector expenditure over the 2007-2011 period was 1.5 percent (Figure 3.19**Error! Reference source not found.**). Growth in the subsector between 2007 and 2011 was characterized by ups and downs. The average growth rate over the period was -0.5 percent despite the positive growth of 7.4 percent and 1.5 percent achieved in 2008 and 2010, respectively.

Figure 3.19: Trends in fisheries subsector growth in relation to share in sector expenditure and targeted growth, 2007-2011

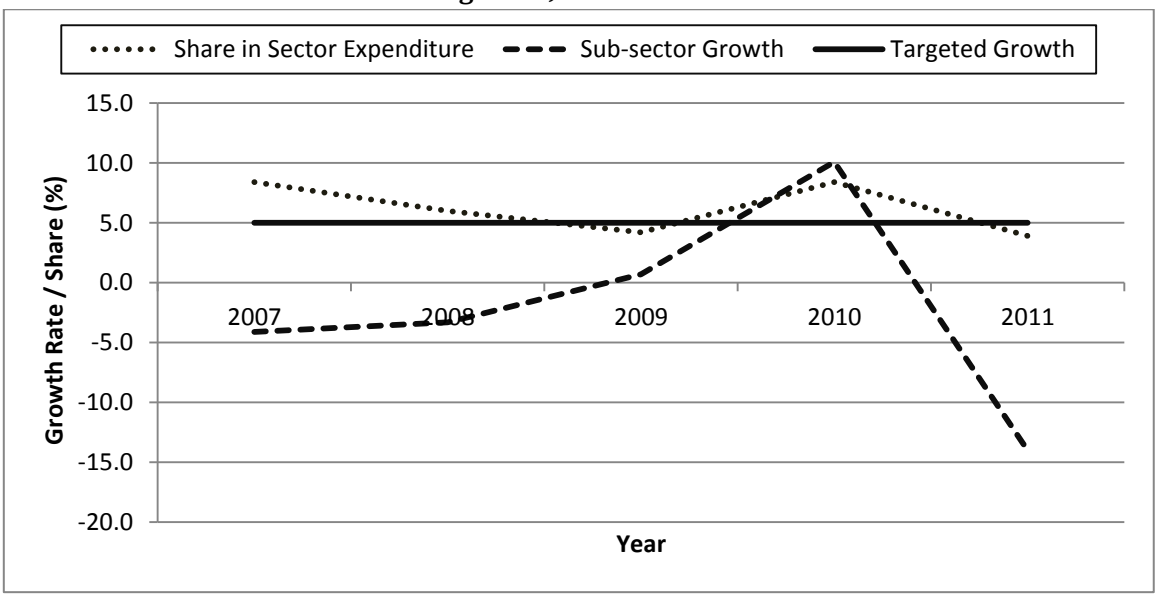


Source: MOFA, Fisheries Commission, MOFEP, GSS.

3.4.2.4 Growth in the forestry subsector

The forestry subsector had an average share of 6.2 percent in agricultural sector expenditure and an average growth rate of -2.1 percent between 2007 and 2011 (Figure 3.20). A comparison of the trends in the subsector growth rate and its share in sector expenditure over the period shows similarity in the direction of movement. The Forestry Services depends largely on IGF and donor support for its operations. It receives salaries as subvention from the government's approved budget.

Figure 3.20: Forestry subsector growth in relation to share in sector expenditure and targeted growth, 2007-2011



Source: Data from Forestry Commission, CAGD, MOFEP, GSS.

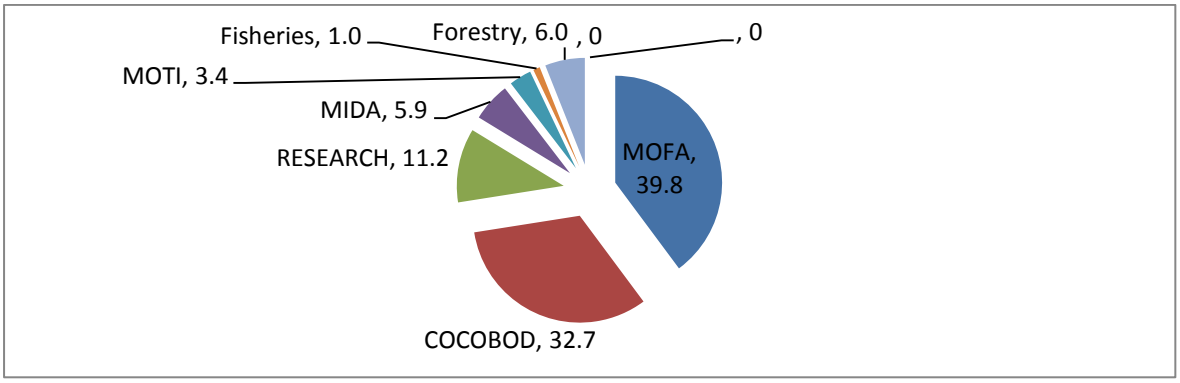
3.5 MDAs IN THE AGRICULTURAL SECTOR

3.5.1 Expenditure by MDAs

MOFA accounted for the biggest average share (39.8 percent) of agricultural sector expenditure over the period 2001-2011 (Figure 3.21). COCOBOD had the second largest share (32.7 percent), followed by agricultural research, with an average share of 11.2 percent. Forestry accounted for 6.0 percent and the MIDA had a share of 5.9 percent. The share of MOTI was 3.4 percent and fisheries had 1.0 percent.[26]

[26] Period of data coverage for the MDAs: MOFA 2001-2011; COCOBOD 2001-2011; Agricultural Research 2001-2011; Forestry 2001-2011; MOTI 2002-2011; MIDA 2007-2011; Fisheries 2005-2011.

Figure 3.21: Average share of MDAs in agricultural sector real expenditure (%), 2001-2011

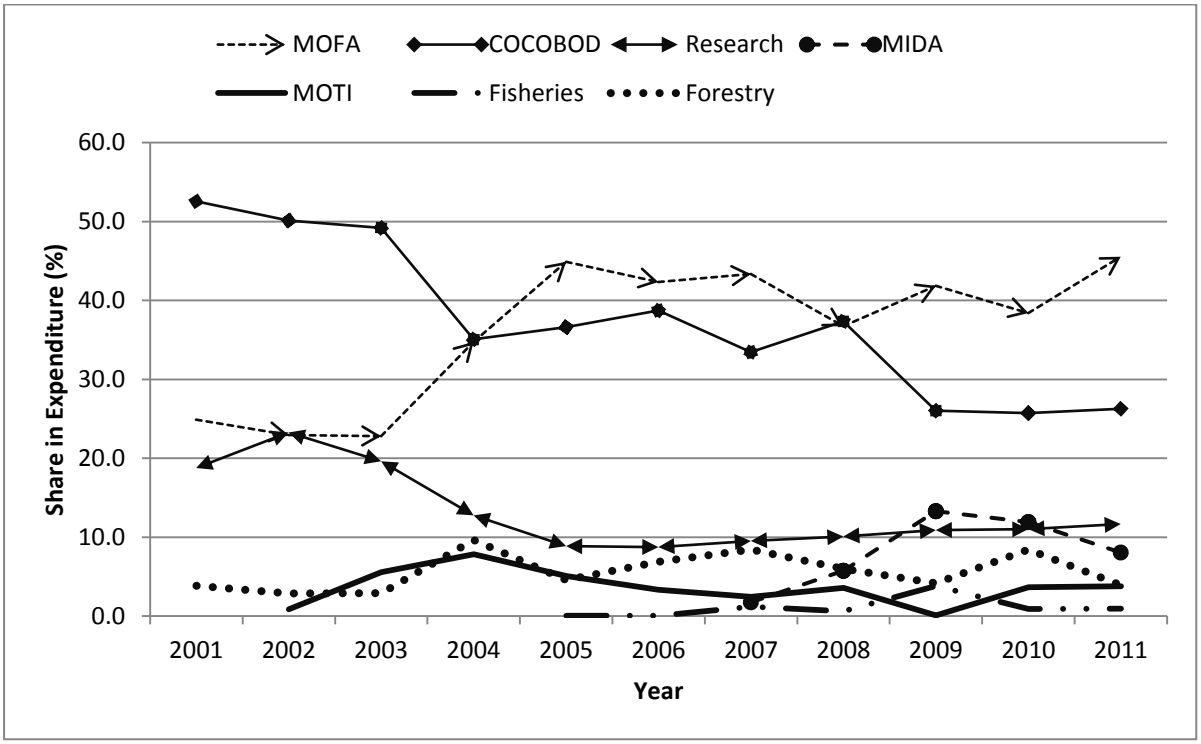


Source: Data from MDAs, CAGD.

The expenditure by MOTI relate to the President's Special Initiative on Oil Palm (PSI-Oil Palm) and support by the Export Development and Investment Fund (EDIF) to the private sector. The PSI-Oil Palm project was implemented with HIPC funds, funds from MOTI's budgetary resources, and from EDIF. EDIF supported the private sector with GHC 56.75 million in loans and grant funds for the development of exportable agricultural commodities.

The share of MOFA in agricultural sector expenditure doubled from its lowest share of approximately 23 percent in 2002 to 46 percent in 2011, while COCOBOD's dropped by half, from its share of nearly 53 percent in 2001 to 26 percent in 2011 (Figure 3.22).

Figure 3.22: Share of MDAs in agricultural sector expenditure (%), 2001-2011



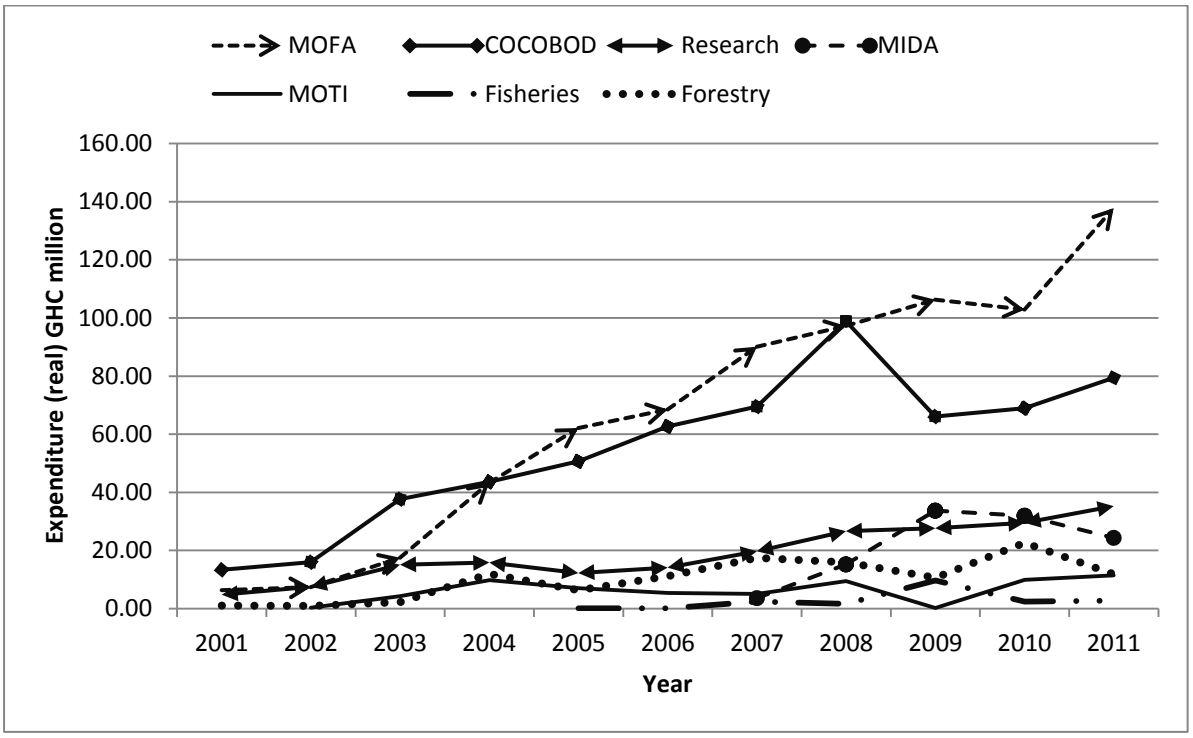
Source: Data from MDAs, CAGD, MOFEP.

