

Analysis of Business Environment for Green Jobs in Ghana

March 2021



MINISTRY OF EMPLOYMENT AND LABOUR RELATIONS, GHANA

This report is the result of a collaboration between the Investment Climate Reform (ICR) Facility and the Ministry of Employment and Labour Relations of the Government of Ghana.

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Abbreviations and Acronyms

1D1F	One District One Factory	MELR	Ministry of Employment and Labour Relations
ABCECG	Association of Building and Civil Engineering Contractors of Ghana	MESTI	Ministry of Environment, Science, Technology, and Innovation
AfCFTA	African Continental Free Trade Area	MLGRD	Ministry of Local Government and Rural Development
AFOLU	Agriculture, Forestry, and Other Land Use	MMDAs	Metropolitan/Municipal and District Assemblies
ASROC	Association of Road Contractors of Ghana	MoFA	Ministry of Food and Agriculture
BMZ	Economic Cooperation and Development	MOFAD	Ministry of Fisheries and Aquaculture Development
CIF	Cost, Insurance, and Freight	MSWR	Ministry of Sanitation and Water Resources
CREMA	Community Resource Management Area	MSWR	Ministry of Sanitation and Water Resources
E.U.	European Union	Mt	Million Tonnes (Mt)
EPA	Environmental Protection Agency	MWH	Ministry of Works and Housing
ESP	Environmental Sanitation Policy	NCCP	National Climate Change Policy
FASDEP	Food and Agricultural Sector Development Programme	NDCs	Nationally Determined Contributions
FASDEP II	Food and Agriculture Sector Development Policy	NDPC	National Development Planning Commission
FC	Forestry Commission	NEP	National Employment Policy
FOB	Free on Board	NESSAP	National Environmental Sanitation Strategy and Action Plan
FORIG	Forestry Research Institute of Ghana	NPK	Nitrogen, Phosphorus, and Potassium
FSP	Fertilizer Subsidy Programme	OACPS	Caribbean and Pacific States
GDP	Gross Domestic Product	PFJ	Planting for Food and Jobs
GHGs	Greenhouse Gas	PROCA	Progressive Road Contractors Association
GREDA	Ghana Real Estate Developers Association	PURC	Public Utilities Regulatory Commission
GSS	Ghana Statistical Service	RCCs	Regional Coordinating Councils
IBES	Integrated Business Establishment Survey	SDGs	Sustainable Development Goals
ICR	Investment Climate Reform	SMEs	Small and Medium Enterprises
ILO	International Labour Organization	UN	United Nations
INDCs	Intended Nationally Determined Conditions	UNFCCC	United Nations Framework Convention on Climate Change
IPPPU	Industrial Processes and Product Use		
KPIs	Key Performance Indicators		
MASLOC	Microfinance and Small Loans Centre		
MDAs	Ministries, Departments and Agencies		

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Acknowledgments

This report was prepared by Investment Climate Reform (ICR Facility) for the Ministry of Employment and Labour Relations (Ghana). The ICR Facility is co-funded by the European Union (EU), the Organisation of African, Caribbean and Pacific States (OACPS) under the 11th European Development Fund (EDF), together with the German Federal Ministry for Economic Cooperation and Development (BMZ) and the British Council.

The authors are grateful to the officials at the Ministry of Employment and Labour Relations (Ghana), particularly the Director and Deputy Director of Policy Planning, Monitoring and Evaluation for the enormous support and collaboration. As part of the process towards the development of the National Green Jobs Strategy, the Ministry played a leading role providing key input and oversight for the preparation of this report and for the preparatory public-private dialog meetings held in Ghana between November and December 2020.

