

FISCAL POLICY STUDY FOR GHANA

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List of Abbreviations

AFD	Agence Française de Développement
AfDB	African Development Bank
AOE	Additional Oil Entitlement
AU	African Union
CIA	Central Intelligence Agency
CIT	Corporate Income Tax
CoED	Cost of Environmental Degradation
ECOWAS	Economic Community of West African States
EFR	Environmental Fiscal Reform
EITI	Extractive Industries Transparency Initiative
FASDEP	Food and Agriculture Sector Development Policy
GCLME	Guinea Current Large Marine Ecosystem
GDP	Gross Domestic Product
GE	Green Economy
GHG	Greenhouse Gas
GHS	Ghana Cedi
GIZ	Gesellschaft für Internationale Zusammenarbeit
GNPC	Ghana National Petroleum Company
GoG	Government of Ghana
GSGDA	Ghana Shared Growth and Development Agenda
GSNC	Ghana Second National Communication
HIPC	Heavily Indebted Poor Country
IISD	International Institute for Sustainable Development
IMF	International Monetary Fund
LPG	Liquefied Petroleum Gas
MDRI	Multilateral Debt Relief Initiative
MESTI	Ministry of Environment, Science, Technology and Innovation
MIC	Middle-Income Country
MLNR	Ministry of Land and Natural Resources
MNC	Multi-National Corporation
MoFEP	Ministry of Finance and Economic Planning
NCCAS	National Climate Change Adaptation Strategy

NPA	National Petroleum Agency
OECD	Organisation for Economic Co-operation and Development
PA	Petroleum Agreement
PAYT	Pay-As-You-Throw
PES	Payments for Ecosystem Services
PIT	Personal Income Tax
PNDC	Provisional National Defence Council
PSC	Production Sharing Contract
R&D	Research and Development
RE	Renewable Energy
REDD	Reducing Emissions from Deforestation and Forest Degradation
RNE	Royal Netherlands Embassy
SCP	Sustainable Production and Consumption
SEA	Strategic Environmental Assessment
SRI	Soil Research Institute
SSSS	Single Spine Salary Structure
TOR	Tema Oil Refinery
UN-ECA	United Nations Economic Commission for Africa
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States Dollar
VAT	Value Added Tax
WDI	World Development Indicators

Executive Summary

This report describes the current status of fiscal policy in Ghana, with the aim of identifying potential fiscal space for green economy initiatives, thereby supporting the transition to a more sustainable and inclusive economy. More specifically, recent developments in environmental fiscal reform (EFR) in Ghana are described, including the full removal of fossil fuel subsidies. Based on the analysis of the country's fiscal status, a variety of reform opportunities are presented and assessed, including the restructuring of taxes and incentives across key sectors to support the development of green businesses and the creation of income and employment opportunities.

The study shows that the Government of Ghana is already implementing several environmental fiscal reforms across different sectors, while reallocating the public budget to create the enabling conditions for a green economy transition. In particular:

- In June 2013 the government removed subsidies on fossil fuels in order to create additional fiscal space for sustainable development policies. This was followed by a decrease in subsidies on electricity and water. However, significant subsidies remain for crop and fish production.
- Specific taxes have been introduced to encourage environmental protection, such as a 20 per cent tax on plastic materials, penalties on over-aged vehicles, as well as a progressive increase in water tariffs so as to reflect the environmental costs of water resource withdrawal and distribution. Although data is largely unavailable, environmental tax revenues remain small in Ghana, and currently make a limited contribution to opening up fiscal space. However, while small in revenue terms, these taxes can still be effective in changing behavior in line with environmental objectives.
- Targeted incentives are being provided to stimulate investments in green sectors and to encourage the purchase of environmental friendly goods and services. These include, for example, feed-in tariffs on renewable energy, targeted financial support programmes for the purchase of energy efficient appliances and extension services to assist farmers in sustainable cocoa practices, among others.

The analysis of EFR challenges and opportunities was based on an extensive review of Ghana's fiscal status, including an analysis of recent macro-economic developments, and an overview of government revenues and expenditure trends. The analysis shows that robust economic growth of 8 per cent, stable political institutions and promising oil and gas revenue projections have helped Ghana attract increasing foreign investments. On the other hand, several challenges remain for national authorities in terms of consolidating financial stability and protecting the economy from potential risks. In particular, Ghana still faces a large fiscal deficit, which amounted to 12.1 per cent of GDP in 2012, as well as an expanding gross domestic debt.

More particularly, government finance statistics show that total revenues have increased at a remarkable pace over the last decade, going from GHS 952 million in 2001 to GHS 16.7 billion in 2012. On the other hand, public expenditure has also recently increased, primarily due to high spending on wages for the public sector (amounting to 72.3 per cent of total tax revenue in 2012) and on fossil fuel and agricultural production subsidies. Among the most worrying figures in the 2012 financial statement is the decline in capital expenditure, namely the portion of the national budget allocated to achieving key development goals. More precisely, capital expenditure in 2012 was 19.7 per cent lower than the budget target. When considering

environmental expenditure, it was noted that the budget allocated to the Ministry of Land and Natural Resources (MLNR) and the Ministry of Environment, Science, Technology and Innovation (MESTI) has increased in absolute terms between 2011 and 2013 (32.6 per cent increase), but the value as a share of GDP has declined, going from 0.49 per cent in 2011 to 0.43 per cent in 2013.

Based on the review of Ghana's fiscal status, a number of additional EFR and green economy policy opportunities have been identified across key sectors. On the revenue side, for example, the government could review the taxation structure that applies to oil companies, and consider whether a levy that expressly targets environmental objectives should be implemented, or whether any future increases in revenues should be directed towards environmental goals. Furthermore, the additional fiscal space to be created through the removal of subsidies could be used to implement green economy policies across key sectors, such as incentive schemes to encourage private investments in renewable energy development, as well as to enable the shift towards more sustainable agricultural practices (e.g. agroforestry cocoa production), fishing activities (e.g. through livelihood diversification programmes for fishing communities), and forestry production (e.g., additional incentives for certified activities, and for the participation of local forest communities in certified timber production). As a result, the reorientation of public expenditure towards sustainable production and consumption would be expected to enhance environmental protection, while ensuring sustainable and inclusive economic growth.

In general, the study highlights that the elimination of subsidies or the introduction of specific environmental taxes should be conducted with the understanding that policies designed with longer-term benefits may have negative short-term impacts. Accordingly, mitigating actions to protect vulnerable parties and to ensure political acceptance may be necessary in order to realize the long-term benefits of reforms. For instance, the abolition of subsidies on transport fuels is likely to be politically unpopular, and needs to be accompanied by measures to minimize the impact on the incomes of the poor, such as concessionary public transport fares. Similarly, cost recovery policies at the household level should be designed in a way that does not compromise the capacity of poor communities to have access to basic services.

Finally, the study stresses the importance of enhancing data collection and reporting procedures. In particular, more complete and accurate data should be collected on the informal sector, in order to improve the accuracy of quantitative analysis and the development of effective measures for mitigating the impact of fiscal reform on the vulnerable sections of society.

In conclusion, this study shows that the government of Ghana has already initiated its journey to reform national fiscal policies in order to enable the green economy transition, in line with national development priorities and global sustainability principles. In this respect, the improvement of macro-economic stability, environmental protection and social well being in Ghana are closely linked to the adoption of a more coherent approach to EFR, one that is fully integrated and mainstreamed into national development planning, and periodic budgetary allocation decisions.

Introduction

The global socio-economic crises that occurred in the last decades have made clear how current production and consumption modes are inadequate to ensure the well being of a growing population in the face of tightening environmental and natural resource constraints. In this context, the transition towards a green economy becomes a necessary condition to reverse the trends of environmental degradation and widespread poverty, and achieve sustainable development goals and targets.

At the visionary level, UNEP (2011) considers the green economy as: *“An economy that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities”*. At the operational level, governments can create the enabling conditions for a green economy transition through investments, fiscal policies and regulations that aim to (1) reduce carbon emissions and pollution; (2) enhance energy and resource efficiency; and (3) prevent the loss of biodiversity and ecosystem services (UNEP, 2011). The UNEP Green Economy Report affirms that transitioning to a green economy has sound economic and social justification and that there is a strong case emerging for a redoubling of efforts by both governments as well as the private sector to engage in such an economic transformation. In particular, green economy policies and investments can make a valuable contribution to enhanced economic diversification, inclusive growth, poverty reduction and achieving the Millennium Development Goals in developing countries (UNEP et al., 2011).

Among the various policy interventions that can support the green economy transition, fiscal policies are perhaps the most powerful instruments that can be used to promote green economic activity. In general, fiscal policies are focused on the most fundamental functions of government: how revenue is raised from taxpayers (taxation policies); and how revenue is spent to support businesses and households (subsidy policies). In particular, environmental fiscal reforms have a dual function: (1) to create fiscal space, namely budgetary room that allows a government to mobilize additional resources to finance a green economy without any prejudice to the sustainability of its financial position (Heller, 2005), and (2) to drive consumer behavior and investment by affecting prices.

In the context of a green economy transition, a fiscal space assessment identifies the possibility to alter government revenues and expenditures through environmental fiscal reforms, and the ability to re-direct expenditure or alter revenues so as to enable the implementation of measures related to the green economy (Roy & Heuty, 2009) (World Bank, 2005).

This report describes the current status of fiscal policy in Ghana, with the aim of identifying potential fiscal space for green economy initiatives, thereby supporting the transition to a more sustainable and inclusive economy. More specifically, recent developments in environmental fiscal reform in Ghana are described, including the decision to completely remove fossil fuel subsidies. Based on the analysis of the fiscal status of the country, a variety of reform opportunities are assessed, including the restructuring of taxes and incentives across key sectors to support the development of green businesses and the creation of income and employment opportunities.

The report is organized so as to provide a comprehensive assessment of current fiscal trends and challenges in Ghana, followed by an analysis of potential opportunities for environmental fiscal reform. More specifically, Section 1 sets out the relevant country background, including an overview of economic, social and environmental trends, and the status of green economy

initiatives in the country. Section 2 gives an overview of Ghana’s current fiscal status, giving details on government expenditures and revenues. Section 3 describes the opportunities, by sector, for reforming policies to support the transition to a green economy in Ghana. Section 4 builds on the previous analysis to make recommendations as to policies that could be implemented in each of the key sectors identified. Finally, Section 5 provides a summary of the key outcomes of this study.

1. Country Background

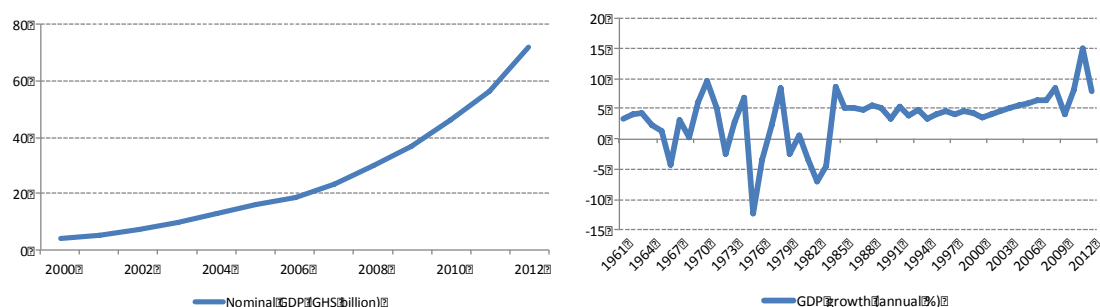
1.1. Socio-economic profile

The growth rate of the Ghanaian population between 2000 and 2010 averaged 2.5 per cent, with the population increasing from 18.8 million in 2000 to 25.4 million in 2010. The majority of this population lives in the south of the country (70 per cent) and in urban areas (51 per cent in 2010). The population has a youthful structure, with children under the age of fifteen accounting for 39 per cent of the population and 15 to 24 years olds accounting for 19 per cent of the total population.

Ghana is among the most promising economies in Sub-Saharan Africa. Improvements in macroeconomic management, combined with enduring political stability and the relatively recent discovery of abundant oil reserves, have considerably strengthened the economic performance of the country over the last years.

Gross domestic product (GDP) is growing steadily, and it experienced a growth peak in 2011 due to the starting of oil production in the last quarter of 2010. Moreover, GDP is expected to continue growing in the following years, driven by investments in infrastructure, oil and gas sectors, and commercial agriculture, reaching 8per cent and 8.7per cent growth in 2013 and 2014, respectively (AfDB, 2013).

FIGURE 1: NOMINAL GDP AND GDP GROWTH RATE



Source: IMF, 2013; WDI, 2013

Historically, agriculture has been the dominant sector of the national economy (especially due to extensive cocoa production). Since the second half of the 2000s, however, the rapid growth of the tertiary sector led to a decline in the share of GDP accounted for by agriculture (FIGURE 2. A key challenge for the further expansion of key economic sectors – including the growth of the manufacturing sector – is the modernization of infrastructure. In turn, this largely depends on

investment strategies and fiscal policies that will be adopted to manage new oil revenue and boost economic growth and employment.

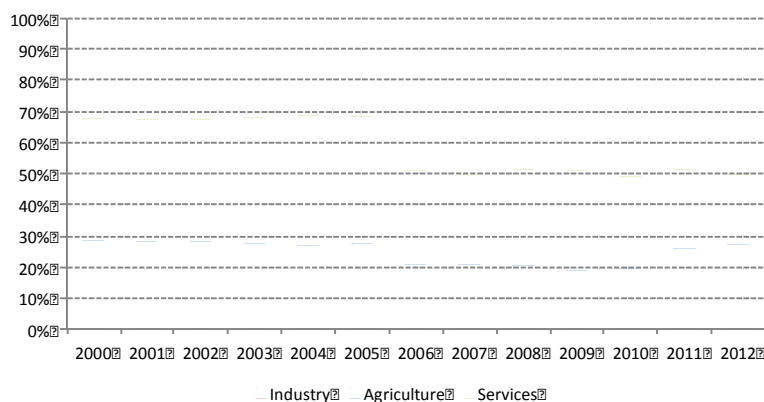


FIGURE 2: GDP COMPOSITION BY SECTOR

Source: WDI, 2013

Positive economic trends have contributed to reduce the poverty headcount ratio from 51 per cent in 1992 to 28.6 per cent in 2006 (World Bank, 2013). In particular, increases in rural productivity and associated increases in income, particularly in the cash crops sector, have contributed to the decline in poverty. However, the benefits of growth have not been equally shared. In particular, poverty remains significant in the drought-prone Northern region, where poverty rates are estimated at two to three times the national average. Consequently, there has been an increase in inequality, with the Gini coefficient rising from around 36 per cent in 1990 to around 43 per cent in 2010 (IMF, 2013d).