The share of agriculture research declined from 23 percent in 2002 to approximately 9 percent in 2006 and increased to 11.6 percent in 2011. The share of MIDA increased (1.7 to 13 percent) over its 2007-

2011 program implementation period, while the share of MOTI declined from its highest share (7.8 percent) in 2004 to 0.1 percent in 2009. The shares of fisheries were the lowest (1 percent or less) between the periods 2005-2008 and 2010-2011. Its highest share (3.9 percent) was obtained in 2009.

Expenditure by the MDAs in the agricultural sector increased in real terms over the study period, (Figure 3.23). At an average of GHC 67 million, MOFA's expenditure increased from GHC 6.3 million in 2001 to approximately GHC 138 million in 2011. COCOBOD spent an annual average of GHC 55 million between 2001 and 2011. Expenditure by COCOBOD increased steadily from GHC 13 million in 2001 to GHC 99 million in 2009 and dropped to GHC 79 million in 2011.

Figure 3.23: Expenditure by MDAs in the agricultural sector (in 2001 constant prices), GHC million, 2001-2011



Source: MDAs, CAGD, MOFEP.

Average expenditure by the MIDA between 2007 and 2011 was GHC 22 million. The amount increased in real terms from GHC 3.6 million in 2007 to GHC 24.3 million in 2011, with the highest expenditure (GHC 33.7 million) made in 2009. Expenditure by the MIDA was split between service (68 percent) and investment (32 percent). The agricultural project under the MIDA provided irrigation facilities, public pack-houses for agricultural produce, credit, and commercial training of operators in the agricultural sector.

Agricultural research accounted for an annual average expenditure of GHC 19 million, increasing seven-fold from approximately GHC 5 million in 2001 to GHC 35 million in 2011. The agricultural research institutes, colleges, and faculties of agriculture in the public universities included in the current review utilized about 89 percent of their annual expenditure on personnel emoluments. A share of 9 percent was spent on non-wage recurrent activities and 2 percent was utilized as investment fund. This pattern of expenditure in the agricultural research system raises an issue of allocative efficiency.

Despite the low level of budgetary allocation on service and investment to CSIR and the universities, the research organizations receive off-budget funds from some DPs to carry out research activities. In past years, MOFA supported and now continues to collaborate with CSIR on research components of projects and programs implemented by the Ministry. The West African Agricultural Productivity Programme (WAAPP) is one such current program.

3.5.1 Expenditure of Agricultural Sector Functional Groups

A comprehensive functional analysis was not carried out on the agricultural sector in this review, as disaggregated data from some of the MDAs were not available to facilitate such an exercise. Expenditure on irrigation, extension services, and agricultural mechanization are presented in this section.

Average expenditure on irrigation between 2007 and 2001 was GHC 11.9 million in real terms. The amount represented approximately 4.6 percent of the agricultural sector expenditure during the same period. About 67 percent of the expenditure was made by GIDA and the Irrigation Company of Upper Region (ICOUR). The MIDA accounted for the remaining 33 percent. About 64 percent of the GIDA and ICOUR expenditure was made on investment activities. Personnel emoluments accounted for 29 percent, while 7 percent was spent on non-wage recurrent activities.

Average expenditure on agricultural mechanization services amounted to GHC 2.8 million, which represented 1.1 percent of agricultural sector expenditure.

Agricultural extension services made an average expenditure of GHC 12.7 million, representing 3.6 percent of the agricultural sector expenditure. The group is made up of MOFA's Directorate of Agricultural Extension Services (DAES), the Women in Agricultural Development Directorate (WIAD), and the RADUs together with their corresponding DADUs.

3.6 ALLOCATIVE EFFICIENCY

Allocative efficiency is also referred to as the economic composition of the budget and expenditure. It is useful in determining the balance between the various components of the budget. For example, an assessment could be made of the balance between recurrent and development expenditure, and also of the balance between wage and non-wage expenditure.

This study assesses the balance between recurrent and development expenditure to determine the level of utilization between the two components. In addition, assessments are made of the balance between wage and non-wage expenditure, as well as the balance between non-wage recurrent and investment expenditure.

3.6.1 Balance Between Recurrent and Investment Expenditure

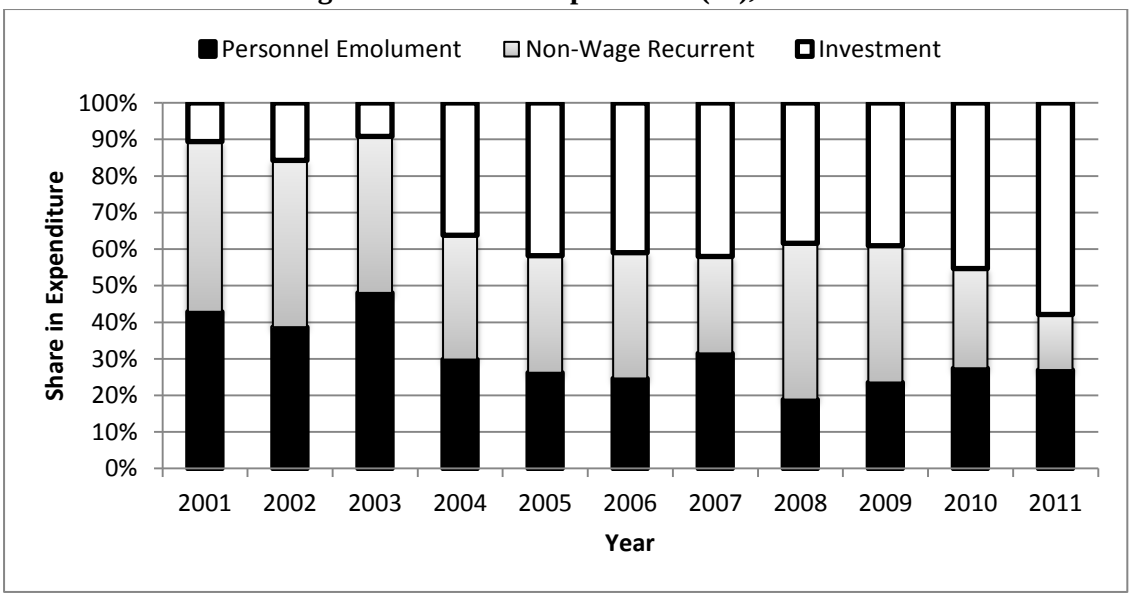
The main items of expenditure in the budget are: personnel emoluments; administrative expenses; and service expenditure and investment. Personnel emoluments, administrative expenses, and service expenditure are classified as recurrent expenditure. Investment is development expenditure. Personnel emoluments are sometimes referred to as wages since they relate to salaries. The other recurrent expenditure is referred to as non-wage recurrent.

An average amount of GHC 99 million (real) was spent on recurrent items and activities annually. GHC 46 million of the recurrent expenditure went into personnel emoluments and GHC 53 million

was spent on non-wage recurrent items and activities. Investment expenditure amounted to GHC 70 million.

The expenditure on personnel emoluments represented 27 percent of the sector expenditure, while non-wage recurrent expenditure accounted for 32 percent, and investment expenditure, 41 percent. A trend of the shares over the 2001-2011 period is presented in Figure 3.24.

Figure 3.24: Share of personnel emoluments, non-wage recurrent, and investment in agricultural sector expenditure (%), 2001-2011

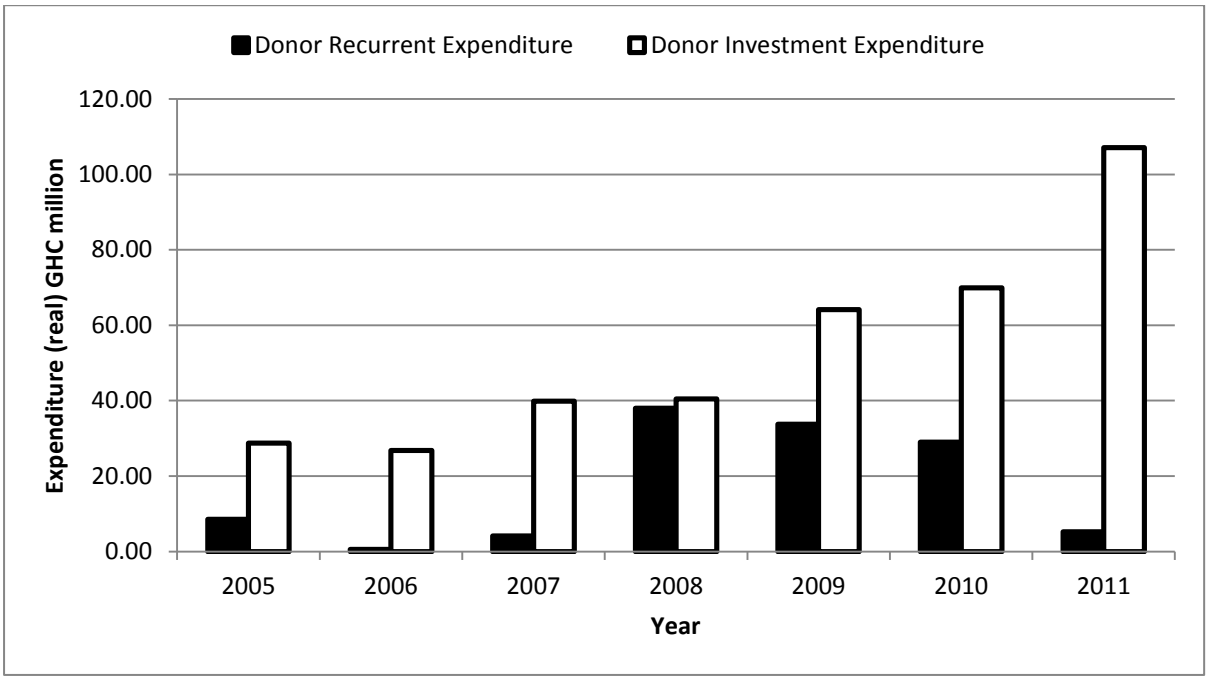


Source: Data from sector MDAs; CAGD.

The share of personnel emoluments declined from 43 percent in 2001 to 27 percent in 2011. Over the same period, the share of non-wage recurrent expenditure declined from 47 percent to 15 percent. The share of investment increased from 11 percent in 2001 to 58 percent in 2011. The relatively high shares of wage and non-wage recurrent expenditure in the early part of the study period are due to the lack of adequate data on investment expenditure, particularly from donor sources. The recurrent shares dwindled as data on donor expenditure became increasingly available over the study period. Nevertheless, the declining shares of wage and non-wage recurrent expenditure raise issues about sustainability of the operation and maintenance of investment items and facilities. It also raises concerns about the adequacy of the provision of technical services delivery in the sector.