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Executive Summary

Ghana's Economy, Employment and Environmental Impact

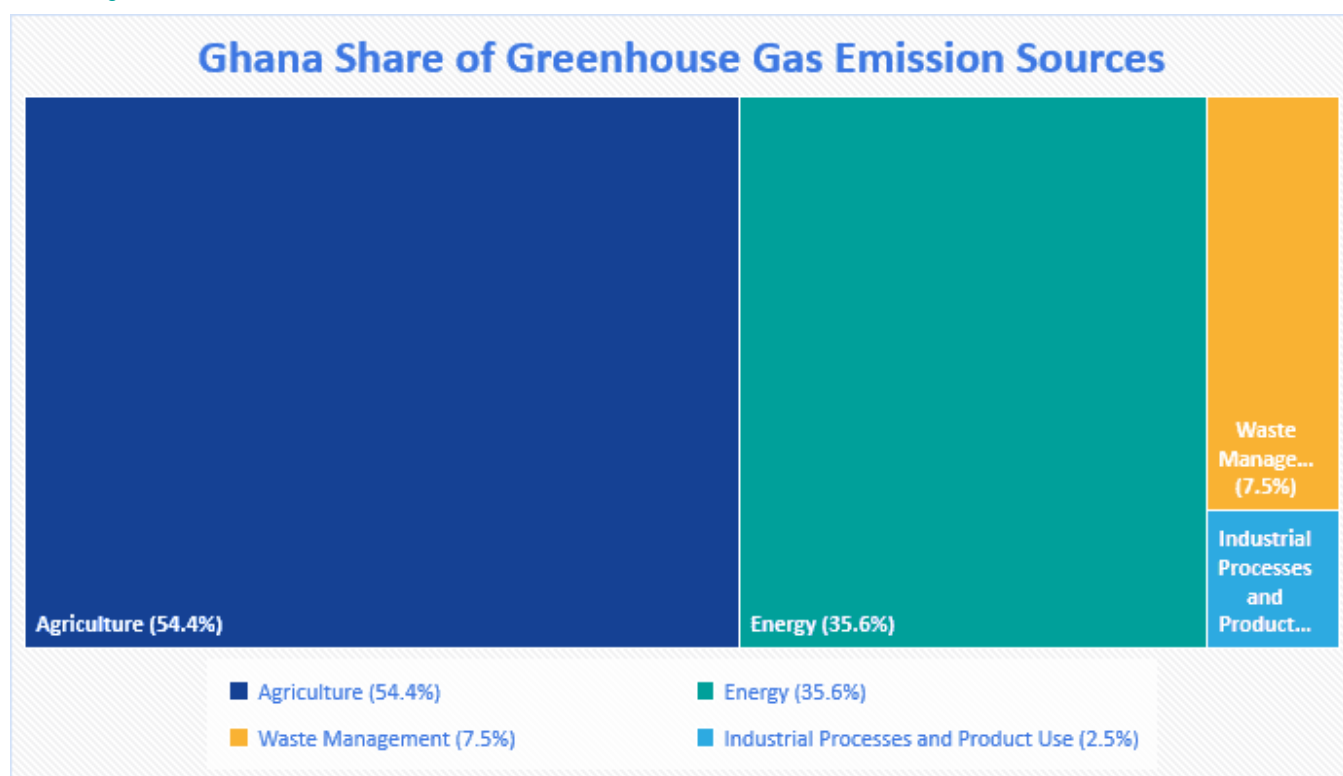
Ghana's economy has been described as one of the relatively stable economies in Sub-Saharan Africa. Over the last decade (2010-2019) Ghana recorded an average gross domestic product (GDP) growth of 6.79% and became a middle-income country in 2011 with a GDP per capita of \$1,549.56¹ following a revision of the country's GDP and the discovery and subsequent commercial oil production in 2010. GDP per capita over the period has averaged \$1,885.73.²

Over the same period, Ghana's total labour force increased from 16,453,667 in 2010 to 20,347,490 in 2020 and the number of persons employed also grew from 10,550,916 in 2010 to 13,222,264 in 2020.³ However, the country has a large informal sector which employs 90% of the labour force.⁴

Ghana's economic development model has been on the back of commodities, mainly cocoa, as well as non-traditional exports which are mostly agro-based and natural resources extraction, such as gold and now oil. This model of economic development has been highly associated with high greenhouse gas (GHGs) emissions. According to the National GHG Inventory for Ghana (April 2019), GHG for Ghana increased from 25.3 million tonnes (Mt) CO₂-equivalent in 1990 to 42.15 Mt CO₂ equivalent in 2016, about 66.3% increase over the period.⁵

The largest source of GHG Emissions is the Agriculture, Forestry, and Other Land Use (AFOLU) Sector, contributing 54.4%, followed by Energy sector with 35.6%. Waste Sector contributed 7.5% and Industrial Processes and Product Use (IPPPU) contributed 2.5% in GHGs.

Figure 1: Ghana Share of Greenhouse Gas Emission Sources



Source: UNFCC, Fourth Ghana Greenhouse Gas Inventory Report, 2019, page 28
https://unfccc.int/sites/default/files/resource/gh_nir4-1.pdf The cost of environmental degradation to Ghana is

¹ World Bank, GDP Per Capita (US\$ Current Prices)

<https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?end=2019&locations=GH&start=1960&view=chart>

² ibid

³ World Bank, <https://data.worldbank.org/indicator/SL.TLF.TOTL.IN?locations=GH>

⁴ Ghana Statistical Service, Ghana Labour Survey 2015, page xv,

https://www2.statsghana.gov.gh/docfiles/publications/Labour_Force/LFS%20REPORT_fianl_21-3-17.pdf

⁵ UNFCC, Fourth Ghana Greenhouse Gas Inventory Report, 2019, page 28 https://unfccc.int/sites/default/files/resource/gh_nir4-1.pdf

estimated to be around 10.7% of GDP.⁶ Air Pollution is the most significant cost (equivalent to 4.2 percent of GDP).⁷ This is primarily due to the impacts caused by household air pollution (causing about 8,800 premature deaths), and secondarily by ambient air pollution (about 7,200 premature deaths) in rural and urban areas.