Furthermore, limited growth in high value-added sectors such as modern agriculture and manufacturing technologies has meant that economic growth has not translated into job opportunities (GoG, 2010). While data on unemployment is limited, and is unreliable due to the large informal sector (accounting for over 80 per cent of employment), it is clear that job creation remains a significant challenge for the government. In particular, the unemployment rate among youth aged 15 to 24 is estimated at 25.6 per cent, twice that of the 25 to 44 age group and three times that of the 45 to 64 age group.

In addition to declining poverty, Ghana has also made sustained progress towards the achievement of the MDGs on primary education and health. However, much remains to be done in order to ensure access to basic social services for a growing population. In particular, more than 40 per cent of the population still has no access to potable water, as result of low investment in infrastructure and the need for stricter policies on water pollution and use efficiency (GoG, 2010).

1.2. Environmental profile

Ghana is rich in natural resources and biodiversity, especially considering the large expanse of its forestlands, abundance of water resources, and significant oil and mineral reserves (including gold, diamonds and aluminum, among others). On the other hand, current patterns of development are contributing to environmental degradation and progressive loss of natural capital stocks and ecosystem services. In particular, it was estimated that poor natural resource

management generates additional costs amounting to about 10per cent of national GDP (IMF & GoG, 2012). In addition, climate change impacts, such as increased frequency of floods and droughts, are already having dramatic consequences for the Ghanaian population and economy (GoG, 2012a).

There are worrying environmental trends related in particular to the depletion of natural resource stocks, which constitute an essential factor of the national economy and a source of livelihoods for local communities, especially in the poorest areas of the country. Uncontrolled deforestation and unsustainable management of forest resources, for example, have led to a rapid degradation of forest ecosystems and progressive reduction of forest cover. Also, the loss of forest stocks has accelerated desertification, and it is estimated that 35per cent of the national territory is prone to desertification and/or degradation (ECA, 2007).

Similarly, water and fishery resources are being progressively depleted due to unsustainable management. Many rivers (e.g. Pra and Birim) and lakes are polluted from mining activities and chemical fertilizer use in agricultural production (GoG, 2012b). As a result, a large part of the rural population has no access to potable water, and fishing activities in internal waters are seriously compromised. Moreover, deforestation has exposed many rivers to siltation and sedimentation, thereby impairing their use in transporting people and goods (GoG, 2012a). Also marine fishery resources are being overexploited, especially due to unsustainable fishing methods such as pair trawling, use of dynamite, use of small fishing nets and the use of powerful lights (GoG, 2012a). In 2005, the World Bank estimated that the cost of fish stock depletion in Ghanaian ocean waters amounts to 0.27per cent of GDP (GoG, 2012a).

Finally, Ghana faces crucial environmental challenges and opportunities with respect to the energy sector. On the one hand, the discovery in 2007 of the Jubilee oil field, worth between 370 million and 1.8 billion barrels of total reserves (Offshore Technology, 2010), represents an opportunity for the country to increase revenues from exports and enhance domestic energy supply to drive national development. On the other hand, the government is aware of the potential environmental challenges connected to oil production (e.g. oil spills) and consumption (i.e. increased GHG emissions and pollution), and has expressed the intention to diversify the energy portfolio by developing the renewable energy sector, including wind, water and solar resources. Moreover, there is considerable room for improvement in energy efficiency, especially in urban areas. To give an example, it is estimated that investments in green buildings (both new constructions and retrofits) could reduce household energy consumption by 60per cent in Ghanaian cities (GoG, 2012a).

Various initiatives have been taken by the government to address environmental issues in different sectors, including the elaboration of dedicated policies and the implementation of targeted programmes (e.g. REDD+) to enhance sustainable production and consumption. However, there is still the need to improve the national policy framework in order to create the necessary conditions to channel the economy on a sustainable path. In this respect, the funding of a new Institute of Environment and Sanitation Studies reflects the intention of the national authorities to address information and capacity needs in this area (GoG, 2012a).

1.3. Green Economy Initiatives

The government of Ghana is actively responding to the need to establish sound policy and regulatory measures that could enable a green economy transition. Such intention to prioritize environmental concerns into national planning is reflected in the country's development vision,

“Better Ghana Agenda”, which includes among the key overarching socioeconomic goals “ensuring environmental sustainability in the use of natural resources through science, technology and innovation”. Further, the Medium-Term National Development Policy Framework: Ghana Shared Growth and Development Agenda (GSGDA) 2010-2013¹ includes a number of strategic provisions for the elaboration and implementation of green policy interventions and investments, including, among others (GoG, 2010):

- Carrying out a Strategic Environmental Assessment (SEA) to inform decision-making in all sectors of the national economy;
- Reducing the environmental impacts of mineral extraction;
- Expanding the Protected Area System;
- Promoting regulatory or economic incentives and improving institutional/policy reforms for the sustainable management of natural resources (e.g. forest, water, land and coastal resources management);
- Promoting low-carbon growth to reduce emissions and mitigate climate change, in particular through energy efficiency improvements, enhancement of public transport services and facilities, sustainable forest and waste management.

At the operational level, several green economy policy initiatives have been taken by the Government, and many others are currently under discussion. Since 2001, for example, Ghana has attempted fossil fuel subsidy reform (see Box One), most notably in 2005 when avoided expenditure was reallocated with the goal to (1) increase access to education, (2) improve health care in rural areas, (3) expand public transport networks, and (4) increase access to electricity in rural areas (IISD, 2010; IMF, 2013a).

Box One: Fossil Fuel Subsidies in Ghana

Since 2001 the Government of Ghana has made several attempts to reform fuel price subsidies.

- In **2001**, the accumulated losses for the state-owned TOR oil refinery reached 7 per cent of GDP, prompting the government to launch a reform of subsidies. Ex refinery prices were raised and a price-setting mechanism linking domestic and international oil prices was established. However, the reform was abandoned at the end of 2002 in the face of rising oil prices and a depreciating currency.
- In **2003**, the financial position of TOR prompted the government to attempt reform once again, and pump prices were increased by 90 per cent. Despite cross subsidization of kerosene and LPG –fuels widely used by the poor - widespread public opposition led to a reversal of the reform in 2004.
- In **2005**, the government adopted a different strategy, aimed at making the case for reform amongst the public. This included a program of research to identify the impacts of reform on the population, a public communication effort, and measures to mitigate the impact on the most vulnerable groups. Further, the National Petroleum Agency (NPA) was established to administer the price setting mechanism, with the aim of isolating price adjustments from political intervention. Despite increases of 50 per cent in petrol pump prices, the protests following the 2003 adjustment were not repeated. However, price adjustment was suspended during the 2007–08 global fuel and food crisis and in the run-up to the 2008 elections, and

¹ The next Medium-Term National Development Plan for 2013-2017 is to be completed in December 2013.

adjustments have not always fully reflected international prices. By the end of 2012 the gap between domestic and global oil prices had increased substantially (IMF, 2013a)

- In February **2013**, and in response to a 2012 budget deficit of 12.1 per cent, double the target for the year, the government announced that the prices of petroleum products would be adjusted by between 15 and 50 percent. Further adjustments in June 2013 resulted in a total elimination of subsidies on petroleum products and the price adjustment mechanism was restored in July 2013.² The price is based on the recent price of petroleum products in the North West European market, which meets most of Ghana's demand. The cost of freight and insurance are added to give a c.i.f. price, and then a range of other costs including insurance, port handling, storage, and an operating margin are added to give an ex-refinery price. Taxes and levies mandated by parliament are added to the ex-refinery price, followed by the distribution costs to give an ex-pump price (NPA, 2010).

The analysis undertaken at the time of the 2005 reform reviewed the direct and indirect effects of removing the subsidy (Coady & Newhouse, 2006). On average, an 8.5 percent decrease in real incomes was projected, and the bottom quintile affected the most, with a decrease of 9.1 percent in real incomes compared with an 8.2 percent decrease for the top quintile. Looking across the quintiles, the top two quintiles accounted for about 60 percent of the total loss, compared with 23 per cent for the bottom two quintiles, highlighting that the higher-income groups benefited disproportionately from the subsidy.

The government introduced a number of measures to address the short term effects on the lower-income quintiles and secure public acceptance (Laan & Beaton, 2010). In addition to continuing the cross subsidization of kerosene and LPG, these measures included: (i) eliminating fees for state-run primary and secondary schools (ii) increasing the number of public-transport buses and putting a price ceiling on public transport fares (iii) channeling extra funds into a health-care scheme for poor areas (iv) raising the daily minimum wage from USD 1.24 to USD 1.50 and (v) starting rural electrification programs. While the introduction of these measures and related communication efforts were effective in securing initial public acceptance, subsequent price rises were not accompanied by the same effort, and this may have damaged the long term viability of the reform.

The government has also adopted a number of policy instruments to encourage integrated water resource management (e.g. National Water Policy and Water Use Regulations) (GoG, 2007a), sustainable agricultural management (e.g. Accelerated Agricultural Growth and Development Strategy and the Food and Agriculture Sector Development Policy), and sustainable forest management (e.g. the National Forest and Wildlife Policy). Finally, Ghana has set various energy targets, such as increasing renewable energy penetration from 0.1 per cent to 10 per cent between 2011 and 2020 (GoG, 2011), and achieving universal electricity access by 2020.

UNEP is providing support to the Government of Ghana in order to identify green economy challenges and opportunities, and develop sound institutional and policy frameworks to harness opportunities and facilitate the shift to more sustainable economic models. For instance, a Ghana scoping study was been validated in August 2013 (UNEP, In Press), and will be followed by a

² Premix remains subsidized.

Green Economy Assessment that develops green investment scenarios by using macro-economic models in 2013-2014. In particular, UNEP is collaborating with national authorities on the implementation of the National Programme on Sustainable Consumption and Production (SCP) for Ghana (2011-2016) a comprehensive strategy aimed at fostering technological and social innovation. Also, a National Climate Change Adaptation Strategy (NCCAS) is being developed in the framework of the UNDP-UNEP Climate Change Adaptation and Development Initiative. The strategy seeks to provide guidance to national authorities on the process of incorporating climate change issues into national development planning.

Finally, and with an eye to future policy directives, in the report submitted to the UN Conference on Sustainable Development (Rio+20), the government has stressed the need to improve access to global green funds, as well as to assess the readiness of the country's climate finance in view of the transition to a green economy (GoG, 2012a).

2. Fiscal policy overview

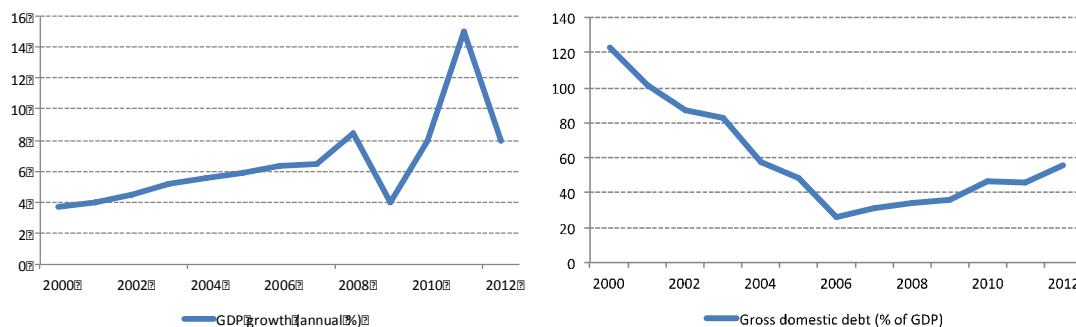
This section gives an overview of the current fiscal status in Ghana, including an analysis of recent trends in public revenue and expenditure. There is first of all brief analysis of Ghana's overall fiscal status, including analysis of GDP growth, debt, deficit, and inflation trends. Subsequently, a general description of government revenue types is provided, following the classification of the IMF Government Finance Statistics Manual (IMF, 2001) and taking notice of national practices. This generic introduction to government revenue is followed by an analysis of recent revenue trends and fiscal policies adopted in Ghana. Finally, the session ends with analysis of public expenditure, including a description of key government spending responsibilities, and analysis of trends, current challenges and potential opportunities to improve the sustainable management of public budgeting in Ghana.

The overall objective of this section is to facilitate the identification of potential opportunities to enhance fiscal space in Ghana, and create room for investments and policies that could enable the transition to a green economy. In particular, specific attention is paid to environment related taxes, as well as existing capital investments and fiscal incentives/disincentives that might influence the development of green sectors.

2.1. Fiscal status

Robust economic growth of 8 per cent, stable political institutions and promising oil and gas revenue projections have helped Ghana to attract an increasing share of foreign investment, while strengthening the management of its macro-economy. As a result, Ghana attained the lower middle-income country (MIC) status in 2010, according to the World Bank's classification scheme. On the other hand, several challenges remain for national authorities to consolidate financial stability and protect the economy from potential risks. In particular, Ghana still faces a large fiscal deficit, which amounted to 12.1 per cent of GDP in 2012, as well as an expanding gross domestic debt.