Donor expenditure in the sector was biased towards investment activities (Figure 3.25). An average amount of GHC 53.87 million, representing 76 percent of donor expenditure, was spent on investment activities between 2005 and 2011. Donor recurrent expenditure was GHC 17.03 million, which represented 24 percent of total donor expenditure.

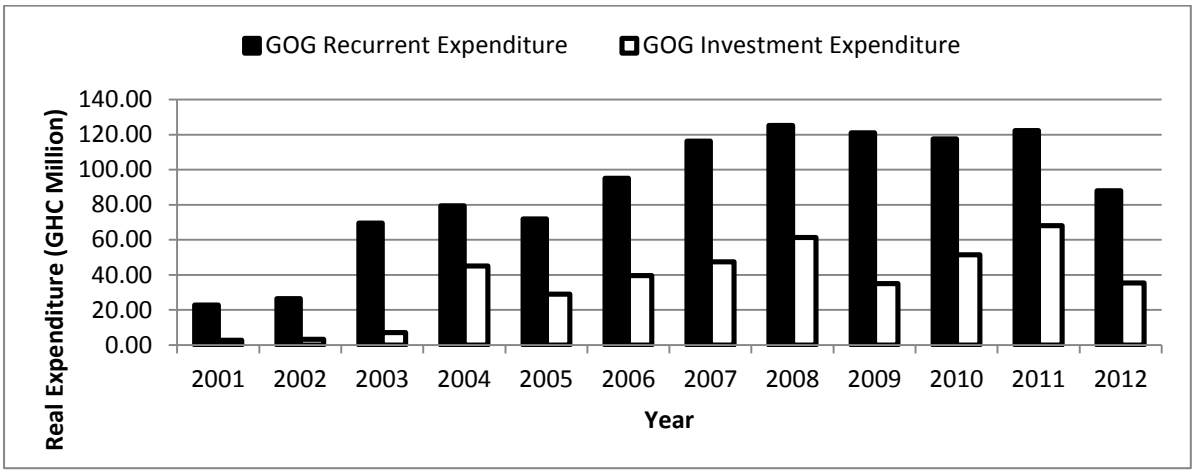
Figure 3.25: Donor recurrent and investment expenditures (in 2001 constant prices), GHC million, 2005-2011[27]



Source: Data from sector MDAs, CAGD.

Average GoG expenditure was split between recurrent and investment in the amounts of GHC 87.96 million and GHC 35.43 million, respectively (Figure 3.26). Recurrent expenditure represented 71 percent of the GoG expenditure, while investment represented 29 percent (Figure 3.27). The shares in expenditure fluctuated over time. While the recurrent shares exhibited a declining trend, from 89 percent in 2001 to 64 percent in 2011, investment increased from 11 percent in 2001 to 36 percent in 2011.

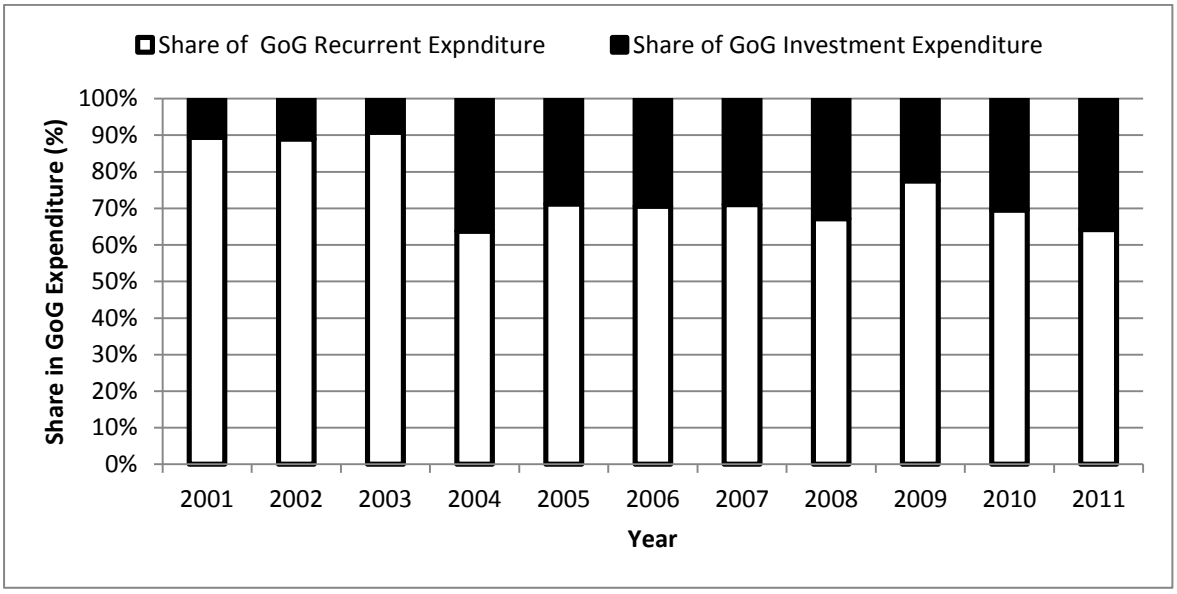
Figure 3.26: GoG recurrent and investment expenditure (in 2001 constant prices), GHC million, 2001-2011



Source: Data from sector MDAs; CAGD.

[27] It should be noted that Figure 3.25 is only indicative given the limited availability of donor data in the earlier years, as described earlier.

Figure 3.27: Share of recurrent and investment in GoG expenditure (%), 2001-2011

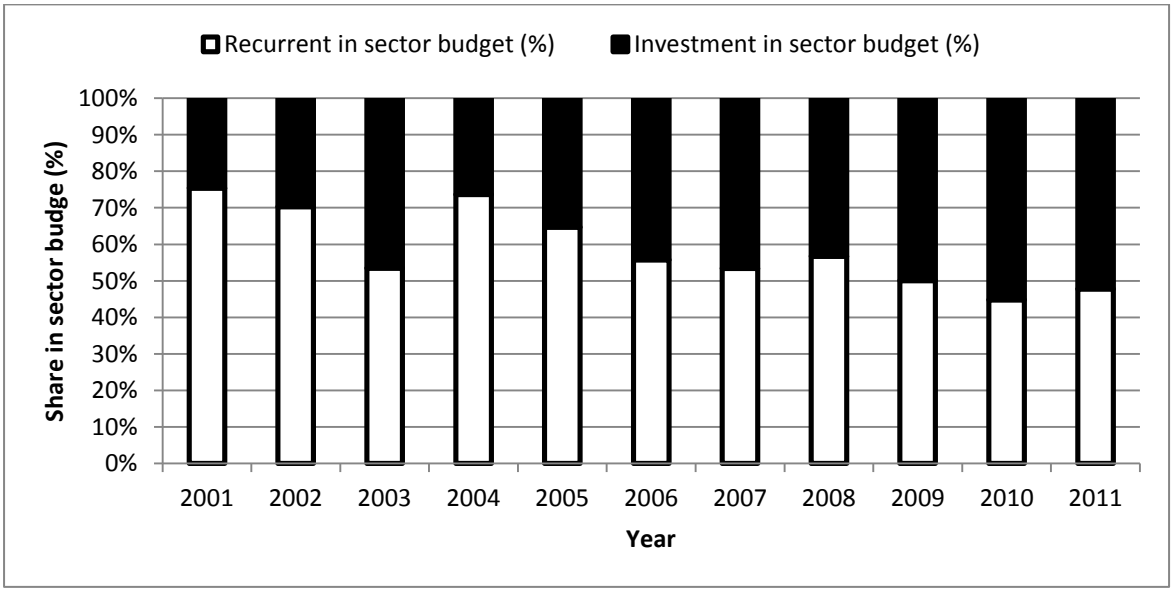


Source: Data from sector MDAs; CAGD.

3.6.2 Balance between Recurrent and Investment in Agricultural Sector Budget

The average shares of recurrent and investment in the agricultural sector budget over the 2001-2011 period were 59 percent and 41 percent, respectively (Figure 3.28). The share of recurrent budget declined from 75 percent in 2001 to approximately 48 percent in 2011, while the share of investment doubled from nearly 25 percent in 2001 to 52 percent in 2011.

Figure 3.28: Balance between recurrent and investment in agricultural sector budget (%), 2001-2011

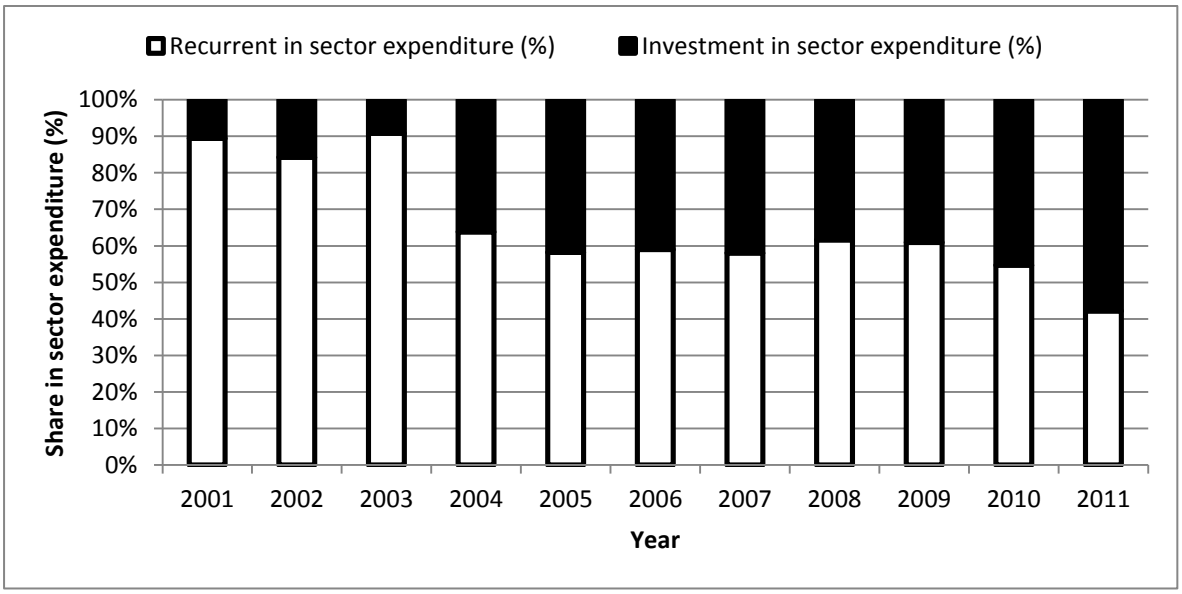


Source: Data from sector MDAs, budget documents.

Recurrent expenditure averaged approximately 66 percent of the sector expenditure; investment expenditure accounted for the remaining share of 34 percent. Recurrent expenditure declined by half,

from its share of 89 percent in 2001 to 42 percent in 2011, while the share of investment expenditure increased over five times in the same period (Figure 3.29**Error! Reference source not found.**).