Agricultural land degradation, deforestation, and overfishing are noteworthy due to their negative effects on resource productivity—impacting national economic growth drivers, jobs, and livelihoods—and ecosystem services. Water Pollution causes significant damage (equivalent to 3 percent of GDP)⁸ due to the health effects of an inadequate water supply, poor sanitation, and inadequate hygiene (about 10,600 early deaths), as well as discharge of solid waste, industrial effluents, and toxic substances into water systems.

The Government of Ghana subscribes to the International Labour Organization's (ILO) definition of 'green jobs' which it describes as "...decent jobs that contribute to preserve or restore the environment..."⁹ The term encompasses employment in the production of green services and products; employment in sectors that integrate environmentally friendly processes; and also decent employment that offers fair incomes, social protection, safety and security of employees, bargaining power and equal opportunity for female and males.

Ghana has signaled through ratification and mainstreaming of international conventions, agreements, and policies into national level policies, laws, programmes and projects a commitment to green development.

Ghana National Green Jobs Strategy

The Government of Ghana through the Ministry of Employment and Labour Relations has developed a National Green Jobs Strategy Implementation Plan (2021-2025) aimed at facilitating a just transition to an environmentally sustainable economy through the promotion of green jobs. The strategy identified five priority sectors as having potential for promoting green jobs: agriculture; waste management and recycling; renewable energy; construction; and eco-tourism and nature-based tourism. The strategy aims to achieve this through a programmatic approach involving four interconnected components:

- a. **Green Jobs Coordination Capacity Development Component** which is aimed at building the capacity of the lead institutions such as the Ministry of Employment and Labour Relations; National Development Planning Commission, Ministry of Food and Agriculture, Ministry of Finance, to initiate, develop, coordinate and ensure that green is mainstreamed in implementation of sectoral plans.
- b. **Green Jobs Skills Development Component** is focused on promoting skills development for green jobs that will sustain economic growth focusing on five sectors: agriculture, construction, renewable energy, nature-based tourism. It will involve greening existing skills sets and developing entire new skills and professions to respond to the potentials in the green economy.
- c. **Green Enterprise Development Component** aims at developing competitive enterprises in the selected sectors of the economy to aid in the creation of green jobs. Also, it aims to create an enabling environment by facilitating access to finance, business development support, tax incentives and technology adoption for SMEs to expand and create opportunities for employment in green business; and
- d. **Green Enterprises Financing Component** aims to mobilize public and private sector resources to support enterprises, startups and existing businesses that are going into green.

The Ministry of Employment and Labour Relations, is being supported by the Investment Climate Reform (ICR) Facility to map stakeholders and conduct an in-depth analysis of the business environment for green jobs.

⁶ The World Bank Group, World Bank, Ghana Country Environmental Analysis, (Washington DC: World Bank, 2020), <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/419871588578973802/ghana-country-environmental-analysis>

⁷ *ibid*

⁸ The World Bank Group, World Bank, Ghana Country Environmental Analysis, (Washington DC: World Bank, 2020), <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/419871588578973802/ghana-country-environmental-analysis>

⁹ International Labour Organization, What are Green Jobs, April 2016, https://www.ilo.org/global/topics/green-jobs/news/WCMS_220248/lang-en/index.htm#:~:text=Green%20jobs%20are%20decent%20jobs,energy%20and%20raw%20materials%20efficiency

Sectoral Business Environment Analysis for Green Jobs in Ghana

Waste Management and Recycling

Ghana generates 0.51 kg per capita of waste daily¹⁰ comprising principally organic waste (61%), plastics (14%), inert (6%) and 5% miscellaneous.¹¹ Other composition is made up of paper (5%), metals (3%), glass (3%) leather and rubber (1%), and 1% textiles.¹²

Waste recycling in Ghana is rather low as more emphasis is placed on collection and disposal with the private sector being the dominant actor in waste collection and recycling in the country. Waste treatment and recycling is undertaken by a few private sector entities with plastics being the most recycled waste. Ghana is reported to import about 2.8 million metric tonnes of plastics out of which 73% ends up as waste.¹³ Though the level of imports of plastics is lower compared to Nigeria (39 million metric tonnes) and South Africa (27 million metric tonnes) what is worrying is the resulting waste and environmental impact of these plastics.¹⁴

Ghana has about 25 recycling companies that process about 320 tons of plastic waste per day.¹⁵ E-waste recycling is carried out by informal sector actors who process e-waste manually due to the lack of formal technically adequate e-waste processing facilities in the country. Meanwhile, organic waste conversion to energy is yet to be fully explored in the country. The German government since January 2021 is supporting the government of Ghana to construct a 400 KW hybrid waste-to-energy (w2e) power plant to treat urban solid waste in Atwima Nwabiagya in the Ashanti Region.¹⁶ A number of factors account for the low recycling of waste including the high upfront investment cost in infrastructure and technologies, and low level of government commitment to investing and or incentivizing investments in recycling infrastructure and technologies by the private sector.