FIGURE 3: GDP GROWTH RATE AND GROSS DOMESTIC DEBT



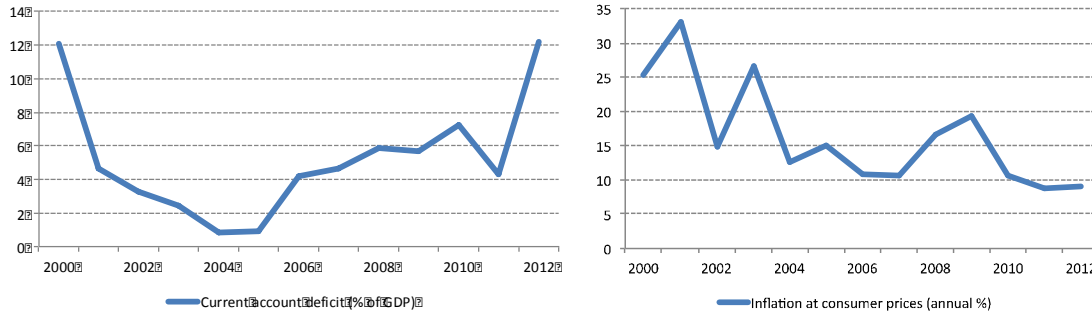
Source: WDI, 2013

Despite having recorded high GDP growth rates in recent years, Ghana's debt continued to grow over the same period. Ghana opted for debt relief under the Heavily Indebted Poor Country (HIPC) program in 2002, and is also benefiting from the subsequent Multilateral Debt Relief Initiative (MDRI) that took effect in 2006. Public debt decreased from over 86 per cent of GDP at the time the HIPC took effect to 26 per cent at the time the MDRI was put in place, before rising to reach over 55 per cent in 2012. While debt is now on a more sustainable basis than in 2000 and the risk of distress is deemed moderate, concerns have been raised regarding the deterioration of a number of indicators in recent years (IMF, 2013b).

The growth of debt is driven by a high budget deficit, which amounted to about GHS 8.754 billion in 2012, equivalent to 12 per cent of GDP, and significantly above the pre-set target of 6.7 per cent of GDP (GoG, 2013). According to the government, this high deficit was mainly attributable to shortfalls in revenue and grants combined with higher spending. In particular, the following issues had the strongest impact: (1) shortfall in corporate income taxes; (2) decline in grants from development partners (also due to the reclassification of Ghana as a low middle-income country); (3) implementation of the single spine salary structure (SSSS), aimed at removing inequities associated with public service wages; (4) higher interest costs; (5) utility and fuel subsidies; and (6) higher spending on goods and services (GoG, 2013).

Going forward, the government aims at creating fiscal space through increased national output and higher levels of revenue mobilization. Moreover, the national debate is focusing on possible reforms to reduce the excessive spending on wages for the public sector. As of December 2012, compensation to public sector workers amounted to 72.3 per cent of total tax revenue (including taxes imposed on oil companies), thereby leaving limited fiscal space to improve social services and invest in key infrastructure (GoG, 2013).

FIGURE 4: CURRENT ACCOUNT DEFICIT AND INFLATION RATE



Source: IMF, 2013; WDI, 2013.

For the first time since 1971, inflation of consumer prices went from double digits to a single one between 2010 and 2011, that is, from 10.7 per cent to 8.7 per cent. In 2012, tight monetary policies prevented rapid currency devaluation, and inflation was kept at 9.2 per cent (World Bank, 2013). On the other hand, the cost of credit to the private sector increased, and real interest rates were raised to double digit levels. Inflationary pressures in recent years remained under control also due to an increase in low food prices (GoG, 2013).

TABLE 1: MACRO ECONOMIC FIGURES OF GHANA, 1990, 2000-2012 (IN CURRENT PRICES)³

	Total budget revenue		Total budget expenditure		GDP	Budget deficit (-) /surplus (+)		Gross public debt*		Inflation
	a) billion GHS	b) per cent of GDP	a) billion GHS	b) per cent of GDP	billion GHS	a) billion US\$	b) per cent of GDP	a) billion GHS	b) per cent of GDP	per cent change (average consumer prices)
1990	0.0267	13.1576	0.034*	16.7323	0.2032	0.0013	-0.6398	0.092	45.2756	37.259
2000	0.539*	13.4347	0.806*	20.0897	4.012*	-0.483	-12.0389	4.948	123.346	25.151
2001	0.9520	17.8746	1.1998	22.5272	5.326*	-0.2477	-4.6508	5.406	101.504	32.906
2002	1.0324	13.7397	1.2778	17.0056	7.514*	-0.2453	-3.2646	6.511	86.660	14.815
2003	1.6405	16.9211	1.8802	19.3935	9.695*	-0.2397	-2.4724	8.029	82.813	26.677
2004	2.4948	19.053	2.6035	19.8832	13.094*	-0.1086	-0.8294	7.519	57.426	12.629
2005	2.9333	18.5923	3.0704	19.4612	15.777*	-0.1370	-0.8684	7.598	48.160	15.113
2006	3.2704	17.4838	4.0569	21.6887	18.7051	-0.7865	-4.2047	4.904	26.217	10.151
2007	4.5766	19.7655	5.6619	24.4529	23.1544	-1.0853	-4.6872	7.188	31.044	10.733
2008	5.6346	18.6708	7.4072	24.5446	30.1786	-1.7726	-5.8737	10.138	33.593	16.522
2009	6.8027	18.5878	8.8692	24.2344	36.5976	-2.0666	-5.6468	13.256	36.220	19.251
2010	8.8589	19.2408	12.1738	26.4407	46.0421	-3.3150	-7.1999	21.299	46.258	10.709
2011	12.8516**	22.8343	13.38**	23.7731	56.282**	-2.3954**	-4.2561	25.707	45.6753	8.725
2012	16.668**	23.1993	20.5897**	27.2827	71.847**	-8.7154**	-12.1305	39.796	55.3899	9.160
2013⁺	17.924	21.2007	26.504*	31.3494	84.544*	-4.940	-5.8431	47.823	56.566	8.449
2014⁺	22.683	23.0053	31.246*	31.69	98.599*	-4.760	-4.8276	55.340	56.127	8.243
2015⁺	27.990	24.2819	35.599*	30.8829	115.271*	-4.471*	-3.8787	63.349	54.957	7.863

Source: International Monetary Fund, Government Finance Statistics

* Source: International Monetary Fund, World Economic Outlook 2011

** Source: Ministry of Finance, Summary of Central government Operations

+ Projections

³ All values are expressed using the cedi denomination adopted by the government until 2007, in order to allow for coherent data comparison and analysis. However, the Bank of Ghana, on 1st July 2007, redenominated the cedi by setting ten thousand cedis to one Ghana Cedi, equivalent to one hundred Ghana Pesewas (i.e. GHS 10,000= GHS 1).

2.2. Government revenues

2.2.1 Generic background

The IMF Manual on Government Finance Statistics defines revenue as “an increase in net worth resulting from a transaction” (IMF, 2001). Governments receive three major types of revenue from their fiscal operations, supplemented by grants: taxes, social contributions and other revenue.

Taxes are compulsory transfers received by the general government sector. Among others, the types of taxes that contribute by far the largest share to public budgets include income, profit and taxes on goods and services (value added taxes). Within this definition, environmental levies are a cross-cutting tax category, since they can be imposed on different assets, profits or transactions, with the aim of encouraging environmentally positive behaviour change. Several governments have already introduced different types of environmental taxes, including, for example, taxes on carbon emissions, landfill taxes, customs taxes on imports of polluting goods, etc. The introduction of environmental taxes enlarges fiscal space, opening up new potential to raise additional revenue and increase investment in green sectors. Moreover, governments can opt for a progressive fiscal system, meaning that greater tax burdens are imposed on higher incomes and wealth, or adopting a polluter pays principle, thereby enhancing the potential for social and tax justice.

Social contributions include receipts of social security schemes and employer social insurance schemes that provide benefits other than retirement benefits (IMF, 2001). Social security contributions may be compulsory or voluntary and may be made by employees, employers on behalf of employees, self-employed persons, or non-employed persons. The difference between compulsory social contributions and normal taxes is that the former entitle the contributors to certain social security benefits.

Other revenue includes all revenue transactions not classified as taxes, social contributions, or grants (IMF, 2001). The major items are sales of goods and services, interest and other types of property income, voluntary transfers in cash or in kind other than grants, and fines and penalties. While some revenues deriving from green economy policy interventions (e.g. carbon tax) falls within the other two categories, others could be identified within the “other revenue” category. For example, the establishment of regulatory frameworks to limit environmentally damaging activities could lead to an increase in public revenue, e.g. in the form of administrative fees (i.e. to obtain licences and certifications), as well as fines and penalties for violation of mandatory standards (e.g. energy efficiency), pollution limits etc.

Finally, grants are non-compulsory transfers received from other governments or from international organizations. They supplement the revenue from a government’s own resources, and they can be received in cash or in kind. Among grants in cash, current grants have the objective of supporting government budget expenditure, while capital grants involve the acquisition of an asset by the recipient (IMF, 2001).

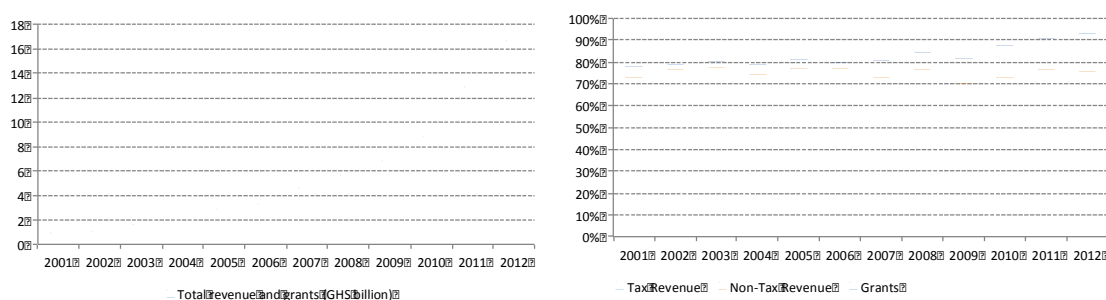
2.2.2 Country data and analysis

Total revenues collected by the government of Ghana have increased at a remarkable pace over the last decade, going from GHS 952 million in 2001 to GHS 16.7 billion in 2012 (**Error! Reference source not found.**). The greatest share of government revenues is provided by taxes

on income and property (33.2 per cent of total revenues in 2012), while a minor part is collected from non-tax revenue sources, such as lodgment fees, dividends and interests (17.1 per cent), and grants (7 per cent). As a result, total revenue and grants in 2012 were 30.2 per cent higher than the outturn for the corresponding period in 2011.

Despite the considerable increase in total revenue experienced in the last years, Ghana has accumulated a growing public debt over the same period (Section 2.1). One of the main reasons for the expanding debt burden identified by the government is the reduction of grants (GoG, 2013). This trend is confirmed by national statistics (**Error! Reference source not found.**), which show that the share of total revenue attributable to grants has gone from about 20 per cent in 2006 to 7 per cent in 2012.

FIGURE 5: TOTAL REVENUE AND GRANTS, EXPRESSED IN GHS BILLION (LEFT) AND BY TYPE AS per cent OF TOTAL REVENUE (RIGHT).

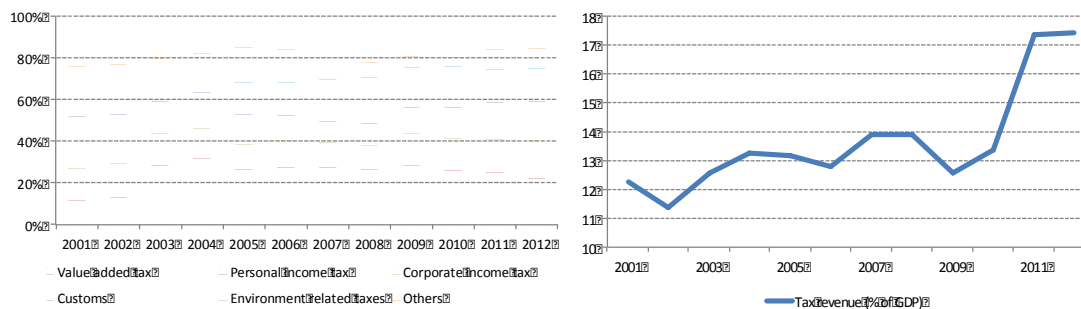


Source: IMF, 2013

When considering only tax revenues, it is worth noting that taxation with respect to GDP grew in recent years, going from 12.6 per cent of GDP in 2009 to more than 17 per cent of GDP in 2012 (**Error! Reference source not found.**). This trend is mainly attributable to an increase in revenues from personal income and value added taxes (**Error! Reference source not found.**), together with improvements in the tax collection system, and the overall expansion of the national economy, which attracted increasing shares of foreign investments. Table 2 gives more detail on the main revenue sources.

FIGURE 6: TAX REVENUE, EXPRESSED BY TYPE AS per cent OF TOTAL TAX REVENUE (LEFT), AND AS per cent of GDP (RIGHT).