Figure 3.29: Balance between recurrent and investment in agricultural sector expenditure (%), 2001-2011

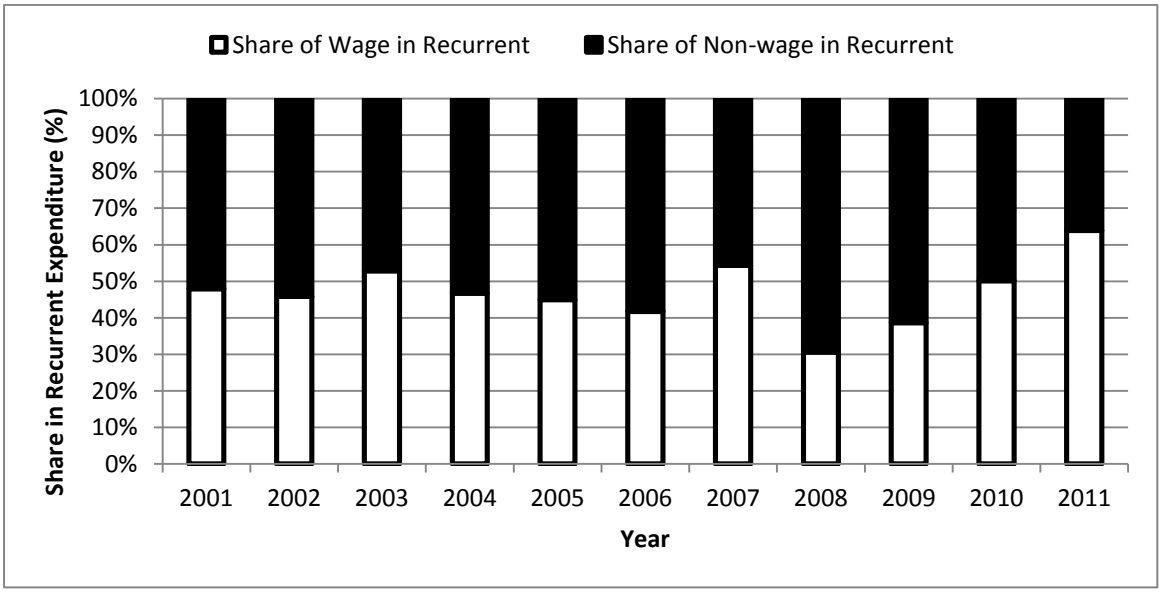


Source: Data from sector MDAs; CAGD.

3.6.3 Balance between Wage and Non-wage Recurrent Expenditure in the Agriculture Sector

Personnel emoluments represented 47 percent of total recurrent expenditure in the agricultural sector expenditure while non-wage recurrent accounted for the remaining 53 percent share (Figure 3.30). Non-wage recurrent expenditure is made on recurrent items for administrative operations of the MDAs and also to provide extension and other technical services to the private sector.

Figure 3.30: Balance between wage and non-wage recurrent expenditure (%), 2001-2011

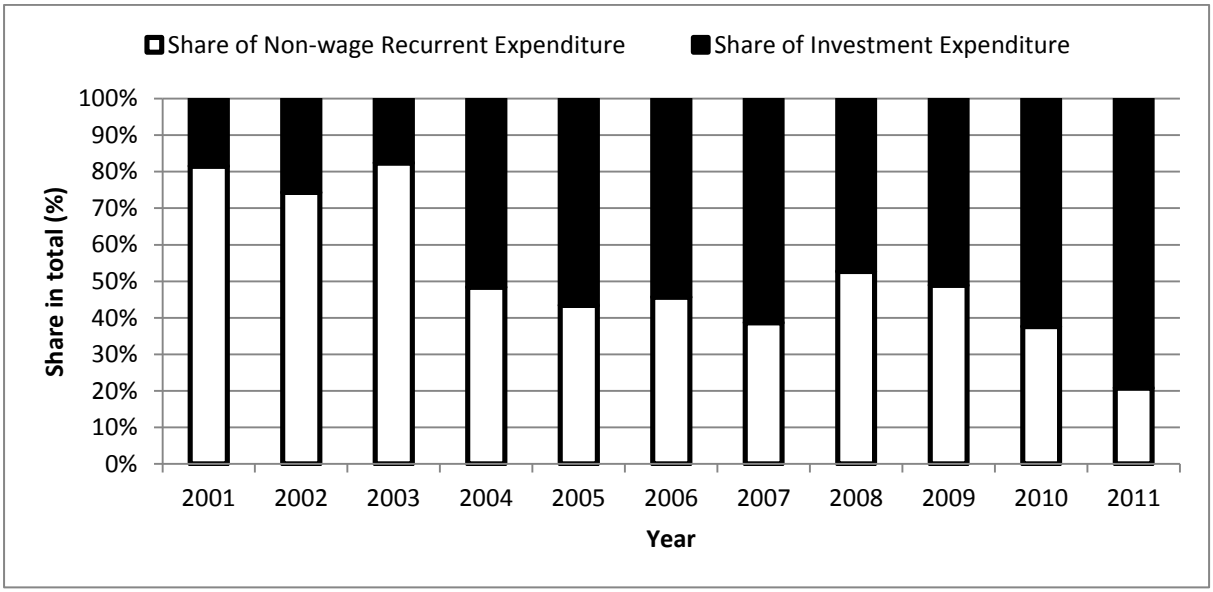


Source: Data from sector MDAs; CAGD.

3.6.4 Balance between Non-wage Recurrent and Investment Expenditure in the Agriculture Sector

The average non-wage recurrent expenditure in real terms over the 2001-2011 period was GHC 53 million, representing 43 percent of the total non-wage and investment expenditure. Over the years, non-wage recurrent expenditure declined in share from 81.5 percent in 2001 to 20.8 percent in 2011 (Figure 3.31). Investment expenditure, on the other hand, averaged GHC 69.9 million, representing an average of 57 percent. The share of investment increased over four times, from 18.5 percent in 2001 to 79.2 percent in 2011.

Figure 3.31: Balance between non-wage recurrent and investment expenditure, 2001-2011



Source: Data from sector MDAs; CAGD.

The declining trend in the share of non-wage expenditure relative to investment reflects increased investment budgetary allocation and release of funds to the sector. Approved investment budgets for the sector increased from 24.6 percent in 2001 to 52.3 percent in 2011. Stepping up investment expenditure is desirable for the development of the agricultural sector. However, complementing the increased investment budget with adequate allocation of non-wage recurrent funds would ensure more effective operation and maintenance of the investments.

3.6.5 Input Subsidies

As part of the modernization strategy adopted to increase agricultural productivity and production in the country, the GoG introduced a fertilizer subsidy program in 2003 for cocoa and in 2008 for non-cocoa crops. For the non-cocoa crops, the program was introduced in response to the global food crisis experienced in 2007-2008, and to help farmers step up fertilizer application from the current estimated level of 8 kg/ha to 50 kg/ha for increased productivity

The program under MOFA involved four major fertilizer companies that provided the GoG with information on fertilizer requirements at the regional level. Based on the information provided, the government took decisions on the types and quantities of fertilizers to be subsidized. Coupons were subsequently made available to Agricultural Extension Agents (AEAs) through the RADUs and DADUs. The coupons were in turn issued to farmers, who used them to purchase fertilizer at the subsidized price from retail outlets. This mechanism was replaced in 2010 with the waybill system as a result of high administrative costs, which included the time spent by MOFA officers monitoring the process. Under the waybill system, the GoG bears the port and handling charges as well as transportation from the port. Based on the costs, an affordable price that includes agents' commission is negotiated between the government and distributing companies. A specified quantity of fertilizer is sold on the open market. The system does not target selected beneficiaries as was done under the voucher system. The waybill system also involves agricultural officers at the national, regional, and district levels who collate waybills and receipts on fertilizers sold. The receipts and waybills are used to facilitate payment of the subsidy to the distributing companies. In the cocoa subsector's subsidized

fertilizer program, known as Hi-Tech, COCOBOD procured the fertilizer and distributed it to beneficiary farmers through the LBCs.

Table 3.6 presents the quantities of fertilizer purchased and the total cost of the subsidy to the government.

Table 3.6: Cost of fertilizer subsidy to government (in 2001 constant prices), 2008-2011

Year	Subsector	Quantity of fertilizer subsidized (mt)	Total cost to gov't (GHC million)	Cost to gov't per unit fertilizer (GHC/mt)
2008	MOFA	43,176	17.37	402.35
2008/09	COCOBOD	106,324	182.197	1,713.51
	Total	**149,500**	**199.56**	
	Average			**1,057.93**
2009	MOFA	72,795	24.27	333.39
2009/10	COCOBOD	132,462	197.96	1,494.49
	Total	**205,257**	**222.23**	
	Average			**913.94**
2010	MOFA	91,244	19.12	209.50
2010/11	COCOBOD*	145,000	181.08	1,248.81
	Total	**236,244**	**200.20**	
	Average			**729.16**
2011	MOFA	178,033	46.99	263.95
2011/12	COCOBOD**	110,880	193.41	1,744.34
	Total	**288,913**	**240.40**	
	Average			**1,004.14**
Total 2008-2011	MOFA	385,248	107.75	279.69
	COCOBOD	494,666	754.64	1,525.55
	Total	**879,914**	**862.39**	
	Average			**902.62**

Note: * Cost covers additional 2,000,000 liters of liquid fertilizer; ** cost covers additional 2,200,000 liters of liquid fertilizer.
Source: MOFA; COCOBOD.

A total quantity of 879,914 mt of fertilizers was procured by the GoG and sold at subsidized rates to farmers between 2008 and 2011. In addition, 4.2 million liters of liquid fertilizer were procured for the Hi-Tech program in the 2010/11 and 2011/12 seasons. The total cost (in 2001 constant prices) of the program to the government over the period was GHC 862.39 million. The MOFA program accounted for a total cost of GHC 107.75 million, which represented 12.5 percent of the entire cost, while COCOBOD spent GHC 754.64 million (87.5 percent of the entire cost). Compared to the agricultural sector, the fertilizer subsidy program represented 79 percent of expenditure in the

agricultural sector over the same period, with COCOBOD accounting for 87.5 percent and MOFA 12.5 percent. The MOFA program represented nearly 40 percent of the Ministry's investment expenditure and approximately 22 percent of the sector's investment expenditure for the period. The cocoa fertilizer program is implemented through a special fund created to provide various public goods and services (referred to as industry costs) to directly benefit producers. The industry costs are determined by the Producer Price Review Committee (PPRC) prior to the allocation of budgetary resources to the various administrative and technical departments/units under COCOBOD. The real expenditure of GHC 754.64 million made on the cocoa fertilizer program is additional to the real expenditure of GHC 313.26 made by the subsector in the current review, over the period 2008-2011. The MOFA program is subsidized at an average rate of 42 percent, while the subsidy on the cocoa program is between 65 and 85 percent (World Bank 2012).

3.6.6 Comparison of Pre METASIP and METASIP Expenditure

The assessment of budgetary allocation to the agricultural sector in the pre-METASIP and METASIP periods is based on the broader definition of the agricultural sector that includes rural roads and debt service (COFOG plus).

Pre-METASIP refers to the period prior to the commencement of METASIP implementation in 2011. A comparison of budgetary allocation to the agricultural sector in 2011 (commencement of METASIP implementation) and the pre-METASIP period shows a decrease in the 2011 budget by 1.6 percent, relative to the allocation made in 2010 (Table 3.7). The 2011 allocation exceeds the 2009 budget by 7.1 percent, however this increase falls short of the 10 percent minimum requirement envisaged for METASIP implementation. At the MDA level, the budgetary allocations in 2011 to forestry, agricultural research, MIDA, and MOTI exceeded the 2009 and 2010 allocations (over 10 percent increase), in conformity with the requirement for METASIP implementation. Allocations in 2011 to MOFA, COCOBOD, fisheries, and feeder roads were relatively low, falling below the 2009 allocation (COCOBOD, -0.7 percent; fisheries, -85.8 percent; and feeder roads, -17.0 percent) and the 2010 budget (MoFA, -21.3 percent; fisheries, -1.95 percent; and feeder roads, -17.0 percent).