Regulatory institutions for the sector include the Ministry of Local Government and Rural Development (MLGRD), Ministry of Sanitation and Water Resources (MSWR), the Ministry of Environment, Science, Technology, and Innovation (MESTI) and the Environmental Protection Agency.

Key constraints affecting the creation of green jobs in the Waste Management and Recycling Sector include: inadequate waste management and recycling infrastructure especially at the decentralized level; lack of investment incentives such as reduced or no import tariffs on imported trucks and equipment for waste management and recycling; low capacity of actors in the sector to implement best practices in waste collection, handling and disposal, high levels of informality and poor capacity of the MMDAs to implement and enforce waste management bylaws, and contracts with private sector operators. Also the low levels of recycling is due to the inability of actors to collect a critical mass of waste and the yet to be developed and non-standardized markets for organic compost which could be the major product from Ghana's majorly organic waste.

Recommendations

To improve the enabling environment and foster green jobs in the waste management sector, there is the need to:

- Streamline the roles and responsibilities of the regulators and policy making institutions such as MESTI, MWH, MSWR, EPA and MMDAs for policy coherence and predictability in the sector.
- Public and Private Sector investment in waste management and recycling infrastructure should be intensified to provide for Waste Aggregation Centers, disposal locations for solid and liquid waste and waste recycling centers
- Build capacity of MMDAs (Waste Management Departments) to improve the management of contracts and ensure performance by private sector waste management companies.

¹⁰ What a Waste 2.0 A Global Snapshot of Solid Waste Management to 2050

¹¹ Municipal solid waste characterization and quantification as a measure towards effective waste management in Ghana, 2015, <https://www.sciencedirect.com/science/article/pii/S0956053X15301185#:~:text=Waste%20composition%20was%2061%25%20organics,ru bber%2C%20and%201%25%20textiles.>

¹² *ibid*

¹³ Plastic Pollution Facts and Stats: <https://earthcareghana.org/2020/09/28/plastic-pollution-facts-and-stats/>

¹⁴ Ensuring sustainability in plastics use in Africa: consumption, waste generation, and projections, 2019 , <https://enveurope.springeropen.com/articles/10.1186/s12302-019-0254-5>

¹⁵ Market Survey Waste and Circular Economy in Ghana- Netherlands Enterprise Agency

¹⁶ Minister of Environment, <https://mesti.gov.gh/prof-frimpong-boateng-cut-sod-waste-energy-project/>

- Conversion of organic waste to compost for large scale agricultural use (e.g. through the Government Fertilizer Subsidy Programme) should be aggressively pursued.
- The tax regime for investors in the waste management and recycling regime should be improved through the reduction in import tariffs on waste equipment and further reducing locational taxes at the MMDA level for waste recycling companies.
- The segment of the sector that involves many informal operators (collection) needs to be supported to organize and formalize through cooperatives to facilitate access to capacity building, health and safety as well as improve their working conditions.

Agriculture, Forestry and Fisheries

Agriculture is the main driving force behind Ghana's economy employing about 44.7% of the labour force.¹⁷ Regulatory and policy making institutions for the sector are the Ministry of Food and Agriculture (MoFA), Ghana Cocoa Board (Cocobod), Ministry of Fisheries and Aquaculture Development (MOFAD), the Ministry of Lands and Natural Resource, and the Forestry Commission.

Key constraints affecting the creation of green jobs in the agricultural, fisheries and forestry sectors include land availability and tenure; low levels of awareness of sector actors in green production and processing; the lack of access to green technologies as a result of the non-availability and where available, the cost of accessing these technologies are high. Additionally, access to finance is very low (around 5% of bank credit goes to the sector). Another challenge is that inputs for green agriculture are not readily available and often come at a higher cost meanwhile the market (consumers) are not willing to pay a premium for green products. Also, access and availability to inputs for climate smart agriculture is a challenge; currently, most government programmes do not promote inputs for green or climate-smart agriculture, but rather the "traditional" agro-chemicals.