Table 2



Source: IMF and MoFEP, 2013

Table 2: TAX REVENUE BY MAIN REVENUE SOURCE, 1990, 2000-2012 (BILLION CURRENCY; IN CURRENT PRICES) 4

	Personal income tax (PIT)	Corporate income tax (CIT)	Value Added Tax (VAT)	Energy/E FR-elements *	Customs	Other	Total tax revenue	
							Billion GHS	per cent of GDP
1990	0.0017	0.0034	-	-	0.0063	0.0106	0.0220	10.8268
2000	-	-	-	-	-	0.3732	0.3732	7.5424
2001	0.0677	0.1080	0.0509	-	0.1060	0.3219	0.6545	12.2888
2002	0.0929	0.1334	0.0710	-	0.1316	0.4258	0.8547	11.3748
2003	0.1770	0.1800	0.3283	-	0.2367	0.3004	1.2224	12.6086
2004	0.2194	0.2663	0.4919	-	0.2823	0.4778	1.7377	13.2710
2005	0.2782	0.3310	0.6027	0.3751	0.3479	0.1388	2.0737	13.1438
2006	0.3468	0.3114	0.7123	0.4071	0.4170	0.201	2.3956	12.8072
2007	0.4534	0.4040	1.0685	0.4033	0.7738	0.1104	3.2134	13.8781
2008	0.5949	0.5398	1.3801	0.3862	1.1551	0.1375	4.1936	13.8959
2009	0.8463	0.6921	1.5562	0.2989	1.0644	0.158	4.6159	12.6126
2010	1.1148	1.0802	1.8883	0.2965	1.4379	0.3466	6.1643	13.3884
2011	1.4933	1.6994	2.3761	0.9329	1.516	1.7584	9.7761	17.3699

⁴ All values are expressed using the cedi denomination adopted by the government until 2007, in order to allow for coherent data comparison and analysis. However, the Bank of Ghana, on 1st July 2007, redenominated the cedi by setting ten thousand cedis to one Ghana Cedi, equivalent to one hundred Ghana Pesewas (i.e. GHS 10,000= GHS 1).

2012	2.3683	2.3615	2.7773	1.195	1.99	1.8249	12.517	17.4217
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Source: International Monetary Fund, Government Finance Statistics

Source: Ministry of Finance, Summary of Central Government Operations. EFR calculated as the sum of the following tax revenues: Company Taxes on Oil, Petroleum Tax, Royalties from Oil, Mineral Royalties, Airport Tax, Vehicle Licence Renewal, Timber Licences. Provisional EFR tax revenue amounted to GHS 0.8639 billion in the first two quarters of 2013.

Regarding future trends, a preliminary assessment of fiscal performance during the first seven months of 2013 showed that revenues are falling short of expectations, especially when compared to an increasing public expenditure on wages (IMF, 2013b). On the other hand, the government is already responding to the need for greater financial stability. In particular, import levies were recently introduced, and efforts are being focused on further improving the revenue collection system, while continuing public financial management reforms with the goal to reduce the public deficit. According to the IMF, extensive removal of tax exemptions, together with further tax policy measures, for example in the area of property taxes, could generate additional revenue of 1per cent of GDP by 2015 (IMF, 2013b).

Box 2: Taxation in the Oil Sector

Given the growing importance of the oil sector in the Ghanaian economy, and the environmental impact of the sector, it is also worth outlining the fiscal environment.

On the consumer side, petroleum tax, levied on consumer petroleum goods, has to date been the most significant source of revenue in the petroleum sector. In 2011 it totaled GHS 439 million (approximately 4.3 per cent of total tax revenue) and in 2012 it totaled GHS 544 million (approximately 4.5 per cent of total tax revenue). Going forward however, revenues from oil production are projected to surpass consumer taxes as production increases.

The principal form of contract is the Petroleum Agreement (PA), which is similar to a Production Sharing Contract (PSC). Under the PA, the Government grants the contractor the right to explore and produce petroleum in a designated area. The PA sets out the work program, operating conditions and fiscal terms including the royalty to be paid and the rate of income tax.

The PA model sets out the interest assumed by the Ghana National Oil Company (GNPC). In the exploration and development phase, GNPC is carried by partners, and is not liable for its share of the costs. In the production phase, the GNPC will assume its share of the costs and also take its share of production. Should commercial quantities be discovered as a result of exploration, the state is entitled to buy additional interest in the contract area, and will pay full costs for this additional interest in the development phase (State Additional Interest). Finally, the Government will take an additional share of crude oil in the event that the rate of return realized by the contracting oil companies exceeds certain levels – this Additional Oil Entitlement (AOE) can be viewed as a form of windfall tax.

TABLE 3: GOVERNMENT REVENUES FROM PETROLEUM SECTOR, 2011-2013, (IN MILLION CURRENCY – NOMINAL FIGURES)⁵

	2011	2012	2013 budget
Consumer Taxes			
Petroleum Tax	439	544	657.8
Producer Taxes			
Oil Royalties	191	272.6	277.4
Surface Rentals	-	0.8	0.8
Income Tax	-	-	107.8
GoG Carried & Participating Interest	499.2	705.9	717.9

Source: GoG 2012 Annual Report on Petroleum Funds, 2013 Budget

In terms of revenue, the government receives petroleum corporate income tax, which is payable on taxable profit, at a rate set under the PA, typically 35 per cent. It also receives a petroleum royalty which is payable on production and is also set in the PA, with precedent ranging from 4 to 12 per cent. Finally, a number of minor charges and fees apply, such as surface rentals. In addition, the revenue collected from liftings by GNPC accrues to the government. TABLE 3 presents the breakdown of revenues in 2011 and 2012. During these two years, none of the four MNCs operating in Ghana paid corporate income tax, due to a delay in reforming the Petroleum

⁵ All values are expressed using the cedi denomination adopted by the government until 2007, in order to allow for coherent data comparison and analysis. However, the Bank of Ghana, on 1st July 2007, re-denominated the cedi by setting ten thousand cedis to one Ghana Cedi, equivalent to one hundred Ghana Pesewas (i.e. GHS 10,000= GHS 1).

Income Tax Law of 1987 (PNDC Law 188), which allows oil companies to charge exploration and development costs to their revenues before arriving at the taxable profit. As a result of a reform of this law, an increase in tax revenues in 2013 is expected, with the 2013 budget projecting total income of GHS 107.8 million.

2.3. Public expenditure

2.3.1 Generic background

According to the IMF, expense is a decrease in net worth resulting from a transaction (IMF, 2001). Governments have an annual budget that consists of the total revenues collected and potential surplus revenues from previous years. When the yearly expenditure overcomes the budget available, the expense is financed through public debt.

Governments often resort to public debt in order to fulfill their two broad responsibilities, namely the provision of selected goods and services to the community, and the redistribution of income and wealth across different social groups. As a result, the well-being of the population largely depends on the allocation of public expenditure to key sectors, such as health, education, social protection etc., as well as on the capacity of public financial authorities to manage the current account balance in a way that does not compromise future generations.

Public expense transactions are classified in two ways in the IMF GFS system: an economic classification and a functional classification. The economic classification identifies the types of expenses incurred by the government for supplying non-market goods and services to the community, while the functional classification provides information on the purpose for which an expense was incurred (IMF, 2001).

Economic classification

The main categories of the economic classification are the following:

- **Compensation of employees:** the remuneration of government employees, which includes wages and salaries, and social contributions.
- **Use of goods and services:** calculated as the sum of the value of goods and services used for the production of market and non-market goods and services, and the value of goods purchased for resale. From this sum, the value of net change in inventories of work in progress, finished goods, and goods held for resale is deducted.
- **Consumption of fixed capital:** measured as the loss of value of fixed assets owned by the government “as a result of physical deterioration, normal obsolescence, or normal accidental damage”.
- **Interest:** the amount of money that must be paid by public units that incur liabilities. Such liabilities are created when the government borrows funds from another entity. Interests are payable to (1) other government units, (2) residents other than the government, and (3) non-residents.
- **Subsidies:** “current unrequited payments that government units make to enterprises on the basis of the levels of their production activities or the quantities or values of the goods or services they produce, sell, export, or import”.

Box 3: Classification of subsidies

There are different types of subsidies, as classified by IISD, including: (1) grants and other direct payments – i.e. cash payments, either time-limited (e.g. in connection with a specific investment) or based on the level of production or sales; (2) tax concessions - e.g. reduction of companies' tax burdens; (3) in-kind subsidies – e.g. subsidized housing; (4) cross subsidies – i.e. use of revenues collected from one sector/public enterprise to subsidize another sector/enterprise; (5) credit subsidies and government guarantees – e.g. preferential credit conditions granted by the government to another unit; (6) hybrid subsidies – e.g. tax-free bonds; (7) derivative subsidies – i.e. subsidies that beget other subsidies (e.g. subsidies aimed to encourage consumption of domestic products) ; (8) subsidies through government procurement – e.g. preferential purchasing of domestic goods and services; and (9) market price support – e.g. subsidies to domestic producers deriving from policies that raise the price artificially such as a minimum price policy.

- **Grants:** voluntary transfer of funds from the government to other governments or international organizations. As for the revenue grants, funds can be transferred to support budget expenditure or a specific investment.
- **Social benefits:** “transfers in cash or in kind to protect the entire population or specific segments of it against certain social risks”. They can be further divided into: (1) social security benefits – e.g. maternity allowances, unemployment and invalidity benefits etc.; (2) social assistance benefits, which are the same as social security benefits, but are not included in a social security scheme; (3) employer social benefits – e.g. social security benefits payable to government employees.
- **Other expenses:** including (1) property expense other than interest – i.e. expenses for the government's use of an asset owned by another entity (e.g. rent, dividends, insurance etc.) and (2) miscellaneous other expense – i.e. any other public expense that does not fall into the previous categories (e.g. compensation for injuries and damages, scholarships etc.).

Functional classification

The IMF functional classification provides information “on the purpose for which an expense was incurred” (IMF, 2001). The key functions of public spending include the following:

- General public services
- Defense
- Public order and safety
- Economic affairs
- Environmental protection
- Housing and community amenities
- Health
- Recreation, culture and religion
- Education
- Social Protection

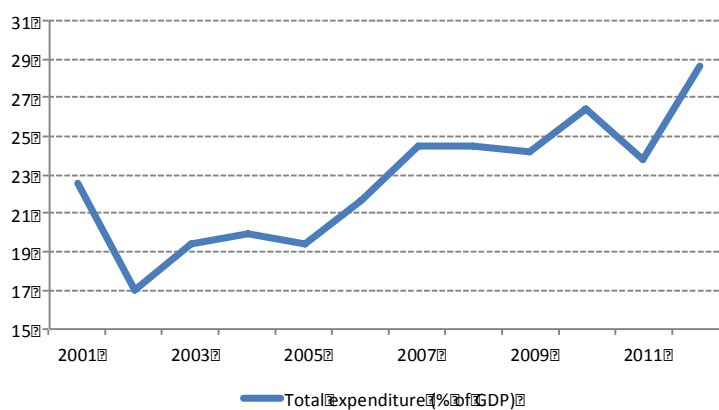
The sustainability of a national economy largely depends on how the budget is allocated across the spending categories above. Environmental fiscal policies could be implemented in each of the priority sectors for national development, with the aim to reallocate public expenditure from

polluting and unsustainable production and consumption modes towards more sustainable sectors.

2.3.2 Country data and analysis

Public spending in 2012 has significantly increased with respect to the previous years (**Error! Reference source not found.**). In particular, budget expenditure totaled GHS 20.59 billion in 2012 (27.3 per cent of GDP), an increase of over 50 per cent on the 2011 figure of GHS 13.38 billion (23.7 per cent of GDP). As a result, the budget deficit rose from GHS 2.4 billion (4.2 per cent of GDP) to GHS 8.7 billion (12.13 per cent of GDP).

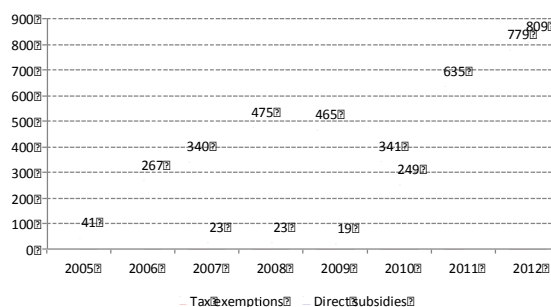
FIGURE 7: TOTAL PUBLIC SPENDING



Source: IMF, 2013

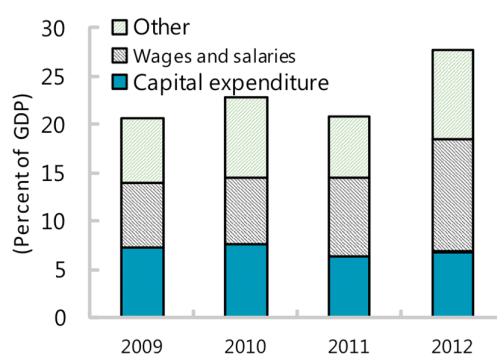
A large part of expenditure is accounted for by subsidies to companies and individuals. FIGURE 8 shows the increase in tax exemptions and direct subsidies between 2005 and 2012. Historically, energy and agriculture (crop and fish production) have accounted for the majority of the subsidies. Growth in fuel subsidies accounted for the majority of growth in public expenditure between 2011 and 2012. In 2012, a total amount of GHS 809 million was spent on utility and fuel subsidies, with an additional GHS 955.8 million due to be paid in 2013 for electricity and fuel subsidies incurred in 2012 (GoG, 2013).

FIGURE 8: DIRECT AND INDIRECT SUBSIDIES (GHS MILLION)



Another key issue influencing the recent expansion of public expenditure was the growing wage bill, mainly determined by the migration of public workers onto the Single Spine Salary Structure (SSSS), a new remuneration scheme for government employees. As confirmed by the Ministry of Finance, the wage bill has more than tripled over the period 2009-2012, going from GHS 2.48 billion (52.2 per cent of tax revenue) in 2009, prior to the implementation of the SSSS, to GHS 6.67 billion (53.8 per cent of tax revenue) in 2012 (**Error! Reference source not found.**). When arrears are included, the 2012 wage bill amounted to GHS 8.54 billion, or 68.2 per cent of tax revenue, 40.8 per cent of total expenditure, and 11.9 per cent of GDP (MoFEP, 2013).