Table 3.7: Approved budgetary allocation to agricultural sector MDAs pre-METASIP and METASIP[28]

Sector/ MDA	2009/2010 (Pre-METASIP)				2011 (METASIP)		2011 as % change from 2010	2011 as % change from 2009
	Budget (in 2001 constant prices, GHC million)		Share in total (%)		Budget (in 2001 constant prices, GHC million)	Share in total (%)		
	2009	2010	2009	2010	2011	2011		
Agriculture sector (COFOG +)	**377.4**	**411.0**	**100.0**	**100.0**	**404.4**	**100.0**	**-1.6**	**7.1**
MOFA	109.9	158.9	29.1	38.7	125.1	30.9	-21.3	13.8
COCOBOD	67.4	63.7	17.9	15.5	66.9	16.6	5.1	-0.7
Fisheries	33.0	4.8	8.7	1.2	4.7	1.2	-1.9	-85.8
Forestry	12.2	16.8	3.2	4.1	22.8	5.6	36.1	86.8
Agricultural research	28.6	33.5	7.6	8.2	41.8	10.3	24.7	46.3
MIDA	50.3	51.5	13.3	12.5	71.9	17.8	39.5	43.0
MOTI	0.1	9.8	0.0	2.4	11.4	2.8	15.9	7958.6
Feeder roads	72.0	72.0	19.1	17.5	59.8	14.8	-17.0	-17.0
Debt service	3.9	n/a	1.0	0.0	n/a	0.0	0.0	0.0

Note: n/a – not available.

Source: Authors' calculations based on data from sector MDAs and budget documents.

In spite of the relatively low budgetary allocations made to some of the MDAs, the share of MOFA in total allocation increased from 29 percent in 2009 to 38.7 percent in 2010 and dropped to 30.9 percent in 2011. Forestry and agricultural research had marginal increases in budgetary allocation between 2009 and 2010. The share of fisheries dropped from 8.7 percent in 2009 to 1.2 percent in 2010 and 2011.

3.7 EFFECTIVENESS OF BUDGET EXECUTION

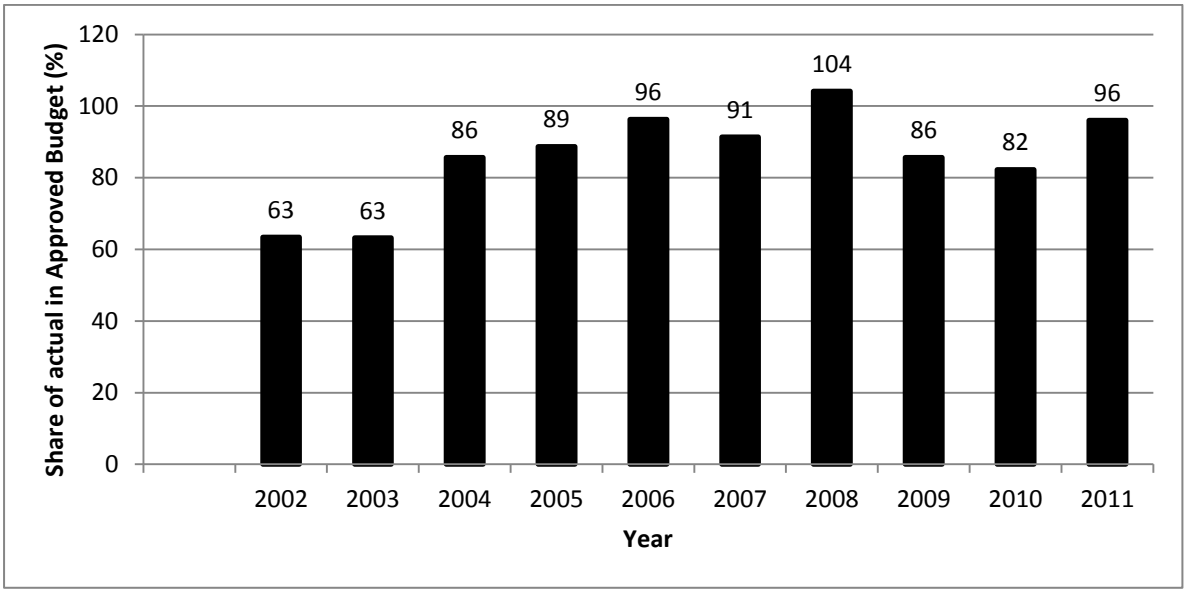
The effectiveness of budget execution is determined by assessing the proportions of the approved budget and the actual expenditure.

3.7.1 Actual Expenditure against Approved Budget

Actual expenditure in the agricultural sector represented an average of 86 percent of the approved budget over the period 2002-2011 (Figure 3.32). However, the average for the 2005-2011 period was approximately 92 percent.

[28] It should be noted that the figures in this table reflect the approved budget, not actual expenditure (which is shown in Table 3.4).

Figure 3.32: Actual expenditure as percentage of approved budget, 2002-2011



Source: Data from sector MDAs; CAGD.

3.7.2 Timing of Release of Funds

Release of funds in MDAs is by three main processes. Funds for personnel emoluments and administration are released by the CAGD following the approval of the annual budget by Parliament and subsequent release of the MDAs' approved estimates by the MOFEP. Release of service funds is made upon submission of quarterly applications by MDAs to MOFEP. Release of investment funds is made following the fulfillment of the procurement conditions and submission of the request to MOFEP through the sector ministry. The time lag between the submission of request for funds and receipt of released letter from MOFEP varies. In most cases, MDAs report delayed releases, which subsequently affect planned activities in the sector. For example, funds required for field activities in the first quarter may be released in the second quarter or later. Such occurrences affect the timeliness in the delivery of relevant extension services to farmers and other clients in the sector.

3.8 SPATIAL DISTRIBUTION AND EQUITY OF REGIONAL EXPENDITURE

This section assesses agricultural expenditure at the regional and district levels. In this exercise, data for MOFA's RADUs together with the corresponding DADUs were used since regional data were not available for the other MDAs.

3.8.1 Share of RADUs in MOFA's Budget

The budgetary allocation to MOFA over the 2001-2011 period averaged GHC 85 million per annum (constant 2001 terms). Allocations to MOFA Headquarters, Technical Directorates, and the RADUs and DADUs averaged GHC 27 million (32 percent), GHC 19 million (23 percent), and GHC 39 million (45 percent), respectively (Figure 3.33).

Figure 3.33: Share of budgetary allocation to MOFA's administrative groups (%), 2001-2011

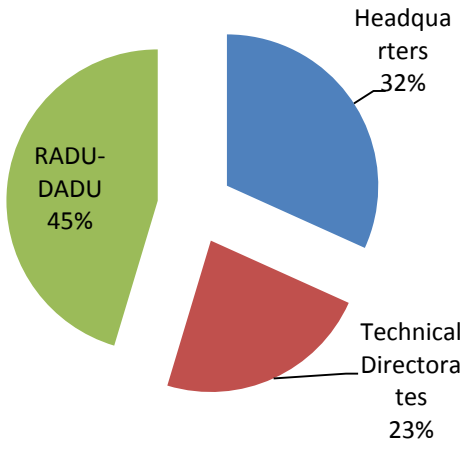
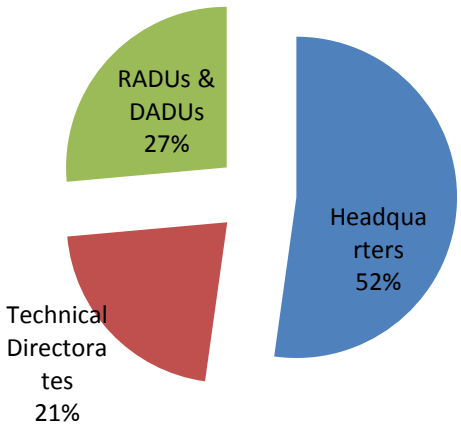


Figure 3.34: Share of expenditure by MOFA's administrative groups (%), 2001-2011



Over the 2001-2011 period, budgetary allocation to the RADU-DADUs increased four-fold, from a share of about 18 percent in 2001 to 75 percent in 2011. The share of the Headquarters in budgetary allocation declined from about 63 percent in 2001 to 9 percent in 2011. The budget share for the Technical Directorates fluctuated between 11 percent and 35 percent over the same period.

MOFA's annual expenditure over the 11-year period averaged GHC 63 million in real terms, with Headquarters accounting for GHC 32.8 million, representing 52 percent (Figure 3.34). Expenditure by the RADUs and DADUs averaged GHC 16.6 million (21 percent), while the Technical Directorates accounted for GHC 16.6 million per annum, a 27 percent share.

The large expenditure at Headquarters is in part related to the number of directorates and subvented organizations under its administration. MOFA Headquarters is made up of the Line Directorates including Finance and Administration (F&A), the Policy Planning Monitoring and Evaluation Directorate (PPMED), the Statistics Research and Information Directorate (SRID), and Human Resource Development and Management (HRMD). In addition, Headquarters includes all of MOFA's subvented organizations, namely: the Irrigation Development Authority (GIDA), the Irrigation Company of the Upper Region (ICOUR), the Grains and Legumes Development Board (GLDB), the Fisheries Commission, and the Veterinary Council.

In nominal terms, expenditure at Headquarters averaged GHC 92.8 million annually between 2008 and 2011. An average of GHC 72 million was disbursed to other cost centers to implement special initiatives in the sector. Of this amount, an average of GHC 41 million was paid annually as subsidy on fertilizer sold to farmers and GHC 7.2 million released annually to the YIAP to support the block farming component. In 2010, an amount of GHC 15 million was released to the National Buffer Stock Company for its operations. Despite the disbursements made at Headquarters, actual expenditure of the funds was made in the districts. Over the period, the GIDA spent an average of GHC 12.5 million, partially used to rehabilitate irrigation facilities. Some of large expenditures made at Headquarters involved bulk procurement of vehicles, office equipment, and other logistics for distribution to the RADU-DADUs and other cost centers. Such a procurement arrangement is favorable to the cost

centers and in particular the RADU-DADUs, as it reduces the cost of transaction and the unit cost of items procured.

Eight specialized Technical Directorates provide technical information and improved technologies to the Ministry's clients. The Directorates are: Crop Services (DCS), Plant Protection and Regulatory Services (PPRSD), Animal Production (APD), Veterinary Services (VSD), Agricultural Engineering Services (AESD), Extension Services (DAES), Women in Agricultural Development (WIAD), and the Fisheries Directorate (DoF), which has been treated as a separate subsector in this review.