Recommendations

An enabling environment for increasing green jobs in the agriculture sector of Ghana will require:

- A comprehensive policy direction that mainstreams climate-smart agriculture into all government projects and initiatives as well as the investment of the private sector and support of development partners in agricultural modernization.
- Actors in agricultural production and other segments need capacity development in no-till agriculture, climate smart agriculture, use of solar irrigation and general good agronomic practices.
- Additionally, the capacities of District-based Agricultural Departments and Extension Agents should be built on sustainable agriculture and should be adequately resourced to operate and enhance the capacities of farmers in sustainable agriculture.
- The government through its Fertilizer Subsidy Programme should promote the use of organic fertilizer especially made from locally generated waste.
- Government should promote intensive mechanization through the adoption of locally made equipment as well as promote the use of renewable energy and equipment such as powered irrigation systems, solar dryers and threshers as well as greenhouse production systems.

Renewable Energy

Ghana's renewable energy sources comprise Bio Energy (Biomass including waste-to-energy and Bio fuel), Tidal and Wave power, Solar Energy (Photo-Voltaic and Thermal), Wind Power, and Hydropower (small and large). Despite an ambitious target to increase renewable energy to 10% in the country's energy mix, it currently constitutes 1%. The Renewable Energy (RE) sector is regulated by the Renewable Energy Act 2011 (Act 832). The Ministry of Energy is the policy making body for Renewable Energy in Ghana. The primary role of the Ministry is to ensure policy development, coordination and implementation as well as supervision of operations and activities of sector institutions in the country.

¹⁷ Agric in Ghana Facts and Figures 2016.

The Ministry of Energy, Energy Commission, and the Public Utilities Regulatory Commission (PURC) are the main regulatory institutions for the sector.

A number of key constraints that were identified to inhibit the creation of green jobs in the sector include: poor institutional collaboration among the regulators; low skill levels for players in the sector; high initial cost of renewable energy projects deterring patronage of such projects/products. Also, unattractive tax regime for RE actors coupled with lack of access to finance affect the initiation, development and deployment of RE projects.

Recommendations for improving the business environment for green jobs:

- The promotion of local production/ assembling of renewable energy equipment such as solar panels, batteries, fuel efficient cook stoves etc.
- Skills training and development in existing and emerging renewable energy technologies should be prioritized
- The licensing processes for renewable energy activities must be streamlined;
- Financial instruments should be developed by financial institutions (possibly with government support) to meet the needs of SMEs in the RE Sector.

Construction and Infrastructure

Ghana has a vibrant construction sector that employs about 320,000 people and has been estimated to create about 1 million jobs in the next 10 years. The sector is dominated by the private sector with local firms (in the formal and informal sectors) dominating the building construction sub-sector while international companies deal mainly with larger infrastructural projects. The informal sector is however made up of homeowners and individual small scale contractors usually involved in building residential properties. It is estimated that the informal sector accounts for about 90% of the country's urban housing stock.¹⁸

The Ministry of Roads and Highways (MRH) regulates construction activities related to roads; the Ministry of Works and Housing (MWH) is the government agency responsible for formulating policies and programmes for the Housing and Works sub-sectors of the economy; and the Environmental Protection Agency (EPA) mandates every developer to undertake environmental impact assessment for large, medium and small scale projects including road construction and building and real estate development before issuing out environmental permits. The Ministry of Railways Development oversees Ghana's rail sector. The Ministry of Sanitation and Water Resources (MSWR), is a ministry in the Infrastructure Sector responsible for formulating and implementing policies, plans and programmes for the sustainable management of water resources, the provision of safe, adequate and affordable water; provision of environmental sanitation facilities, effective and sustainable management of liquid and solid waste in the country.

Key **constraints** to green jobs in the construction sector are: few locally manufactured inputs for the construction sector; lack of long-term financing for construction projects; low levels of green construction skills and perceived high cost of green construction projects.

Recommendations

- The government of Ghana which is the largest procurer of infrastructure projects should ensure that all public infrastructure projects are green in design, operation and use. Also, it could promote the use of a substantial quantity of locally produced raw materials and labour in the construction sector.
- Construction sector players should be trained on green building and certified.
- Works Departments of MMDAs and District Level Engineers who supervise and certify construction works need capacity building on green construction.
- Stakeholders also need support to access long term finance sources which are vital for the construction sector, especially green projects.
- The Ghana Infrastructure Investment Fund is a laudable initiative, however, long-term funding (7 to 15 years) for the private sector would go a long way.

¹⁸ <https://www.odl.org/sites/odi.org.uk/files/resource-documents/10787.pdf>

- A Green Building Code/Guidelines needs to be developed and promoted to encourage industry players into green construction.