FIGURE 9: TOTAL EXPENDITURE BY TYPE



Source: IMF, 2013

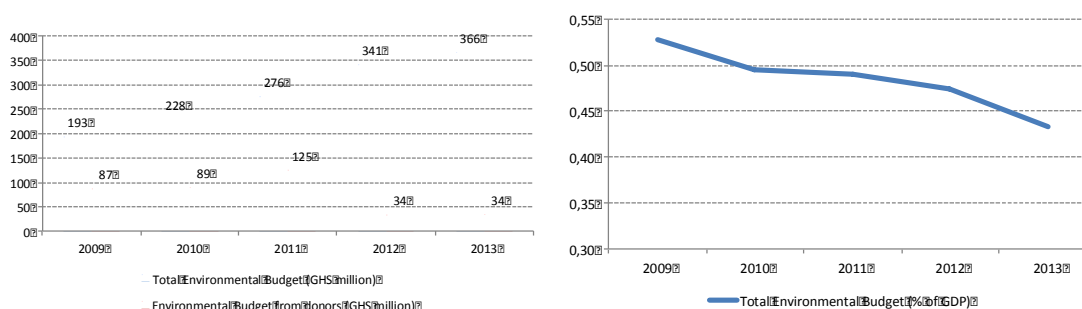
Among the most worrying figures in the 2012 financial statement is the decline in capital expenditure, which is the portion of the national budget allocated to the achievement of key development goals, such as access to primary education, infrastructure development, and environmental protection. More precisely, capital expenditure in 2012 totaled GHS 4,793.3 million, 19.7 per cent lower than the budget target of GHS 5,972.3 million. Analyses carried out by the Ghanaian government reveal that the drop in capital expenditure was mainly due to lower foreign-financed capital spending resulting from a reduction in project loans and grants from key development partners, as well as low disbursement of inflows from the China Development Bank facility (MoFEP, 2013).

A comprehensive assessment of environmental budgetary allocation is not possible, due to the lack of data on functional expenditure. Unfortunately, historical series from the IMF functional classification of Ghana's expenditure, which include expenditure in environmental protection, are not available for years prior to 2002. In addition, the Ghanaian government categorizes capital expenditure in terms of transfers to national development funds (e.g. Education Trust Fund, Road Fund etc.), without providing further details on specific spending categories.

Despite the difficulties encountered in the data collection process, it is possible to affirm that environmental spending has received increasing attention in recent years. In particular, the last Medium-Term National Development Policy Framework for the period 2010-2013 included "accelerated agricultural modernization and natural resource management" among national expenditure priorities, as a dedicated thematic area to support economic growth and poverty reduction. This is reflected in recent trends of budgetary allocation to the Ministry of Land and

Natural Resources (MLNR) and the Ministry of Environment, Science, Technology and Innovation (MESTI), which are the government entities charged with implementing environmental protection policies and programmes. **Error! Reference source not found.** shows that the total budget allocated to MLNR and MESTI amounted to about GHS 366 million in 2013, compared to GHS 341 million in 2012 and GHS 276 million in 2011, corresponding to an increase of 32.6 per cent between 2011 and 2013. On the other hand, when considering the environmental budget as a percentage of GDP, it is worth noting that the value has declined from 0.49 per cent to 0.43 per cent between 2011 and 2013.

FIGURE 10: BUDGET ALLOCATED TO MLNR AND MESTI – TOTAL, FROM DONORS (LEFT) AND AS SHARE OF GDP (RIGHT).



Source: MoFEP, 2013

The main environment-related activities conducted by MLNR and MESTI over the period covered by the Medium-Term National Development Policy Framework (2010-2013) include, among others:

- Environmental protection – e.g. implementation of the Coastal Zone Development Project for tree planting and cleaning of beaches; elaboration of the National Climate Change Policy and Strategy; assessment of Cost of Environmental Degradation (CoED); trainings on chemicals control and management; plastic waste management; investigation of oil spillages, etc.
- Forestry – e.g. implementation of the Forest Preservation Programme and National Plantation Development Programme.
- Mines – strengthening and enforcement of the regulatory framework governing the management of the minerals and mining industry and implementation of programmes to address developmental issues in mining communities.
- Lands – Implementation of the Land Administration Project, aimed at improving the national registry of land acquisition, and updating survey and mapping data collection (GoG, 2010).

Given the high account deficit and public debt, and the concurrent need to ensure adequate capital investments to achieve key development goals, the government is currently discussing possible ways to reduce expenditure particularly on public wages and energy subsidies. Pending a full analysis of the 2012 public sector wage bill, the increase over 2011 levels has been attributed in part to salary increases and increased recruitment. With respect to energy subsidies, the government announced the full removal of fossil fuel subsidies in June 2013 (see

Box 1). The government has also taken steps towards full cost recovery in the electricity and water sector, and announced the upward adjustment of electricity and water tariffs in September 2013, pending the eventual implementation of an automatic price adjustment mechanism.

To conclude, the simultaneous increase in overall public expenditure and decrease in capital investments, which occurred in recent years mainly as a result of wages and energy subsidy policies, has led the government to realign its fiscal policies with respect to three key priorities: (i) A gradual reduction of interest rates through fiscal consolidation (ii) A realignment of spending away from wages and subsidies toward investment (iii) Energy sector reforms, including cost-recovery pricing to improve the financial situation of energy providers (IMF, 2013c).

TABLE 4: EXPENDITURES BY MAIN SPENDING AREA, 1990, 2000-2012 (BILLION CURRENCY; IN CURRENT PRICES)⁶

	Development	Social Security	National Health Fund	Education Trust Fund	Interest*	Road Fund	Total expenditures*	per cent of GDP	Subsidies:	
									Tax expenditures	Financial support ⁷
1990	-	-	0.0026	0.0065	-	0.0016	-	-	-	-
2000	-	-	0.032	0.02	0.115	0.0303	0.7524	15.2264	-	-
2001	-	-	0.0422	0.0358	0.2787	0.0326	1.1998	22.5272	-	0.0
2002	-	-	0.0699	0.0329	0.2999	0.046	1.2778	17.0056	-	0.0354
2003	-	-	0.021	0.049	0.3633	0.0623	1.8802	19.3935	-	0.0273
2004	-	-	0.042	0.0811	0.3472	0.0608	2.6035	19.8832	-	0.0392
2005	-	0.0631	0.0985	0.098	0.3540	0.0927	3.0704	19.4612	0.0	0.0412
2006	-	0.0977	0.0607	0.1062	0.3934	0.1084	4.0569	21.6887	0.0	0.2673
2007	-	0.1185	0.2553	0.1505	0.4400	0.1114	5.6619	24.4528	0.3395	0.023
2008	-	0.1596	0.2565	0.2041	0.6792	0.103	7.4072	24.5445	0.4747	0.023
2009	-	0.195	0.392	0.2659	1.0323	0.1232	8.8692	24.2344	0.4648	0.019
2010	1.1548	0.2334	0.365	0.3132	1.4394	0.1304	12.1738	26.4406	0.341	0.2489
2011	1.9628	0.3205	0.377	0.3206	1.612	0.1411	13.38	23.7731	0.6346	0.0
2012	2.4367	0.4625*	0.5872	0.3628	2.4362	0.1957	20.59	28.6581	0.7789	0.809

Source: Ministry of Finance, Summary of Central Government Operations

*Source: International Monetary Fund, Government Finance Statistics.

⁶ All values are expressed using the cedi denomination adopted by the government until 2007, in order to allow for coherent data comparison and analysis. However, the Bank of Ghana, on 1st July 2007, redenominated the cedi by setting ten thousand cedis to one Ghana Cedi, equivalent to one hundred Ghana Pesewas (i.e. GHS 10,000= GHS 1).

⁷ Lifeline electricity consumers, subsidies to utility companies and oil subsidies.

3. Environmental Fiscal Reform Opportunities

Section 3.1 introduces EFR and UNEP's enabling conditions to operationalize it (UNEP, 2011). Starting from this general overview of recent EFR trends, section 3.2 will provide a more detailed description of EFR interventions being implemented in Ghana. The analysis in section 3.3 will then focus on reviewing the EFR status in specific sectors: agriculture, fishery, water, forestry, energy, waste, transport, and mineral resources.

3.1. General Overview of EFR

The process for a green economy transition requires the creation of key enabling conditions for a shift to more sustainable consumption and production modes (UNEP, 2011). In order to guide countries on the path towards sustainable development and poverty eradication, governments have a variety of policy instruments at their disposal - including fiscal incentives and disincentives, targeted public investments, and sound regulatory frameworks - which can play a crucial role in shaping future trends and directing the economy towards the achievement of sustainability and inclusiveness goals. In particular, green fiscal policies have the potential to include environmental externalities in the price of goods and services, thereby creating fiscal space for green investment, and driving the reallocation of public and private investments to clean technology and low resource-intensive production.

Environmental Fiscal Reform (EFR) refers to a continuum of taxation and pricing measures that raise public revenues to finance the green economy transition, while furthering environmental and sustainable development goals. In particular, EFR seeks to reform two key elements of public finance management, namely:

- Tax revenue systems, through measures that internalize social and environmental externalities by increasing taxes on environmentally harmful products and production processes, while possibly reducing taxes on activities and products that are beneficial to the environment and society.
- Public spending strategies and approaches, through the phasing out of potentially harmful subsidies and the reallocation of investment priorities in order to level the playing field for green products and businesses, and to support clean technology development and inclusive, sustainable growth.

Although fiscal reforms may vary considerably depending on the country context in which they are to be implemented, four overarching priority areas of intervention are identified by UNEP in order to guide environmental fiscal reform (UNEP, 2011). These include:

1. **Addressing environmental externalities and existing market failures** : EFR policies should pursue the reform of market incentives so as to ensure that prices of goods and services reflect the cost of environmental and social externalities. In essence, an externality means that the market price of a good or service is lower than its actual social and environmental costs, with the difference borne primarily by the environment and people other than the buyer and seller (e.g. health and productivity costs deriving from heavy traffic are not included in the cost of buying new vehicles). In order to successfully address market failures, governments can use a variety of fiscal and other market-based instruments, such as environmental taxes. These could be introduced to provide clear incentives to reduce emissions and to use natural resources more efficiently, while also stimulating innovation and research on alternative products and production processes.

Moreover, the revenue raised from environmental taxes could be used to mitigate the damage done by unsustainable production and consumption; to promote green economic activity; or to reduce fiscal pressure on activities that benefit society, such as taxes on income, labour and profits.

2. **Limiting government spending in areas that deplete natural capital:** EFR might seek to reduce public spending in those sectors and activities that are damaging natural capital and ecosystems. In particular, many governments are considering the removal of environmentally harmful subsidies, such as preferential tax conditions for the purchase of polluting or resource-intensive goods (e.g. fossil fuels, chemical fertilizers etc.), or the abolition of direct payments in support of economic activities that might contribute to the depletion of natural capital (e.g. subsidies to fishermen in countries where fish reserves are being exhausted due to overfishing and unsustainable fishing practices). Although there are legitimate reasons for using subsidies in some cases, socio-economic and environmental impacts need to be carefully assessed.
3. **Promoting investment and spending in areas that stimulate the green economy:** Governments might actively support the development of green sectors, green jobs and green infant industries by introducing fiscal incentives to direct investments towards environmentally friendly activities, as well as by reforming public procurement and committing to purchase goods that meet certain criteria for sustainability. In other words, governments can “push” innovation by providing incentives to parts of the research and development (R&D) chain (e.g. direct payments to universities and research institutes working on green innovation). Alternatively, fiscal policies can be designed to “pull” innovation by creating demand in the marketplace and promoting a wider commercialization of green goods and services (e.g. through green public procurement).
4. **Establishing sound regulatory frameworks:** A sound regulatory framework should be put in place in order to effectively implement and enforce EFR. Regulations provide the legal basis that government authorities can rely on for monitoring and enforcing compliance. A well-designed regulatory framework can create rights and incentives that drive green economic activity, remove barriers to green investments, increase the confidence of investors and markets, and regulate the most harmful forms of unsustainable behavior.

Each of these measures will vary in relevance according to the country in question. In the case of resource-rich countries, such as Ghana, the introduction of taxes on natural resource use, such as for the exploitation of forests and fisheries, might represent a relevant policy measure to preserve natural capital and ecosystems, at the same time expanding fiscal space for investments in green activities. However, subsidy reforms should be implemented considering potential impacts in the short-term, for which compensating measures could be designed.

Finally, specific political economy considerations need to be evaluated when implementing EFR. In particular, policy measures should be based on an understanding of the context in which they are to be implemented, and the associated political, social and administrative constraints. A shift in the tax base is not something that can be achieved quickly, but it is rather a long-term process, which should be implemented using a gradual approach that addresses these constraints. In this regard, an essential component of any EFR assessment is the identification of potential winners

and losers, and the evaluation of economic, social and environmental costs and benefits across sectors and actors. EFR should ensure that policy interventions are pro-poor, or at least do not place a disproportionate burden on low-income groups.

3.2. Overview of EFR in Ghana

The government of Ghana has demonstrated its commitment to undertake substantial EFR policies in order to address current and projected environmental challenges. In the 2013 budget, the government announced that an EFR working group had been formed to review fiscal instruments that can be used to raise revenue for addressing environmental problems in Ghana (GoG, 2013). This review builds upon a number of fiscal reforms that have been introduced in the recent years, targeting different sectors and specific issues, including:

- **Taxation measures:** specific taxes have been introduced to encourage environmental protection, notably a tax on plastic (introduced with the 2011 Budget and Economic Policy Statement) and penalties on over-aged vehicles. Although data is largely unavailable, environmental tax revenues remain small in Ghana, and currently make a limited contribution to opening up fiscal space. However, while small in revenue terms, these taxes can still be effective in changing behavior in line with environmental objectives.
- **Targeted incentives** have been provided to stimulate investments in green sectors and the purchase of environmental friendly goods and services (e.g. feed-in tariffs on renewable energy introduced by the 2011 Ghana Renewable Energy Act, and targeted financial support programmes for the purchase of energy efficient appliances).
- **Reform of environmentally harmful subsidies** has also been implemented. In June 2013 the government removed subsidies on fossil fuels in order to create additional fiscal space for sustainable development policies (IMF, 2013d). This was followed by a decrease in subsidies on electricity and water. However, significant subsidies remain on crop and fish production.