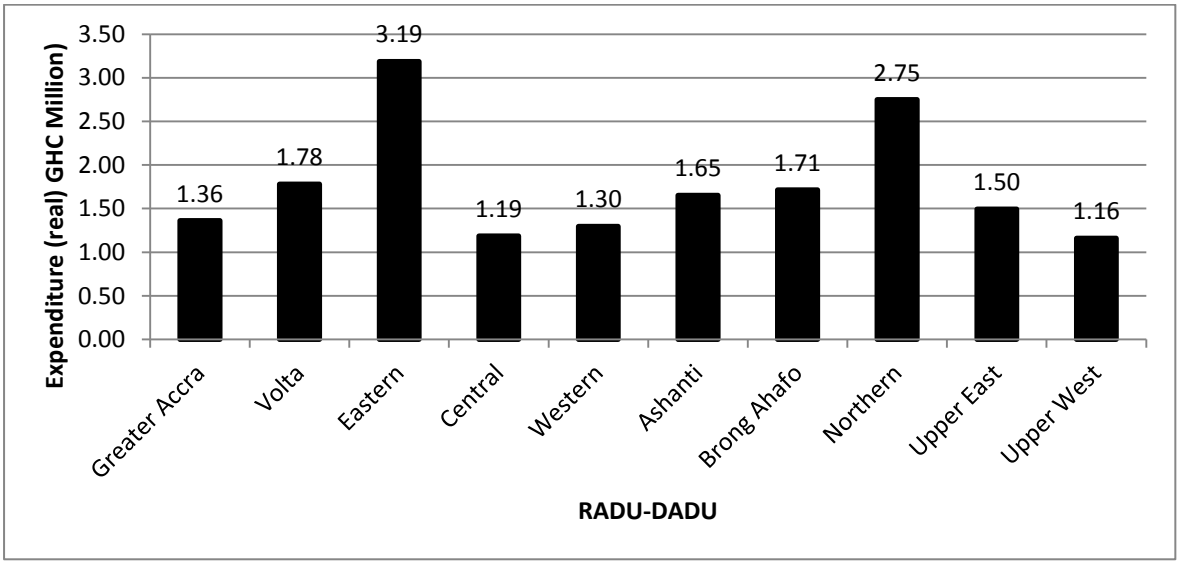
Expenditure by the Technical Directorates over the 2008-2009 period averaged GHC 35.6 million, in nominal terms. The DCS spent an amount of GHC 21.5 million annually, which represented 60 percent of expenditure by the Technical Directorates and 13 percent of total expenditure in MOFA. The high expenditure by the DCS is accounted for by the relatively large number of crop development projects and programs implemented in the Ministry. The APD had the next highest expenditure, at GHC 7.4 million, which included funds utilized under the National Livestock Project. The amount represented 21 percent of total expenditure by the Technical Directorates and 1.7 percent of MOFA's average expenditure. Directorates with relatively low expenditure over the period were: PPRSD – GHC 0.7 million; WIAD – GHC 0.6 million; DAES – GHC 1.1 million; and AESD – GHC 1.6 million.

The RADUs and their corresponding DADUs provide extension services to farmers and other operators in the sector. It is therefore very important that budgetary allocations are released in substantial amounts and on time to enable staff to deliver timely services to their clients.

3.8.2 Expenditure by RADUs AND DADUs

The Eastern RADU had the highest average expenditure (real) of GHC 3.19 million (Figure 3.35**Error! Reference source not found.**). It was followed by the Northern RADU, with an average of GHC 2.75 million, and the Volta RADU, with an amount of GHC 1.78 million. The Brong Ahafo, Ashanti, Upper East, Greater Accra, and Western Regions spent GHC 1.71 million, GHC 1.65 million, GHC 1.50 million, GHC 1.36 million, and GHC 1.30 million, respectively. The Central and Upper West Regions had the lowest expenditures, at GHC 1.19 million and GHC 1.16 million, respectively.

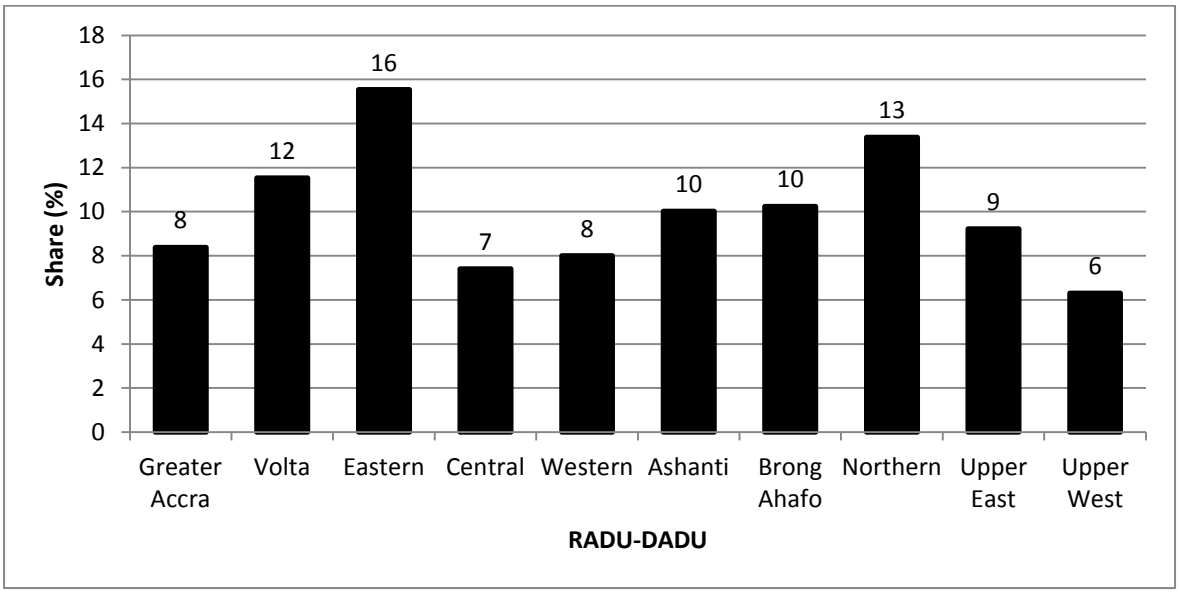
Figure 3.35: Average RADU-DADU expenditure (in 2001 constant prices), GHC million, 2001-2011



Source: Authors' calculation based on data from MOFA and CAGD.

The Eastern Region also accounted for the biggest share (16 percent) of the RADUs' expenditure. The Northern and Volta Regions had the next two highest shares, at 13 percent and 12 percent respectively, followed by the Brong Ahafo and Ashanti Regions (10 percent each) (Figure 3.36). The Central Region had an average of 7 percent while the Upper West Region had the lowest share, at 6 percent.

Figure 3.36: Average share of RADUs and DADUs in decentralized expenditure (%), 2001-2011



Source: Authors' calculation based on data from MOFA and CAGD.

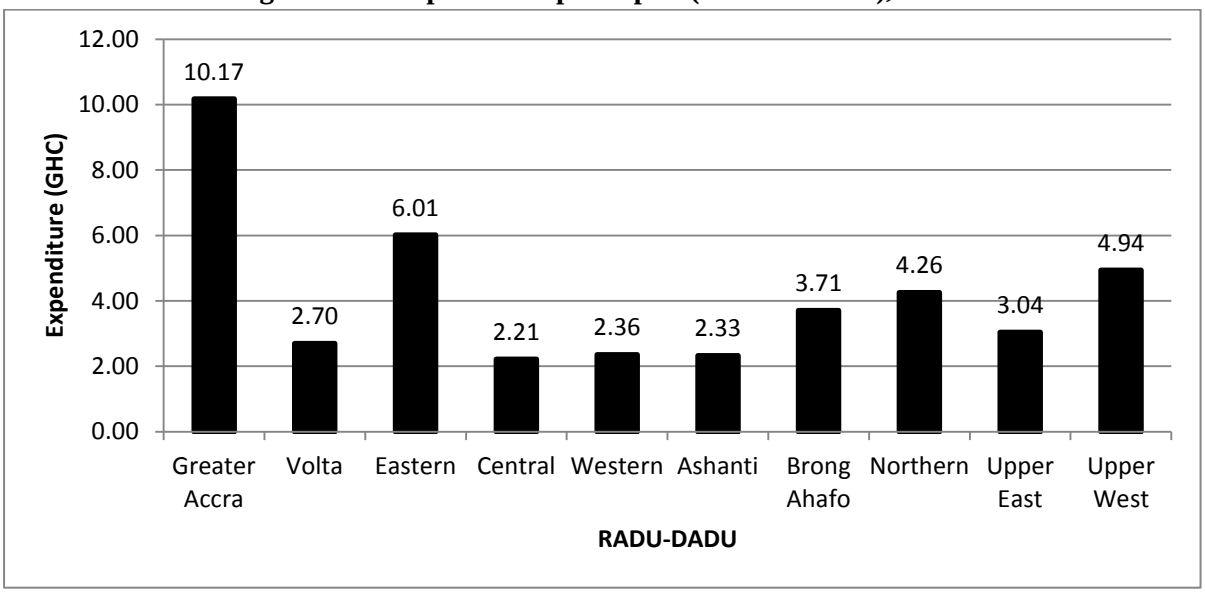
The high shares in expenditure recorded for the Eastern and Northern Regions are accounted for by the regional development programs implemented with the support of donor funds. For example, the Northern Rural Growth Programme (NRGP) covers the Northern, Upper East, and Upper West

Regions as well as the northern sectors of the Brong-Ahafo and Volta Regions. The Afram Plains District Agricultural Development Programme covers the Afram Plains District. Both programs aim to increase productivity and production to ensure food security as well as to improve the incomes of farmers.

3.8.3 Regional Expenditure per Capita

In comparing expenditure (nominal) per capita for 2010 (Figure 3.37), the Greater Accra Region emerged as the highest spending region, with an amount of GHC 10.17 spent per capita.[29] The high per capita expenditure in Greater Accra is due to its low rural population. The Eastern Region was second highest, with a per capita expenditure of GHC 6.01. The Central Region had the lowest per capita agricultural expenditure of GHC 2.21 in 2010.

Figure 3.37: Expenditure per capita (nominal GHC), 2010



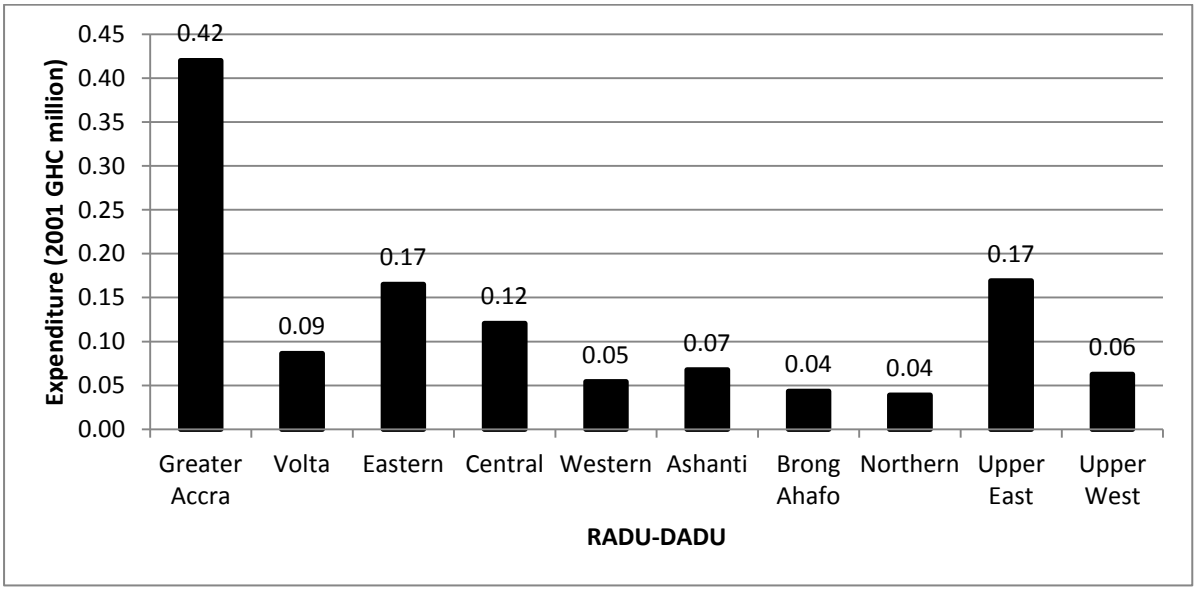
Source: Authors' calculations based on data from MOFA; CAGD; GSS.