Eco-Tourism and Nature Based Tourism

The tourism sector is regulated by the Ghana Tourism Act, 2011 (Act 817) which provides the regulatory framework for the establishment of the Ghana Tourism Authority, mandated to regulate the tourism sector including registration and licensing of operators in the sector as well as the establishment of the Tourism Development Fund. The Ghana Tourism Authority is therefore the main government institution responsible for promoting the sustainable development of the tourism industry internationally and within the country under the oversight of the Ministry of Tourism, Arts and Culture which is responsible for the development and promotion of tourism-related activities in Ghana. The Forestry Commission is responsible for the regulation of utilization of forest and wildlife resources, the conservation and management of these resources- most of which are natural tourist attractions. The Ghana Museums and Monuments Board is the legal custodian of Ghana's material cultural heritage (movable and immovable heritage).

Key **constraints** to developing green jobs in the Eco-Tourism and Nature-based Tourism Sector include multiplicity of regulators some of which are weak in their operations; poor community engagement and involvement in the benefits of the tourist attractions; poaching, illegal mining and land encroachment; and low investments in eco-tourism associated infrastructure.

Recommendations

It is recommended that to foster the development of green jobs in the Eco-Tourism and Nature-Based Tourism Sectors:

- The regulatory institutions in the sector must streamline their processes and enhance collaboration to ensure clarity of ownership, management and oversight of eco-tourism sites.
- There is the need to increase investments in the development of more eco-tourism sites as well as the associated public infrastructure such as road networks and telecommunications.
- Finally, the Ghana Tourism Authority and private sector stakeholders in the eco-tourism sector can develop and promote certification for facilities and actors (travel and tour operators, car rental companies, hoteliers etc) who are environmentally minded and promote sustainable tourism practices responsibly.

Green Jobs at the Sub-national Level

Ghana implements a four-tier governance and development planning and implementation structure comprising 16 administrative regions, and 260 MMDAs and nearly 1700 Urban, Town, Area and Zonal Councils, which represent the base of the sub-national structures.

At the subnational level the District Assembly is the Development Authority responsible for the overall development of the district including the preparation and submission of development plans and budgets through the Regional Coordinating Council (RCC). Also, the Assembly formulates and executes plans, programmes and strategies for the effective mobilization of the resources necessary for the overall development of the district. Furthermore, the Assembly is responsible for development of infrastructure, improvement in human settlements and the environment.

This implies that implementing green jobs at the sub-national level is contingent on the capacity of national, sub-national and local government authorities to support integrated development strategies that take specific measures to catalyze transitions to sustainability, and avoid spending limited funds on initiatives that are contrary to this aim.

Key **constraints** to developing green jobs at the subnational level include the non-availability and inadequate information on green job opportunities; the lack of ecosystem support for green jobs; weak capacity of MMDAs to enforce environmental laws, by-laws and policies.

Recommendations

To promote green jobs at the sub-national level there is the need to:

- Identify, develop and promote green business across existing traditional sectors in agriculture and in emerging sectors such as ICT and renewable energy sectors.
- The ecosystem of support for boosting green businesses must be developed. These will include business incubators and accelerators, financial institutions, financial service providers, market development, business

advisory services, and legal support services. The Business Advisory Centers of the National Board for Small-Scale Industries (NBSSI) and the newly formed Business Resource Centers can become a hub for the promotion and development of green business ideas.

- *There is a strong relationship between business survival and job creation and therefore developing and building subnational business ecosystem that supports green businesses will invariably contribute to the creation of green jobs.*
- *Also alongside developing the support ecosystem for green businesses, there is the need to bring to the sub-national level licensing and permitting services from Ghana Standards Authority, Food and Drugs Authority, Energy Commission; and similar institutions need to decentralize their activities/services and or work through other decentralized bodies such as the Business Advisory Services (NBSSI) and BRCs to facilitate access to such services at reasonable fees.*

1.0 Introduction

1.1 Background

Ghana is a party to the Paris Agreement on Climate Change which aims to achieve a global temperature of 1.5 degrees Celsius in the medium term. This requires party states to pursue measures that significantly cut down the emission of carbon gases and methane into the atmosphere. In view of this, Ghana developed and is implementing its Nationally Determined Contributions (NDCs) toward achieving global targets for reducing carbon emissions and its effects on the environment. Despite the positive intentions of the NDCs, evidence shows that efforts towards reducing carbon emissions have implications on labour markets.

The Ministry of Employment and Labour Relations (MELR) is concerned about climate change since some of the climate change mitigation and adaption measures impact on the labour market. As a result, MELR seeks to implement interventions that will ensure that job losses that will occur due to the implementation of climate change measures are kept at the barest minimum and the opportunities rather maximized as research by the International Labour Organization (ILO) and other institutions indicate that there are more potential for job gains than job losses in mitigating the effects of climate change. However, to benefit from the gains of green jobs, there is the need to alter the structure of the labour market.