3.3. Sectoral assessment of current EFR initiatives

3.3.1 Agriculture

Agriculture is a key sector for Ghana's development, providing livelihoods to about 70-80 per cent of the total rural population and over 40 per cent of the total population (GoG, 2012a), (IMF, 2013d). Currently, Ghana's agriculture is dominated by subsistence small-holder production, and small farmers are weakly connected to the agricultural value chain. Key limitations of the sector are the lack of modernized infrastructure and low value-added creation from agricultural products, which led to an increase in unemployment, and risk of food security crises, especially in concurrence with prolonged droughts (GoG, 2010). Moreover, the use of environmentally harmful agricultural inputs, and the adoption of inefficient and unsustainable farming practices contributed to soil degradation and depletion of nutrients, costing about 1.57 per cent of GDP in 2005 (World Bank, AFD and RNE, 2006). Another key challenge derives from deforestation and overexploitation of mineral resources, which have further accelerated desertification in the northern part of the country (GoG, 2012a).

The government of Ghana is aware of the challenges for the sustainability of the agriculture sector, and recognizes the potential for significant improvements, including through mechanization, expansion of agriculture-related infrastructure, and promotion of sustainable land management (GoG, 2010). In the Ghana Shared Growth and Development Agenda 2010-2013 (GSGDA), the government planned for the promotion of appropriate irrigation schemes, as well as the implementation of land reforms that would ensure equal accessibility to irrigated land. Moreover, the GSGDA envisages the promotion of organic cocoa through a system of incentives to stimulate domestic and foreign investment. According to the government's strategic vision, part of the oil revenue could be invested in the development of modern and sustainable agriculture (GoG, 2010).

Several strategies and policies have been adopted in order to improve sustainable agriculture, including the Accelerated Agricultural Growth and Development Strategy and the Food and Agriculture Sector Development Policy (FASDEP), subsequently revised in 2007 (GoG, 2007a). Under these policies, a number of environmental fiscal measures are foreseen, including the provision of incentives (e.g. tax exemptions) for the purchase of green technology, the establishment of an effective incentive system for sustainable land management, and the introduction of subsidies for the development of organic agriculture, in particular cocoa (GoG, ECOWAS and AU, 2007). Recently, the National Cocoa Rehabilitation Programme introduced a Good Agronomic Practices initiative aiming to support higher yields and sustainability in the cocoa sector. In the framework of this programme, extension services are provided to assist farmers in sustainable cocoa practices. Moreover, a certification scheme allows smallholder farmers to gain direct access to global markets for their certified produce, and voluntary premium prices for specialty cocoa and certified cocoa are introduced, with farmers receiving at least 50per cent of the premium (Laven & Boomsma, 2012). Although the government is actively promoting EFR in the agriculture sector, it is on the other hand incentivizing the purchase of fertilizers through an institutionalized subsidy scheme. These subsidies, which promote the use of environmentally harmful substances, could offset the benefits of sustainable agriculture policies and fiscal reforms.

3.3.2 Fishery

Ghana is one of the countries that has access to the Guinea Current Large Marine Ecosystem (GCLME) belt, which provides for most of the national fishery resources. However, the fisheries sector is facing a major challenge with respect to declining fish landings trends, mainly due to overfishing and the resulting rapid depletion of fish stock. A study by the World Bank estimated the annual cost of marine fish stock depletion to be 0.27per cent of GDP in 2005 (World Bank, AFD and RNE, 2006). The main reasons for overfishing are weak monitoring systems to ensure compliance with national fishery regulations, and limited collaboration with fishing communities on sustainable management of fishery resources, especially for the creation of alternative livelihood opportunities that could partially and temporarily replace revenues from fishing activities. Another challenge faced by the sector is the increasing level of water pollution, which threatens the survival of fish species, especially in internal waters such as the Lake Volta.

The GSGDA 2010-2013 puts the prevention of overfishing and the promotion of general principles of responsible fishery among the key sectoral priorities. In particular, the government aims to improve enforcement mechanisms in order to ensure compliance with the maximum allowable fish catches, so as to allow fish stock regeneration.

A number of EFR initiatives are being implemented by national authorities in order to achieve sustainability goals. More precisely, credit lines for the improvement of livelihoods of fishing communities are provided together with incentives for the creation of alternative employment opportunities. Also, the government provides fiscal support to private investments in sustainable aquaculture, focused in particular on the management of different fish species. Finally, direct financial support is provided for the improvement of fishery infrastructure in order to reduce post-harvest losses and maximize the efficiency of the sector. On the other hand, however, the government is providing subsidies to fishing communities for the purchase of equipment which is likely to lead to an overall increase in fishing capacity. These fiscal measures are likely to further incentivize the overexploitation of fishery resources, thereby threatening the sustainability of the sector.

3.3.3 Water

The abundance of surface and ground water resources, combined with historic infrastructure investments, has resulted in an increase in the proportion of the population with access to an improved water source, with the rate rising from about 53 per cent in 1990 to 71 per cent in 2000 and 86 per cent in 2011 (World Bank, 2013). On the other hand, a proportion of the population – particularly in rural areas where the rate of access is 80 per cent – remains uncovered and relies on private water traders for their supply. Furthermore, the proportion of the population with access to improved sanitation remains at 14 per cent, well below the Sub Saharan Africa average.

However, under-investment in infrastructure in recent years, coupled with increasing demand, is placing the water supply network under strain. Future economic and demographic growth is expected to compromise availability even further, which will in turn act to constrain human development and economic growth. According to the government, low tariffs and poor management are among the causes of water waste and pollution (GoG, 2012a).

Ghanaian authorities have strongly prioritized access to clean water in the development agenda. In particular, the government decided to adopt water resource planning as a “cross-cutting basic component of national economic planning” (GoG, 2010). In implementing water policies, the government committed to comply with environmental flow requirements, and to provide incentives for the establishment of public-private partnerships on the protection and conservation of water resources. Finally, the development strategy provides for the introduction of cost recovery measures, and the promotion of fair and equitable tariff policies, taking into account the needs of the poor.

A variety of policy measures have already been implemented to encourage the application of integrated water resource management principles. These include, among others, the National Water Policy, Buffer Zone National Environmental Sanitation Policy, Climate Change Policy, Water Resources Commission Act of 1996 and Water Use Regulations of 2001. The most relevant EFR intervention introduced so far by the government is a progressive increase in water tariffs so as to reflect the environmental costs of water resource withdrawal and distribution. In particular, user charges are set at municipal level, and an increasing block tariff often applies.

3.3.4 Forestry

Ghanaian abundant forest resources provide livelihoods to the vast majority of the rural population. On the other hand, the unsustainable management of forestry resources is causing an overall reduction of forest cover, and consequent loss of biodiversity and ecosystem services. It is estimated that 33.7 per cent of Ghana's forests was lost between 1990 and 2010. On the occasion of the Rio+20 Conference on Sustainable Development, the government of Ghana raised concerns over deforestation in the country, declaring that the MDG target of increasing the proportion of land covered by forests would barely be met under these conditions (GoG, 2012a).

The government's strategic approach to forest resources management is based on a series of key interventions, including specific fiscal reforms to encourage the sustainable use of natural capital. In particular, the national development strategy aims to provide incentives for (1) the development of industrial-scale tree farming in specific depleted forest reserves and on degraded-land, (2) investments in commercial forestry outside forest reserves, (3) utilization of non-traditional tree species such as rubber wood coconut and bamboo to supplement raw material supply from natural forests, (4) imports of logs from African exporting countries, among others (GoG, 2010).

Various EFR measures have already been implemented, in line with the National Forest and Wildlife Policy (Beukers, 2007), including, among others: (1) a competitive bidding procedure for timber harvesting rights (a mix of area and volume-based charges), (2) revision of stumpage rates to reflect international prices, (3) introduction of an export levy on lumber by species, (4) introduction of a value-added tax for domestic sales; (5) removal of log import duties, and (6) introduction of a levy on veneer and lumber exports. In addition, the government is implementing the National Forest Plantation Development Programme, focused on the recovery of degraded forest areas, employment generation for local forest communities, and increased certified timber production.

3.3.5 Energy

According to the Ghana Second National Communication to the UNFCCC (GSNC), total greenhouse gas emissions from the energy sector increased by 187 per cent between 1990 and 2006 (GoG, 2011), but the per capita value remains small. Such an increase is largely attributable to the strong reliance on fossil fuels and the limited exploitation of abundant renewable energy sources, including wind, water and solar energy. Moreover it is estimated that about 40 per cent of the population has no access to electricity (World Bank, 2013), mainly due to infrastructure and supply deficits, for which massive investments are required (GoG, 2012a). The main problems relevant to EFR include: (1) weak incentives for the adoption of energy efficient technologies in households, (2) low involvement of private capital, (3) very high cost of energy produced from renewable sources, and (4) market distortions created by fossil fuel subsidies.

The government has manifested its intention to develop energy infrastructure in a way that stabilizes energy supply while reducing emissions and maximizing efficiency. In the national development strategy, relevant authorities committed to designing policy measures for the promotion of energy efficiency in all aspects of economic and social life, and the creation of an appropriate fiscal and regulatory framework for the renewable energy sub-sector, among others. Moreover, the government has set the ambitious target of 10 per cent renewable energy penetration by 2020.

In recent years, Ghanaian authorities have started to introduce EFR measures into national energy policies. Box One describes the decision to phase out subsidies to fossil fuels. In addition, the government has also announced the intention of phasing out subsidies to electricity, and has begun this process with an increase in tariffs.

Another positive EFR advancement is the approval of the 2011 Renewable Energy Act. The act establishes the framework for promoting renewable energy in the country and stipulates:

- a feed in tariff guaranteeing the sale of electricity generated from renewable sources at a premium to the electricity price. The rates – which were announced in August 2013 – vary by technology and will be payable to a project with a PPA for the first ten years of operation and will be reviewed every two years after that;
- a renewable energy fund providing financial resources for the promotion and development of renewable energy sources as well as to fund the feed in tariff;
- a requirement for power distribution utilities and bulk consumers to include a certain percentage of renewable energy in their portfolio (Kojima, 2013).

Also, the government has launched pilot projects to incentivize the purchase of energy efficient appliances. In 2012, for example, financial incentives were provided for the purchase of energy efficient refrigerators in exchange for older ones. These initiatives, however, remain confined to one-off measures, and are not yet fully included in national fiscal policies.

3.3.6 Waste

Unsustainable waste management is creating considerable environmental damage in Ghana, considering that the annual rate of solid waste generation increased dramatically in the last years, going from 7,000 metric tons/day in 1996 to about 13,800 metric tons/day in 2011 (GoG, 2013). Inefficient industrial waste management, inadequate domestic sanitation and improper disposal of municipal waste, poor enforcement of existing sanitation laws, obsolete waste recycling plants, as well as illegal dumping of solid, liquid and e-waste are all contributing factors to the high level of waste pollution in the country (GoG, 2012a). In particular, improper waste disposal is causing the degradation of ecosystems, such as mangroves and wetlands, which provide essential services to the population.

In the national development strategy, several projects and initiatives are oriented towards the greening of the waste sector. In particular, the government planned to invest in the upgrading and maintaining of waste treatment and small-scale waste collection facilities, possibly through public-private partnerships in solid and liquid waste management. Moreover, the strategy provides for the creation of incentive packages for sanitation workers, as well as for the promotion of cost-effective and innovative waste management technologies. In particular, emphasis is put on the implementation of waste-to-energy projects, aimed at converting most of the urban, industrial and agricultural wastes to energy (GoG, 2010).

National authorities are introducing different EFR policies in order to address the problem of unsustainable waste management. In particular, a 20 per cent tax was imposed on plastic materials in 2010 with the aim of discouraging production, consumption and improper disposal of plastic products. However, there were exemptions for pharmaceuticals, agriculture, and plastics used for water sachets (GoG, 2013), with the latter in particular compromising the effectiveness of the policy. Furthermore, the tax was reduced to 15 per cent in 2012 following industry consultation. The 2013 budget speech indicated that the revenue raised by this tax was insufficient to support the required levels of waste management, and a review was announced.

In addition to disincentive fiscal measures, tax rebates are also provided to enable the shift to sustainable waste management. For instance, a seven-year tax holiday is offered to companies willing to invest in waste processing, including plastics and polythene.

3.3.7 Transport

The transport sector is responsible for a large share of Ghana's GHG emissions, especially due to a high prevalence of private road vehicles, and poor development of public transport networks. Road and highways are by far the most used forms of transport, while railways and aviation provide very limited domestic passenger services. Moreover, the use of fluvial transportation is progressively decreasing as a result of siltation, in turn caused by uncontrolled deforestation along river basins. Finally, potential alternatives to private vehicles, such as public buses in urban settings, are obsolete and highly pollutant. Recent investments in transport infrastructure have led to a considerable growth of the sector. According to the latest estimates, the transport and storage sector grew by 11.4 per cent in 2012, compared to 3.3 per cent in 2011 (GoG, 2013).

The government prioritizes the improvement of the transport network, which is considered as an essential driver for the expansion of the tertiary sector, and for national development in general. In particular, Ghana aspires to become a transportation hub for the West African sub-region (GoG, 2010). On the other hand, national authorities are aware of the need to reduce pollution and emissions from road transport. In the medium-term national development plan, a number of strategic guidelines are relevant for the greening of the transport sector, including provisions for discouraging the importation and use of high energy-consuming vehicles, developing measures to reduce petroleum product consumption in transportation, and encouraging the use of mass public transport facilities, among others (GoG, 2010).

A number of EFR initiatives have been already implemented to enable the greening of the transport sector. Among the most noteworthy is the introduction of high import penalties on over-aged cars. Also, the environmental cost of air travel is reflected in consumer prices by means of an airport tax, which has been progressively increased in recent years, together with the improvement of airport infrastructure and the expansion of international air traffic. In 2012, the airport tax on international travel amounted to US\$200, \$150 and \$100 for first class, business class and economy class, respectively. On the other hand, the government is planning to introduce tax incentives for locally based airlines, in order to encourage domestic air travel and possibly relieve road traffic congestion (GoG, 2010).