3.8.4 Regional Expenditure per Land Area

The Greater Accra RADU had the highest expenditure per square kilometer, at GHC 0.42 million (Figure 3.38). The Eastern and Upper East RADUs had the second highest expenditures, at GHC 0.17 million each. The Brong Ahafo, and Northern RADUs had the lowest expenditures, at GHC 0.04 million each per square kilometer.

[29] 2010 rural population and expenditure used in the calculation.

Figure 3.38: Average RADU-DADU expenditure per square kilometer (GHC million), 2001-2011

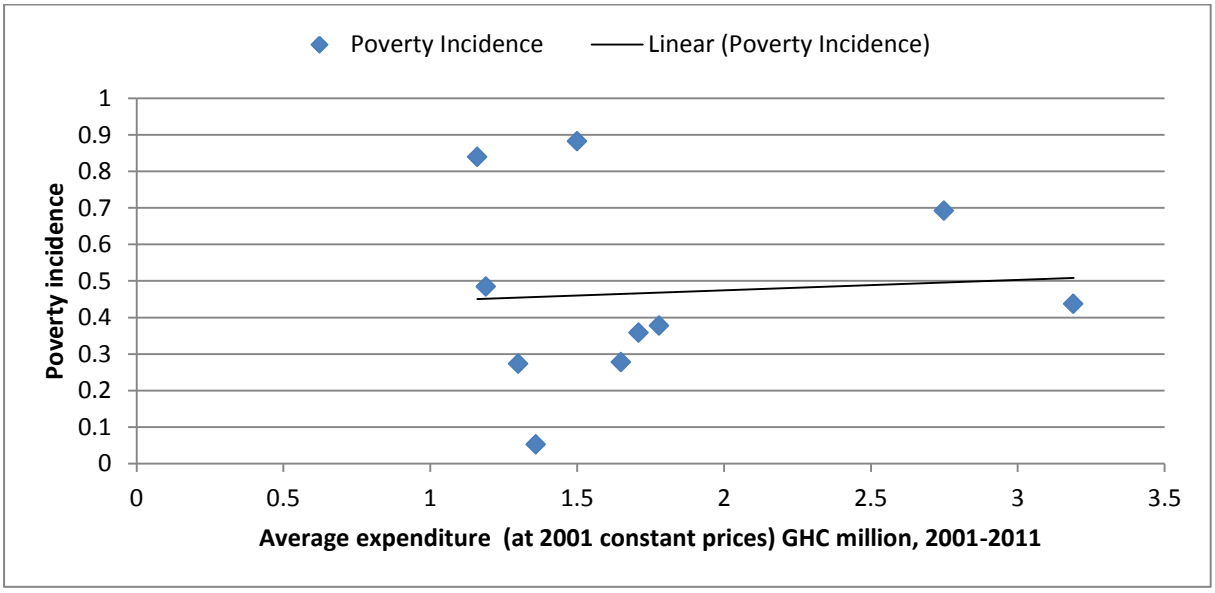


Source: Authors' calculations based on data from MOFA, CAGD.

3.8.5 Relationship Between Regional Expenditure and Poverty Incidence

An assessment of poverty incidence in the regions against the level of expenditure in the regions and districts shows a weak positive relationship between them (Figure 3.39).This implies that there is a modest orientation of expenditure allocation to focus more resources on poorer regions.

Figure 3.39: Relationship between regional expenditure and poverty incidence



Source: Authors' calculations based on data from the Working Group; Poverty data from IFPRI Discussion paper No. 00693, March 2007.

Poverty incidence in the Upper East, Upper West, and Northern Regions was relatively high, at 0.882, 0.839, and 0.692, respectively (IFPRI March 2007). The next highest incidences of poverty were reported for the Central Region (0.484) and the Eastern Region (0.437). The Greater Accra Region

had the least incidence of poverty (0.052), followed by the Western Region (0.273), the Ashanti Region (0.277), the Brong-Ahafo Region (0.358), and the Volta Region (0.377).

The equity in expenditure by the RADUs-DADUs is not easily established in this exercise as expenditure per capita and land area yielded different results. Greater Accra had the highest expenditure per capita and per land area as a result of its land size and low rural population. Despite the donor support received by the Northern Region, it emerged as one of the lowest spending regions per land area. These parameters, together with poverty levels in the regions, must be taken into consideration to guide the allocation of funds and other resources to the regions and districts.

3.9 SOURCES OF FINANCING THE BUDGET

The GoG budget is financed by two main sources: the government and DPs.

3.9.1 Government Sources of Funding

The government's funding sources are in two forms: discretionary funds and statutory funds. Discretionary funds include the Consolidated Fund, IGF, the HIPC Fund, Social Intervention Programmes (SIP), the Multi-Debt Relief Initiative (MDRI), and the Annual Budget Funding Amount (ABFA). The Forestry Services Division of the Forestry Commission sometimes receives statutory funds from the Natural Resource and Environmental Governance (NREG). Budgetary allocations and disbursements to the agricultural sector are generally made from discretionary funds, particularly the Consolidated Fund, IGF, and the HIPC Fund, and sometimes from the SIP.

3.9.2 Donor Sources of Funding

Donors' sources of funding are loans and grants. Some donors disburse funds directly into project accounts opened with Project Implementation Units within MDAs for the implementation of development projects. Some donor funds are channeled through MOFEP to support the government's budget, and are multi-donor in nature.

3.9.3 Main Sources of Cost Recovery

The main source of cost recovery in the sector is the sale of agricultural machinery and equipment on hire purchase by MOFA to interested farmers, farmer groups, and entrepreneurs who intend to set up agricultural mechanization centers in the rural areas.

Another source of cost recovery is the provision of mechanized services and the sale of agricultural inputs on credit to farmers on the block farms. Payments are expected to be made after harvest either in cash or in kind. MOFA's annual performance reviews indicate low recovery rates from the block farm program.

3.9.4 Other Sources of Expenditure in the Agricultural Sector

The agricultural sector is generally private sector-led. The government and donors provide the requisite support in the form of public goods and services to encourage the private sector to step up activity in the sector to enhance productivity and increased production. In addition, NGOs, CSOs, and churches invest in agriculture.

3.10 FINDINGS

3.10.1 Budgetary Allocation and Expenditure Levels

The share of national budgetary allocation to the agricultural sector over the 2001-2011 period averaged 6.8 percent, while the share of the agricultural sector in national expenditure averaged 9.3 percent, below the 10 percent target over the same period. The share of agricultural sector expenditure exceeded 10 percent in 2009 (10.3 percent), 2010 (16.0 percent), and 2011 (11.2 percent).

Real budgetary allocation (in 2001 constant prices) to the agricultural sector averaged GHC 193 million per annum, and increased by nearly five times from GHC 65 million in 2001 over the 2001-2011 period. The expenditure level averaged GHC 169 million per annum in real terms.

Agricultural sector expenditure relative to GDP and AgGDP averaged 1.2 percent and 3.6 percent, respectively. Expenditure relative to GDP declined from 1.8 percent in 2008 to 0.9 percent in 2011, while expenditure relative to AgGDP also fell, from 5.3 percent in 2008 to 3.6 percent in 2011.

Agricultural sector growth averaged 4.6 percent between 2001 and 2011. Over the period, the sector attained growth of 6 percent and above in 2003 (6.2 percent), 2004 (7.0 percent), 2008 (7.4 percent), and 2009 (7.2 percent); however, this has not been sustained beyond two successive years.

The attainment of 10 percent share by the agricultural sector in national expenditure occurred in the period (2009-2011), when the sector experienced a decline in its growth rate. This period and occurrence coincidentally correspond to the decline in agricultural sector expenditure relative to GDP and AgGDP. This raises concerns as to whether the 10 percent target of national budgetary allocation and expenditure necessarily resulted in 6 percent growth in the agricultural sector.

3.10.2 Expenditure Composition

The composition of expenditure has a relatively fair mix of personnel emoluments (27 percent), non-wage recurrent expenses (32 percent), and investment expenditure (41 percent). However, at the MDA level, 89 percent of expenditure in research constitutes personnel emoluments, 9 percent is for non-wage recurrent expenditure, and 2 percent is for investment.

3.10.3 Subsector Shares in Sector Expenditure

Shares of the subsectors in agricultural sector expenditure are not equitably distributed. The average shares in expenditure between 2001 and 2011 were: non-cocoa crops, 58 percent; cocoa, 33 percent; forestry, 6 percent; livestock, 2 percent; and fisheries, 1 percent. Fisheries, livestock, and forestry have the lowest share of sector expenditure. There is the appearance of sub-sector allocation mis-alignment: cocoa's share of expenditure is substantially greater than its share of AgGDP; livestock, forestry, and fisheries expenditure shares are substantially less than their shares of AgGDP (Table 3.5). There has been a trend towards rectification of this mis-alignment: the share of cocoa in total expenditure has declined considerably, while non-cocoa crops' share has increased by over one and half times, from 43 percent to 66 percent over 2001-2011.

3.10.4 Expenditure by MDAs in the Agricultural Sector

MOFA accounted for the biggest average share (39.8 percent) of MDA expenditure in the agricultural sector over the 2001-2011 period. COCOBOD had the next highest (32.7 percent), followed by:

agricultural research (11.2 percent); forestry (6.0 percent); the MIDA (5.9 percent); MOTI (3.4 percent); and fisheries (1.0 percent).

Expenditure on irrigation represented 3.4 percent of the sector expenditure. Agricultural extension, comprising MOFA's extension directorates and the RADUS and DADUs, accounted for 3.6 percent of agricultural sector expenditure. Agricultural engineering and mechanized services accounted for 0.8 percent.

3.10.5 MOFA's Expenditure

Expenditure at MOFA Headquarters represented 52 percent of the Ministry's total. The Technical Directorates accounted for 21 percent and the regions and districts had a share of 27 percent. Expenditure by the Plant Protection and Regulatory Services Directorate (PPRSD), the DAES, and the WIAD were less than 1 percent each.

3.10.6 Allocative Efficiency

The shares of recurrent and investment expenditure were 43 percent and 53 percent, respectively. The balance between wage and non-wage recurrent expenditure was 47 percent and 53 percent. The balance between non-wage recurrent and investment expenditure was 43 percent and 57 percent. Underneath these period averages, though, are substantial shifts. The share of personnel emoluments declined from 43 percent in 2001 to 27 percent in 2011. Over the same period, the share of non-wage recurrent expenditure declined from 47 percent to 15 percent, while the share of investment increased six-fold, from 11 percent in 2001 to 66 percent in 2011. These substantial shifts need careful monitoring to ensure that there are sufficient recurrent resources for investment planning and maintenance.

3.10.7 Input Subsidy

A total of GHC 862.39 million was paid as subsidy for the subsidized fertilizer program over the 2008-2011 period. The amount represented 79 percent of the entire agricultural sector expenditure and 173 percent of agricultural sector investment expenditure over the same period. The relatively high proportion of agricultural sector expenditure on the fertilizer program is likely to crowd out other equally important development programs/initiatives in the sector.

3.10.8 Release of Funds

An average of 86 percent of the agricultural sector budget was released between 2002 and 2011. The release in the period 2005 to 2011 averaged 92 percent. Release of service funds was sometimes delayed, which affected implementation of projects and field activities.