The effect of climate change is expected to impact severely on vulnerable groups and low skilled workers and there is therefore the need to transition from carbon-based economies to environmentally friendly production that is fair and just for all. This principle demands that measures are put in place to ensure that the transition itself becomes an opportunity to develop new skills, professions, occupations, technologies and innovations that deliver job creation and avert possible job losses.

Between August 2019 and September 2020, the Government of Ghana through the Ministry of Employment and Labour Relations developed a National Green Jobs Strategy Implementation Plan (2021-2025) with the support of the International Labour Organization. The strategy is aimed at facilitating a just transition to an environmentally sustainable economy through the promotion of green jobs. The strategy identified five priority sectors as having potential for promoting green jobs: agriculture; waste management and recycling; renewable energy; construction; and eco-tourism and nature-based tourism.

The objective of Ghana's Green Jobs Strategy is to support state institutions and private sector and non-state actors to position themselves strategically to mitigate the challenges and maximize the opportunities of climate change towards environmental sustainable growth. The strategy aims to achieve this through a programmatic approach involving four interconnected components:

- **Green Jobs Coordination Capacity Development Component** which is aimed at building the capacity of the lead institutions to initiate, develop, coordinate and ensure that green is a part and function of implementation;
- **Green Jobs Skills Development Component** by promoting skills development for green jobs that will sustain economic growth focusing on five sectors: agriculture, waste management and recycling, construction, renewable energy, and nature-based Tourism;
- **Green Enterprise Development Component** for green products looks at empowering by creating an enabling environment through finance, business development, tax incentives and technology adoption for SMEs to expand and create opportunities for employment in green business; and
- **Green Enterprise Finance Component** aims to mobilize public and private sector resources to support enterprises, startups and existing businesses that are going into green.

Implementation of the Strategy is estimated to cost US\$13.2million and would be implemented over 5 years from 2021 to 2025.

The strategy takes into consideration a multi-stakeholder approach with a shared understanding of the key concepts and approaches relevant to green jobs promotion, identified key challenges and potential entry points for advancing green jobs in Ghana, including priority sectors and mapping policy initiatives that can be leveraged for a smooth implementation of the strategy.

1.2 ICR-Facility Technical Assistance

In May 2020, the Ministry of Employment and Labour Relations, requested the support of the Investment Climate Reform (ICR) Facility to provide technical assistance to map stakeholders and conduct an in-depth analysis of the business environment for green jobs. This report is a result of the collaboration between the Investment Climate Reform Facility and the Ministry of Employment and Labour Relations of Ghana,

The ICR Facility is a technical assistance facility set up to support African Caribbean and Pacific (ACP) countries and regional institutions in their private sector structured dialogue process to create a more conducive investment climate. ICR Facility is co-funded by the European Union (E.U.), Organization of African, Caribbean and Pacific States (OACPS) under the 11th European Development Fund, together with the German Federal Ministry of Economic Cooperation and Development (BMZ). It is implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), British Council (BC), Expertise France (EF), and Netherlands Development Organization (SNV). The facility has three components:

- Technical Assistance for Business Environment and Investment Climate improvements providing specific and targeted technical assistance on business environment reform (business registration and licensing, investment policy, and tax); promoting business environment sustainability through social enterprise, inclusive business models, gender sensitive reforms etc; and strengthening public private dialogue for more impactful and sustainable development policies.*
- Strengthening National and Sub-national development finance institutions: The ICR Facility supports around four national or sub-regional development finance institutions (DFIs) with tailor-made capacity building in developing and delivering specific products such as green bonds, funds-of-funds, credit insurance, buyer/supplier credit; using blended finance instruments and building investment pipelines as well as strengthening institutional structures with regards to monitoring, evaluation, environmental and social governance standards, reporting and governance.*
- Compiling and mainstreaming lessons learned and good practices by developing, compiling and sharing knowledge products (e.g policy briefs or tools for policy-makers and practitioners); promoting debate via interactive communication (like blog posts, social media, and webinars); and enabling peer-to-peer learning by sharing knowledge and giving advice on innovative instruments.*

The support of the ICR Facility to the Ministry of Employment and Labour Relations on implementation of the National Green Jobs Strategy involved:

- Mapping of Stakeholders through a comprehensive mapping of all stakeholders relevant to the implementation of the Green Jobs Strategy in the country focusing on the five key sectors identified in the strategy.*
- Organization of three sectoral and one sub-national stakeholder/public private dialogues (PPDs) to identify the main regulatory, institutional, administrative and behavioral constraints currently affecting the creation and development of green jobs, as well as discuss the potential role the different stakeholders can play in the promotion of green jobs.*
- Conduct an analysis of the business environment for green jobs based on the outcomes of the mapping and sectoral and sub-national sectorial dialogues.*

2.0 Ghana Green Economy and Green Jobs Policy Context

2.1 Definition of Green Jobs

The Government of Ghana subscribes to the International Labour Organization's (ILO) definition of 'green jobs' which it describes as "...decent jobs that contribute to preserve or restore the environment...".¹⁹ The term encompasses employment in the production of green services and products; employment in sectors that integrate environmentally friendly processes; and also decent employment that offers fair incomes, social protection, safety and security of employees, bargaining power and equal opportunity for female and males.