Additionally, the recent abolition of transport fuel subsidies is expected to cause a reduction in fossil fuel consumption and emissions. Finally, the government is exploring fiscal reform and concession options to encourage public-private partnerships for investment in public transport infrastructure (e.g. Bus Rapid Transit).

3.3.8 Mineral resources ⁸

Ghana is rich in mineral resources, especially gold and oil. In particular, the recent discovery of oil reserves and the beginning of drilling activities in 2010 have led to sectoral growth of more than 200 per cent in 2011 (GoG, 2013). As a result, the mining sector contributes to foreign exchange earnings, thereby accounting for a significant portion of revenue mobilization.

⁸ Oil extraction is presented under mineral resources, while fuel consumption is included in section 3.3.5, Energy.

However, although significant foreign investments are made in mineral exploitation activities, the contribution of this sector to the national economy is comparatively low. This becomes clear when considering the implicit social and environmental costs of mining and oil extraction activities, including those related to deforestation, air and water pollution, and toxic waste generation, among others.

In the national development strategy, the government has included specific strategic objectives for improving the sustainability of the mining sector, and ensuring a fair and equitable distribution of revenues deriving from extractive activities. In particular, strategic guidelines focus on establishing sound regulatory frameworks for the payment of compensations to local communities, as well as incentive packages for increasing local ownership of mining projects, and promoting value-added downstream mining activities such as refining, smelting etc. In addition, national authorities envisage the drafting of guidelines for environmental reporting by mining companies, and for environmental rehabilitation and decommissioning of mining sites. In general, the government is committed to strengthen the mining fiscal regime so as to “ensure that the state and mining communities derive maximum benefit from the resource” (GoG, 2010).

Concrete EFR measures have been already implemented to encourage the transition towards more sustainable mining and oil extraction activities in Ghana. In the mining sector, the government has participated in the World Bank National Resources and Governance Program, which led to the development of a Mining Policy that focuses on sustainable economic benefits for Ghana, including revenue generation and employment generation, and also saw the implementation of a fiscal tracking project in which mining incomes, royalties and revenues were monitored. The government is close to finalizing a Mineral Development Fund which will track revenues and reinvest part of these revenues into development projects addressing the needs of mining communities.

On the financial side, the government has already tightened fiscal terms for the sector, increasing corporation tax from 25 to 35 per cent in the 2012 budget, restructuring mineral royalties such that a 5 per cent flat rate is applicable rather than a more generous sliding scale, restructuring the capital allowances schedule, and ring fencing projects such that costs cannot be offset against losses.⁹ In 2012 the government established a review committee to open the re-negotiation of mining stabilization agreements held by individual mines which exempt individual operators from broader legislative requirements, with a view to tightening fiscal terms and ensuring local communities benefit from development. Together, these measures reflect the intention of the government to expand fiscal space in order to mitigate the environmental, social and economic impacts of mining activities.

In the petroleum sector, the Petroleum Revenue Management Bill, approved in 2011, outlines clear and transparent mechanisms for collecting and distributing oil revenues. In particular, the bill prescribes the creation of a Petroleum Account, into which oil revenues are to be collected. Moreover, funding cannot exceed 70 per cent of the total revenue, and at least 30 per cent has to be safeguarded for future generations (through the Heritage Fund) and for expenditure smoothing (through the Stabilization Fund).

TABLE 5: OVERVIEW OF ENVIRONMENTAL TAXES AND SUBSIDIES IN GHANA

⁹ The 2012 budget also proposed a 10 per cent windfall tax on profits, but this was later scrapped.

Sector	Tax/levy (charge)	Subsidies
Agriculture		Subsidies on fertilizers
Fishery		Subsidies for the purchase of fishing equipment Subsidy on Premix fuel
Water	User charge	Subsidies to utility company
Forestry	Export levy on lumber by species	
	Value-added tax for domestic sales	
Energy	Electricity tariff charged on all electricity consumed	Renewable Energy Act of 2011 sets a framework for feed-in tariffs and requires power distribution utilities and bulk consumers to purchase a certain percentage of RE. Incentive programmes for energy efficient appliances Abolition of fossil fuel subsidies (June 2013)
Waste	Tax on plastic materials charged on all plastic products, except water sachets and petrochemicals	Tax exemptions for private investments in waste processing.
	Waste Water Discharge Charge System applicable to all registered water dischargers.	
Transport	General fuel levy charged on Petrol, Diesel, Kerosene, Biodiesel.	Abolition of transport fuel subsidies (June 2013).
	Customs and excise levy on Petrol, Diesel, Kerosene.	
	<i>Ad valorem</i> excise and customs duty on vehicles (one-off vehicle taxes), charged on all passenger and light commercial vehicles, motorcycles	
	Road licensing fees (recurrent vehicle taxes) charged on all registered vehicles.	
	Aviation Fuel Levy charged on aviation fuel sales (wholesale)	
	Airport charges on landing, parking, and passenger service charge.	
Oil and mineral extraction	Royalties from oil companies	
	Royalties from mining companies	
	Taxes on profits of oil companies	

Source: International Monetary Fund, Government Finance Statistics and Government of Ghana, Annual Budget Statements.

4. Proposals for fiscal policy intervention in Ghana

4.1. General, cross sector analysis

From the analysis conducted in Section 3, it is clear that the government of Ghana is already implementing EFR policies to enable a green economy transition and to expand fiscal space for green investments across key sectors. EFR interventions in Ghana range from the introduction of environmental taxes, the development of the Mineral Development Fund to encourage a fair distribution of mining revenues, the provision of incentives to encourage private investment in green sectors and technologies, and to drive consumer behaviour towards less resource-intensive goods (e.g. incentives for the purchase of energy efficient appliances), among others.

At the same time, there is still considerable room for further expanding fiscal space, and implementing EFR interventions using an integrated, cross-sectoral approach. In particular, the reforms adopted in recent years were implemented in a sporadic manner, responding to *ad hoc*

sectoral needs, and sometimes influenced by political considerations (e.g. fossil fuel subsidy reforms). In addition, advancements towards an environmentally friendly management of public revenues and expenditures are offset by harmful fiscal policies in some cases. For example, the government is providing a variety of subsidies that are encouraging the overexploitation of natural resources (e.g. subsidies for the expansion of fishing capacity, or the purchase of chemical fertilizers), and increasing greenhouse gas emissions and pollution (e.g. fossil fuel subsidies).

In general, EFR interventions should be carefully assessed in order to determine whether they are in line with national sustainable development priorities, as well as in accordance with global EFR best practices and guidelines. In the case of Ghana, UNEP priority areas of intervention and suggested policy options apply to several of the sectors analyzed.

In general, there is potential for:

- The internalization of environmental externalities, through additional tax measures possibly framed in a way to distribute costs and benefits in an inclusive and equitable manner.
- The removal or phasing out of harmful subsidies (for example, on electricity and agricultural inputs), possibly to be carried out by adopting a systemic perspective to minimize negative impacts and avoid side effects.
- The adoption of longer term visions, considering short, medium and long term effects of policy reforms.
- The introduction of incentive measures to stimulate private investment in green sectors. This is particularly true for those business areas, such as renewable energy production and distribution, which require high upfront costs.

In general, there is an opportunity to implement a successful approach to EFR that draws on public participation, and manages to strike a balance between distributional/social objectives and cost effectiveness considerations (UNEP, IMF and GIZ, 2012).

Starting from this general, cross-sectoral analysis, the following section provides specific recommendations on EFR interventions that could be implemented in each of the key sectors analysed.

4.2. Sectoral analysis

Agriculture

Many EFR opportunities exist to further enhance the sustainability of the agriculture sector, improving the well-being of farmers while promoting sustainable land management. First of all, the government could consider a reform of the Ghana fertilizer subsidy programme, which has been implemented over the last five years with the aim to increase fertilizer use to 50 kg/ha (SRI, 2012). While this programme plays an important role in improving access of smallholder farmers to agricultural inputs, it could be reoriented towards ecological inputs, such as organic fertilizers, in order to reduce the impact of chemical fertilizers in terms of soil degradation and water pollution (UNEP, In Press). Also, more sustainable cocoa production could be favored by the introduction of economic incentives, such as carbon credits, to encourage a shift from intensive cocoa farms to agroforestry cocoa production (Asase, Wade, Ofori-Frimpong, Hadley, & Norris, 2008).

Fisheries

An essential EFR opportunity for the greening of fishing activities is the phasing out of harmful fisheries subsidies, which are contributing to sustain excessive fishing capacity and, consequently, overfishing and fish stock depletion. In particular, premix, the fuel used in fishing boats, is heavily subsidized (priced at less than one third of gasoline) and such preferential treatment is causing increasing levels of pollution, and encouraging overexploitation of fishery resources. In this regard, the National Petroleum Association (NPA) called on government to eliminate all fuel subsidies by December 2013. In addition to fuel subsidies, the government provides significant tax breaks on fishing inputs (40 per cent reduction in 2006) (Sumaila & Pauly, 2006). While these fiscal incentives could be beneficial to fishing communities in the short-term, they might have negative impacts on the sustainability and profitability of the sector in the medium to long-term.

Accordingly, EFR interventions might focus on reallocating public spending from harmful subsidies towards incentives for livelihood diversification in fishing communities. Such measures could allow total fish catch to be maintained below the sustainability level, at the same time protecting the well-being of fishing communities.

In any case, given the importance of fish as a source of protein in the Ghanaian diet, such measures should be introduced only after assessing their impact on households. A decline in catch available for consumption - particularly consumption by poor households - needs to be mitigated through ensuring other protein sources are available and can be accessed by the adversely affected.

Water

Although the government is already addressing the issue of water resource sustainability through the adoption of fiscal policies, laws and regulations, additional reforms could be introduced in order to foster sustainable and inclusive access to water in the country.

In the first place, focusing on water providers to address inefficiencies in production and distribution can further enhance access to clean water, and ensure that access is secured in the face of economic growth.

Also, at the industry level, water intensive sectors, such as agriculture and mining, should be provided with fiscal incentives for the adoption of water efficient practices and technologies, while also being penalized for overconsumption (e.g. through penalties or tariff increases).

At the household level, cost recovery policies should be designed in a way that does not compromise the capacity of poor communities to have access to sufficient water. Ideally, tariff levels could be set on the basis of income and overall consumption levels. However, effort would be required to develop dta on income since this is not always available in Ghana. Furthermore, tariffs based on consumption can be problematic to implement in the case of communal dwellings and where households are reliant on water traders and remain exposed to pass-through of tariff increases.

Forests

Additional EFR measures could be considered in order to improve the performance of the forestry sector, at the same time protecting natural capital and ecosystems. Recent trends show that forestry revenues have declined by 14per cent in 2011 and by 18per cent in 2012, with losses not being compensated by agricultural revenues (GoG, 2013). According to the Ministry of

Finance, such worrying figures are attributable to a decline in reforestation programmes since 2010, and a lower number of timber licences accorded in the last years (GoG, 2013). As a result, a more comprehensive package of fiscal policies could be designed, including, for example, additional incentives for certified activities, and for the participation of local forest communities in certified timber production. At the same time, fiscal support could be provided to encourage forest-planting activities for production purposes.

Energy

Appropriately implemented, EFR measures targeting the energy sector can reduce emissions and pollution from energy consumption, while simultaneously improving availability and accessibility of electricity.

Reforming fossil fuel subsidies - which represent an important share of total national expenditure and create market distortions that discourage investments in the renewable energy - is a particularly important step. The government is near to completing the process of reform for fossil fuels (see Box 1) and the process of reform has also started in the electricity sector. In both cases, it will be important to complete the process to ensure that subsidies are completely removed and to monitor the success of the reform. The government should also ensure that the impacts on vulnerable sections of society are identified and addressed.

On the revenue side, the government could review the structure of taxation that applies to oil companies, and consider whether a levy that expressly targets environmental objectives should be implemented or whether any future increases in revenues should be directed towards environmental goals.

On the expenditure side, other potential actions in the energy sector include monitoring the implementation of the feed-in tariff for renewable energy to ensure that it meets its objectives in a cost-effective manner. The development of renewable energy in the country may also require further fiscal measures such as tax waivers for imports of renewable energy equipment. Finally, government expenditure to support the industry, for example in the provision of physical infrastructure for electricity distribution and training facilities to ensure availability of skilled technicians may also be worth exploring.

On the energy efficiency side, incentives or penalty payments could be considered to encourage the electricity industry to minimize system losses. At the user level, financial incentives could also be employed to encourage energy efficiency in industries and households. This would build on the efforts already made by the Ghanaian government in raising awareness regarding energy efficiency and setting standards for electrical equipment.

Waste

Current efforts to create a fiscal regime conducive to more sustainable waste management could be further intensified through the implementation of additional EFR interventions. For example, a “polluter pays” incremental levy system could be designed in order to distribute costs of waste pollution across all actors, on the basis of pollution margins. Also, additional incentive measures, such as feed-in tariffs, could be provided to companies willing to invest in waste-to-energy infrastructure.

Transport

The transition towards greener transport can be further encouraged by means of EFR measures. First of all, the complete removal of subsidies on transport fuels could lead to a considerable

reduction in the number of road trips, in turn reducing air pollution levels. The government is currently considering the possibility of introducing a total ban on the import of over-aged vehicles. This policy intervention, which is likely to bring further benefits in terms of reduced pollution, could be complemented with fiscal incentives to domestic manufacturers of low-emission and electric vehicles. Finally, the government could consider congestion charging as a means to further reducing traffic and pollution, particularly in urban areas.

In any case, measures to encourage a green transition in the sector need to consider the impact on the population. In the first place, increasing the cost of transport fuels is likely to be politically unpopular and needs to be accompanied by measures to improve acceptance. In particular, the impact on the incomes of the poor needs careful consideration, and mitigation measures such as concessionary public transport fares may be necessary. Finally, if the government wishes to encourage a shift towards public transportation, then the network needs to be improved so as to ensure affordability, reliability and convenience for all users.