3.10.9 Equity in Expenditure

A comparison of ratios of the share of subsectors in sector expenditure relative to their contribution to AgGDP shows the cocoa subsector to have the biggest ratio (3.1:1). This means for every unit contributed to AgGDP, the cocoa subsector utilized over three units of resources, whereas non-cocoa crops and the other subsectors utilized less than a unit each. The contribution of non-cocoa crops to AgGDP was about six times the contribution made by the cocoa subsector. However, the share of non-cocoa crops in agricultural sector expenditure was less than double the share of the cocoa subsector. The ratios of expenditure shares of the livestock, fisheries, and forestry subsectors relative

to the share of cocoa were 0.3:1, 0.2:1, and 0.5:1, respectively. This observation raises the issue of equity in the allocation of budgetary resources to the subsectors and subsequent expenditure.

At the decentralized level, different results were obtained when expenditure was mapped against land area and rural population. Expenditure per capita showed regions with lower rural populations having higher expenditure than regions with denser rural populations. Similar results were obtained for expenditure per land area. A scatter diagram of expenditure and poverty incidence showed some relationship between them. The parameters used in assessing equity in expenditure are useful in guiding the allocation of resources to the regions and districts.

3.10.10 Budgetary Allocation to the Agricultural Sector Pre-METASIP and METASIP

Budgetary allocation to the agricultural sector in 2011 fell below the 2010 level in real terms by 1.6 percent, while it exceeded the 2009 allocation by only 7.1 percent. Budgetary allocation to the sector is envisaged to exceed the 2009 level by at least 10 percent for METASIP implementation. Allocations in 2011 to the fisheries and livestock subsectors fell below both the 2009 and 2010 budgets.

3.11 RECOMMENDATIONS

- Budgetary allocation to the agricultural sector must continue to increase in real terms. As much as possible, funds must be released to the sector on time to ensure their efficient utilization for the intended purpose.
- Budgetary allocation to the subsectors needs to be reconsidered along the lines of the current performance of the subsectors and their respective contribution to AgGDP. The underfunded subsectors need to be better resourced to achieve set targets. The fisheries and livestock subsectors fall into this category.
- At the MDA level, underfunded directorates and agencies must be considered for increased budgetary allocations based on well-prepared plans in support of the implementation of METASIP. Identified directorates and functional areas are: agricultural research; extension services; plant protection and regulatory services; and irrigation.
- Equity in the allocation of budgetary resources must be ensured as much as possible, at all levels.
- The level of expenditure on the fertilizer program must be reconsidered to ensure equity in funding development programs/ initiatives in the sector.
- The composition of the budget must be balanced to ensure the allocation of adequate service and investment funds to all MDAs to enable them to carry out their mandates effectively in support of the implementation of METASIP and development of the entire agricultural sector.
- The recent underperformance of the agricultural sector, together with its subsectors, needs to be examined. Special studies could be conducted on selected subsectors and functional groups to determine the current state of service delivery and impacts on the sector. Results from the studies would guide policy decisions in the sector.
- Considering the increased budgetary allocation to the sector and its expenditure over the years relative to the current underperformance of the agricultural sector, there is a need to conduct expenditure tracking studies to assess how efficiently funds have been utilized in the sector. Other studies, such as impact assessments of special projects and programs, could be undertaken to assess the effectiveness of the selected projects and programs.

ANNEX 1: MEMBERSHIP OF THE AGRICULTURE SECTOR WORKING GROUP

Development partners members of the Agriculture Sector Working Group (ASWG) include:

African Development Bank (AfDB)
Agence Français de Développement (AFD – France)
Alliance for Green Revolution for Africa (AGRA)
Canadian International Development Agency (CIDA)
Engineers Without Borders (EWB)
EMBRAPA
Food and Agricultural Organization of the UN (FAO)
German Development Cooperation (GIZ-KfW)
International Food Policy Research Institute (IFPRI)
International Fund for Agricultural Development (IFAD)
International Water Management Institute (IWMI)
Japan International Corporation Agency (JICA)
Japan International Research Centre for Agricultural Science (JIRCAS)
Millennium Challenge Corporation (MCC)
United States Agency for International Development (USAID)
World Bank (WB)World Food Programme (WFP)

ANNEX 2: METASIP PERFORMANCE ON TARGETS FOR THE PLAN PERIOD 1

	Policy Objective / METASIP Programme	Goals	Indicator/ target	Progress on implementation
1	Food security and emergency preparedness	Reducing vulnerabilities and sustained productivity improvement	20% - 50% increase in productivity of major crops. 20% reduction in food insecure households 50% reduction in underweight and stunting in children under 5 years	There has been marginal increase in productivity due to the challenge in financing inputs as well as putting in place basic infrastructure such as irrigation, mechanization, storage facilities and distribution systems. Financing of educational program to transform food habits is a challenge as well as the production of the relevant foods in the adequate quantities
2	Increased growth in incomes	Poverty reduction and wealth creation	25%-60% increase in incomes in cash crop, livestock and fish culture	Cost of credit and lack of basic infrastructure is a challenge to commercial agriculture.
3	Increased competitiveness and access to markets	Increased marketed output	50% increase in marketed output	
4	Sustainable management of land and environment	Maintenance of natural resource and ecosystem integrity	100% increase in stakeholders reached	There are a number of good projects ongoing but they need to be up-scaled to make reasonable impact
5	Applied science and technology in food and agriculture	Sustainable modernization of the food and agriculture	25% increase in technologies adopted in value chains 15% increase in new technologies developed	It has been noted that research institutions' funding only cover administrative costs and salaries but there are no funds for actual research work except for small grants from international institutions. Any significant research work has been funded under MOFA projects.
6	Enhanced institutional coordination	Effective partnering of institutions in the agriculture	Joint planning and reviews organized annually	A multi-stakeholder steering committee has been put in place to provide oversight for the implementation of METASIP.

			Training needs assessment and management processes implemented	

*Source***:** MOFA.

ANNEX 3: CORE AREAS OF GOVERNMENT FUNCTIONS RELEVANT TO THE AGRICULTURE SECTOR BASED ON CLASSIFICATION OF THE FUNCTIONS OF GOVERNMENT (COFOG)

Agriculture (Includes Crops and Livestock)

- Administration of agricultural affairs and services, conservation, reclamation or expansion of arable land; agrarian reform and land settlement; supervision and regulation of the agricultural industry;
- Construction or operation of flood control, irrigation and drainage systems, including grants, loans or subsidies for such works;
- Operation or support of programmes or schemes to stabilize or improve farm prices and farm incomes; operation or support of extension services or veterinary services to farmers, pest control services, crop inspection services, and crop grading services;
- Production and dissemination of general information, technical documentation and statistics on agricultural affairs and services;
- Compensation, grants, loans or subsidies to farmers in connection with agricultural activities, including payments for restricting or encouraging output of a particular crop or allowing land to remain uncultivated;
- Administration and operation of government agencies engaged in applied research and experimental development related to agriculture;
- Grants, loans or subsidies to support applied research and experimental development related to agriculture by research institutes and universities.

Forestry

- Administration of forestry affairs and services; conservation, extension and rationalized exploitation of forest reserves; supervision and regulation of forest operations and issuance of tree-felling licenses;
- Operation or support of reforestation work, pest and disease control, forest fire-fighting and fire prevention services to forest operators;
- Production and dissemination of general information, technical documentation and statistics on forestry affairs and services;
- Grants, loans or subsidies to support commercial forest activities;
- Administration and operation of government agencies engaged in applied research and experimental development related to forestry;
- Grants, loans or subsidies to support applied research and experimental development related to forestry and undertaken by research institutes and universities.

Fishing

- Administration of fishing affairs, and services; protection, propagation and rationalized exploitation of fish stocks; supervision and regulation of freshwater fishing, coastal fishing, ocean fishing, fish farming and issuance of fishing licenses;
- Operation or support of fish hatcheries, extension services, or stocking activities, etc.
- Production and dissemination of general information, technical documentation and statistics on fishing affairs and services;

- Grants, loans or subsidies to support commercial fishing activities, including the construction or operation of fish hatcheries;
- Administration and operation of government agencies engaged in applied research and experimental development related to fishing;
- Grants, loans or subsidies to support applied research and experimental development related to fishing and undertaken by research institutes and universities.

ANNEX 4: LIST OF 16 DEPARTMENTS PROVIDED IN THIRD SCHEDULE (REGULATION 4) OF L.I. 1961

1. Central Administration Department
2. Finance Department
3. Department of Education, Youth and Sports
4. District Health Department
5. Waste Management Department
6. Department of Agriculture
7. Physical Planning Department
8. Department of Social Welfare and Community Development
9. Natural Resources Conservation, Department, Game and Wildlife Division
10. Department of Works
11. Department of Trade and Industries
12. Budget and Rating Department
13. Legal Department
14. Department of Transport
15. Disaster Management and Prevention Department
16. Urban Roads Department

ANNEX 5: LIST OF WORKING GROUP MEMBERS

NO.	INSTITUTION	NAME	DESIGNATION	E-MAIL ADDRESS
	COUNTERPART TEAM			
	MOFA			
1	MOFA	Maurice T. Abisa-Tanco	Chief Director	mabisase@yahoo.com
2	MOFA	Nicholas Neequaye	Ag. Director PPMED	cbobogh@yaahoo.com
3	MOFA	Baah Adade	Director, Finance	adadefc@yahoo.com
4	MOFA	D. Ohemeng Boateng	Head, Budget Unit	ohemengboateng@yahoo.co.uk
5	MOFA	Zalia Zempare	Focal Person	hagazal@yahoo.com
6	MOFA	Lena Otoo	Head, PPA	lena_otoo@yahoo.com
7	MOFA	Irene Danquah	Assist. to Director, Finance	naanadanquah@yahoo.com
8	MOFA	Josephine Quagraine	Assist. to PPA Head	ji_qu@yahoo.com
	MOFEP			
9	Head Office	Samuel Arkhurst	Head, Public Expenditure Monitoring Unit (PEMU)	sarkhurst@mofep.gov.gh
10	CAGD	Thmas Mbun	Chief Accountant	mbuntom@yahoo.com
	WORKING GROUP			
11	MLNR	Mark Detcher	Assistant Director	mark_detcher@yahoo.com
12	MLGRD	Inusah Shirazy	Devt. Plan. Officer	shiraz10@yahoo.com
13	MRH (Dept of Feeder Roads)	John O Asiedu	Deputy Director	joapat@yahoo.com
14	MOTI	Diana Afriyie Addo	Snr. Indust. Promotion Officers	afriyieaddo@yahoo.com
15	COCOBOD	E.T Quartey	Director, Research, M&E	teiquartey@yahoo.com
16	CSIR	Prof. P.N.T. Johnson	Researcher	paanii.johnson@gmail.com
17	Ghana Statistical Service	Magnus Ebo Duncun	Head, Economic Statistics	duncun.magnusebo@ymail.com
18	University of Ghana	Prof. Daniel Bruce Sarpong	Vice-Dean, School of Agriculture	dsarpong@ug.edu.gh

19	University of Cape Coast	Rev. Dr. Owusu-Sekyere	Head, Dept. of Engineering	jaydosus@yahoo.com
20	University of Development Studies, Tamale	Dr. Isaac K. Addae	Lecturer	isaackwaheneaddai@yahoo.com
21	KNUST, Agric. Faculty	Dr. K. Ohene-Yankyera	Head, Agric Econs Dept.	koyanky52@gmail.com
22	KNUST, Faculty of Renewable Natural Resources	Dr. Emmanuel Acheampong	Lecturer	ekachie@yahoo.com
23	Millennium Challenge Authority	Matthew Armah	Chief Operating Officer	marmah@mida.gov.gh

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