Mineral resources

Several opportunities exist to enhance the existing fiscal and regulatory frameworks for mining and oil extraction activities. First of all, specific environmental taxes, such as pollution charges, could be imposed on mining and oil corporations, in order to openly account for environmental, social and economic costs of extractive operations. Moreover, clearer distributional mechanisms could be established for improving access of local communities to oil and mineral revenues. Another potential option is the introduction of payments for ecosystem services (PES), also applicable to other sectors, as a means to incentivize mining and oil companies to preserve ecosystems and biodiversity.

Sector	UNEP Enabling conditions (UNEP, 2011): Fiscal policies	Reform Opportunities	Expected Budget Impacts	Expected Environmental Impacts
Agriculture	<ul style="list-style-type: none"> - Market price premium - Elimination of perverse subsidies (e.g. pesticides and fossil fuels) - Organic agriculture incentives 	<ul style="list-style-type: none"> - Reorienting fertilizer subsidy programme towards organic agricultural inputs. - Incentives to agroforestry cocoa production. 	<ul style="list-style-type: none"> - Reform of fertilizer subsidy programme might open additional fiscal space for new incentives on organic inputs and agroforestry development. 	<ul style="list-style-type: none"> - Reduced soil degradation and water pollution from chemical fertilizers.
Fisheries	<ul style="list-style-type: none"> - Environmental Fiscal Reform - Redirection of harmful subsidies to green activities 	<ul style="list-style-type: none"> - Phasing out of subsidies on Premix fuel. - Removal/reform of tax breaks on fishing equipment. 	<ul style="list-style-type: none"> - Increased budget due to subsidy removal. - Expanded fiscal space for green policy interventions. 	<ul style="list-style-type: none"> - Reduced fish production, and increased fish stocks. - Sustainable exploitation of fishery resources.
Water	<ul style="list-style-type: none"> - Removal of harmful subsidies and policies (e.g. input subsidies) - Fiscal measures (e.g. tax revenues, tariffs, etc.) to finance water infrastructure 	<ul style="list-style-type: none"> - Incentives for water efficient technology and practices in water-intensive sectors (e.g. agriculture and mining). - Progressive water tariff system based on income and consumption levels. 	<ul style="list-style-type: none"> - Increase in budget expenditure due to the introduction of incentives, potentially offset by higher water tariffs and penalties for overconsumption. 	<ul style="list-style-type: none"> - Sustainability of water resources. - Regeneration of ground water stocks.
Forests	<ul style="list-style-type: none"> - Payments for environmental services (PES) - Incentives for certified activities 	<ul style="list-style-type: none"> - Incentive scheme for starting up certified forestry activities, including planting of new forests for production purposes. - PES schemes for improving forest management in mining areas. 	<ul style="list-style-type: none"> - Increase in public spending due to additional incentive packages, potentially offset by increased tax revenue from forestry production. 	<ul style="list-style-type: none"> - Sustainable management of forest resources for production purposes. - Reduced GHG emissions. - Restoration of forest ecosystem services.
Energy	<ul style="list-style-type: none"> - Phasing out of subsidies for fossil fuel - Feed-in tariffs - Public Financing mechanisms 	<ul style="list-style-type: none"> - Removal/phasing out of subsidies on gasoline and Premix. - Tax incentives to renewable energy companies (e.g. feed-in tariffs) 	<ul style="list-style-type: none"> - Expanded fiscal space from subsidy removal, opening opportunities for the introduction of tax incentives to renewable energy development. 	<ul style="list-style-type: none"> - Reduced emissions from fossil fuel consumption. - Improved air quality.
Waste	<ul style="list-style-type: none"> - Volumetric landfill taxes - Pay-as-you-throw (PAYT) - Recycling credit 	<ul style="list-style-type: none"> - Polluter-pays incremental levy system. 	<ul style="list-style-type: none"> - Expanded fiscal space from the introduction of waste levy system 	<ul style="list-style-type: none"> - Reduced waste generation and pollution.
Transport	<ul style="list-style-type: none"> - Taxes on fossil fuels - Congestion charges - Subsidies for low carbon vehicles and transport modes 	<ul style="list-style-type: none"> - Removal of subsidies on transport fuels. - Total ban on the import of over-aged vehicles. - Investments in public transport networks. 	<ul style="list-style-type: none"> - Increased budget from subsidy removal, opening opportunities for investments in public transport. 	<ul style="list-style-type: none"> - Reduced emissions and air pollution from road transport.
Mining	<ul style="list-style-type: none"> - Payments for environmental services (PES) - Pollution charges 	<ul style="list-style-type: none"> - Pollution charges on oil and mining companies. - PES schemes for the preservation of ecosystem services. 	<ul style="list-style-type: none"> - Expanded fiscal space from the introduction of pollution charges. 	<ul style="list-style-type: none"> - Reduced pollution from oil extraction and mining activities. - Enhanced preservation of ecosystem services.

5. Conclusion

Ghana is experiencing robust economic growth that can create the budgetary and fiscal conditions to support the shift to a green economy. However, recent trends show an increase in the fiscal deficit which reached 12.1 per cent of GDP in 2012, and is causing the marked growth of public debt. Such worrying trends in public budget management are partially attributable to the introduction of subsidies that are potentially harmful for the environment, and create market distortions detrimental to the realization of a green economy transition in Ghana. In particular, heavy subsidies on fossil fuel use, agricultural fertilizers and fishery equipment caused an increase in total public expenditure, at the same time encouraging higher pollution and emission levels, and the unsustainable exploitation of natural resources.

The removal of harmful subsidies would certainly contribute to reducing public spending and improving macro-economic stability in Ghana. Moreover, a reduction in public spending on these subsidies would open up additional fiscal space for the introduction of targeted EFR interventions in all key sectors. For example, incentive schemes could be designed to encourage private investments in renewable energy development, as well as to enable the shift towards more sustainable agricultural practices (e.g. agroforestry cocoa production) and fishing activities (e.g. through livelihood diversification programmes for fishing communities). As a result, the reorientation of public expenditure towards sustainable production and consumption would be expected to enhance environmental protection, while ensuring sustainable and inclusive economic growth.

Cognizant of the multiple benefits potentially deriving from the removal of environmentally harmful subsidies, the government of Ghana decided, in June 2013, to proceed with the full elimination of fossil fuel subsidies. This initiative represents a significant EFR advancement for Ghana, and bears considerable potential for the creation of fiscal space. In particular, the public funds saved as a result of subsidy removal could be reinvested in the provision of incentives and other forms of fiscal support to green economy activities, in view to foster the transition across key economic sectors.

The sectoral assessments set out in Section 4 offer a range of possible policy interventions. Further analysis of this set of options would be a first step in the development of a reform program to support the transition to a green economy. Once complete, a short list of options could be developed for further analysis - the experience of fossil fuel subsidy reform highlights the value of conducting a complete qualitative and quantitative analysis of EFR interventions, taking into account all the costs and benefits of reform. Future reform attempts could be framed in a similar fashion.

With respect to implementation, the experience in fossil fuel subsidy reform also highlights that policies designed with longer term benefits may have negative short-term impacts. Accordingly, mitigating actions to protect vulnerable parties and to ensure political acceptance, may be necessary in order to realize the long term benefits of reform. At the household level, such actions could include cash transfers or reduced user charges for the poorest households. Industry may also raise concerns that their competitiveness vis-à-vis other countries may be damaged as a result of reforms and seek some transitional assistance. Finally, any direct assistance measures may also be usefully complemented by projects that support the transition to the green economy over the longer term, such as investing tax revenues in infrastructure.

The accuracy of quantitative analysis and the development of effective measures for mitigating the impact of fiscal reform on the vulnerable sections of society is dependent on the availability of complete and accurate data. Such data is frequently lacking, particularly in relation to those parts of the population that are employed in the informal sector or who are unemployed. In turn, these segments of the population are generally the most vulnerable and therefore most in need of protective measures. Developing data-sets or research techniques that allow these population groups to be captured in the analysis could be an avenue worth exploring.

The government of Ghana has already demonstrated its commitment to reform national fiscal policies in order to enable the green economy transition, in line with national development priorities and global sustainability principles. In this respect, the improvement of macro-economic stability, environmental protection and social well being in Ghana are closely linked to the adoption of a more coherent approach to EFR, one that is fully integrated and mainstreamed into national development planning, and periodic budgetary allocation decisions.

References

- AfDB. (2013). *African Economic Outlook*.
- Asase, A., Wade, S., Ofori-Frimpong, K., Hadley, P., & Norris, K. (2008). Carbon storage and the health of cocoa agroforestry ecosystems in south-eastern Ghana. In A. Bombelli, & R. Valentini, *Africa and the Carbon Cycle*.
- Beukers, R. (2007). *Environmental Fiscal Reform: the results so far. An overview of experiences with Environmental Fiscal Reform and revenue systems in forestry and fisheries sectors*. . Wageningen: Wageningen University.
- Central Intelligence Agency. (2013). *The World Fact Book*.
- Coady, D., & Newhouse, D. (2006). *Poverty & Social Impact Analysis of Reforms*.
- ECA. (2007). *Africa review report on drought and desertification*.
- EITI. (2013). *Final Report on the Aggregation/Reconciliation of Mining Sector Payments and Receipts: 2010-2011*.
- GoG. (2007a). *Food and Agriculture Sector Development Policy (FASDEP II)*. Accra.
- GoG. (2007a). *National Water Policy*. Accra.
- GoG. (2010). *Medium-Term National Development Policy Framework: Ghana Shared Growth and Development Agenda (GSDA, 2010-2013)*. Accra.
- GoG. (2011). *Ghana's Second National Communication to the UNFCCC*.
- GoG. (2011). *Renewable Energy Act 2011 (Act 832)*.
- GoG. (2012a). *National Assessment Report on Achievement of Sustainable Development Goals and Targets for Rio+20 Conference*.
- GoG. (2012b). Statement by Hon. Sherry Ayittey, President of the Republic of Ghana, at the United Nations Conference on Sustainable Development (Rio+20).
- GoG. (2013). *The 2013 Budget Statement and Economic Policy*.
- GoG, ECOWAS and AU. (2007). *Ghana. Review of Ongoing Agricultural Development Efforts*.
- Heller, P. (2005). *Understanding Fiscal Space*. International Monetary Fund.
- IISD. (2010). *Strategies for Reforming Fossil-Fuel Subsidies: Practical lessons from Ghana, France and Senegal*.
- IMF & GoG. (2012). *Ghana: Poverty Reduction Strategy Paper*.
- IMF. (2001). *Government Finance Statistics Manual 2001*. IMF.
- IMF. (2013). *CASE STUDIES ON ENERGY SUBSIDY REFORM: LESSONS AND IMPLICATIONS*. International Monetary Fund.
- IMF. (2013). *Energy Subsidy Reform in Sub-Saharan Africa. Experiences and Lessons*.

- IMF. (2013a). *Case Studies on Energy Subsidy Reform: Lessons and Implications*.
- IMF. (2013b). *STAFF REPORT FOR THE 2013 ARTICLE IV CONSULTATION—DEBT SUSTAINABILITY ANALYSIS—UPDATE*.
- IMF. (2013b). *Statement at the Conclusion of an IMF Staff Visit to Ghana*.
- IMF. (2013c). *Ghana's Advance to Middle-income Status Requires Firm Policies*. Retrieved October 1st, 2013, from <http://www.imf.org/external/pubs/ft/survey/so/2013/car061213a.htm>
- IMF. (2013d). *Ghana 2013 Article Consultation*. Washington, DC: IMF.
- Kojima, M. (2013). *Petroleum Product Pricing and Complementary Policies. Experience of 65 Developing Countries Since 2009*. Washington, DC: World Bank.
- Laan, T., & Beaton, C. (2010). *Strategies for Reforming Fossil-Fuel Subsidies: Practical lessons from Ghana, France and Senegal*. IISD.
- Laven, A., & Boomsma, M. (2012). *Incentives for sustainable cocoa production in Ghana*. Royal Tropical Institute.
- MoFEP. (2013). *The 2013 Budget Statement and Economic Policy*. Accra.
- NPA. (2013). *Oil Market News*. Retrieved October 1, 2013, from http://www.npa.gov.gh/npa_new/index.php
- OECD. (2005). *Environmental Fiscal Reform for Poverty Reduction*. Paris: OECD Publishing.
- Offshore Technology. (2010). Retrieved October 28, 2013, from Offshore-Technology.com: <http://www.offshore-technology.com/projects/jubilee-field/>
- Roy, R., & Heuty, A. (2009). *Policy Options for Financing Human Development: Fiscal Space*. Oxford: Earthscan.
- SRI. (2012). *Enhancing the Implementation of the Ghana Fertilizer Subsidy Programme*. Accra.
- Sumaila, U., & Pauly, D. (2006). *Catching More Bait: A Bottom-up Re-estimation of Global Fisheries Subsidies*.
- The World Bank Group. (2013). *Country Partnership Strategy for the Republic of Ghana*.
- UNEP. (2011). *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication*. Geneva: UNEP.
- UNEP et al. (2011). *Why a Green Economy Matters for Least Developed Countries*. UNEP.
- UNEP. (In Press). *Ghana Green Economy Scoping Study*.
- UNEP, IMF and GIZ. (2012). *Summary Report of the Workshop: Fiscal Policies Towards an Inclusive Green Economy*. Geneva.
- World Bank. (2005). *Environmental Fiscal Reform. What Should Be Done and How to Achieve It*. Washington, DC: World Bank.

World Bank. (2007). *Doing Business 2007*.

World Bank. (2008). *Doing Business 2008*.

World Bank. (2013). *World Development Indicators*.

World Bank, AFD and RNE. (2006). *Ghana Country Environmental Analysis*.
Environmentally and Socially Sustainable Development Department, Africa
Region.