According to the ILO, green jobs improve energy and raw materials efficiency; limit greenhouse gas emissions; minimize waste and pollution; protect and restore ecosystems; and support adaptation to the effects of climate change.

Green jobs can therefore be in any economic sector: traditional sectors such as manufacturing and construction, or in new, emerging green sectors such as renewable energy and energy efficiency.

2.2 Green Policy Context

Ghana has signaled through ratification and mainstreaming of international conventions, agreements, and policies into national level policies, laws, programmes and projects a commitment to green development.

Ghana is a signatory to the United Nations (UN) Sustainable Development Goals (SDGs), the United Nations Framework Convention on Climate Change (UNFCCC) and its Paris Agreement, and the United Nations Convention to Combat Desertification, and the Convention on Biological Diversity, among others.

Out of the 17 UN SDGs, eight can be directly attributed or linked to environmental sustainability and green jobs. These are SDG 6: Clean Water and Sanitation; SDG 7: Affordable and Clean Energy; SDG 8: Decent Work and Economic Growth, SDG 9: Industry and Innovation and Infrastructure; SDG 11: Sustainable Cities and Communities; SDG 12 Responsible Consumption and Production; SDG 13 Climate Action and SDG 14 and 15 Life Below Water and Life on Land respectively.

The "Coordinated Programme of Economic and Social Development Policies, 2017-2021 – An Agenda for Jobs: Creating Prosperity and Equal Opportunity for All (First Step), Ghana's medium-term development framework for sectoral and sub-national planning has a main goal to safeguard the natural environment and ensure a resilient, built environment. Interventions in waste management; deforestation, desertification and soil erosion; as well as greening the environment; all address the country's over-dependency on natural resources for development. Also interventions in waste recycling and waste-to-energy technologies are promoting efficient resource use into development projects and programmes.

Ghana has developed a National Climate Change Policy to safeguard a climate resilient and climate compatible economy while realizing sustainable development and equitable low-carbon economic growth for Ghana.²⁰ Ghana's Climate Change Policy focuses on adaptation and mitigation in five policy areas: (i) Agriculture and Food Security; (ii) Disaster Preparedness and Response; (iii) Natural Resource Management; (iv) Equitable Social Development; and (v) Energy, Industrial and Infrastructural Development.²¹ These policy areas are being implemented through 10 programmes, focusing on climate-smart agriculture, resilience of vulnerable communities; climate-resilient infrastructure; carbon sinks; management and resilience of terrestrial, aquatic and marine ecosystems; climate change and human health, migration, gender and climate change, access to water, sanitation and human health and greenhouse gas emissions.²²

Ghana has twenty climate adaptation and eleven mitigation measures submitted in its Intended Nationally Determined Conditions (INDCs) focusing on building resilience in agriculture, value addition-based utilization of forest resources, integrated water resources management, infrastructure planning, among others through seven priority sectors to be

¹⁹ International Labour Organization, What are Green Jobs, April 2016, [https://www.ilo.org/global/topics/green-jobs/news/WCMS_220248/lang-](https://www.ilo.org/global/topics/green-jobs/news/WCMS_220248/lang-en/index.htm#:~:text=Green%20jobs%20are%20decent%20jobs,energy%20and%20raw%20materials%20efficiency)

²⁰ Ministry of Environment Science and Technology, National Climate Change Policy, 2013, page x accessed 3rd October 2020, <https://www.un-page.org/files/public/ghanacclimatechange policy.pdf>

²¹ *ibid*

²² Ministry of Environment Science and Technology, National Climate Change Policy, 2013, page x accessed 3rd October 2020, <https://www.un-page.org/files/public/ghanacclimatechange policy.pdf>

implemented over a ten-year period (2020-2030).²³ Areas of adaptation and mitigation are: (a) sustainable land use including food security; (b) climate proof infrastructure; (c) equitable social development; (d) sustainable mass transportation; (e) sustainable energy security; (f) sustainable forest management; and (g) alternative urban waste management.²⁴

At sectoral level, several policies and strategies developed by the government also signal a commitment to green growth. The agricultural, forestry and land use sector, which contributes about 45% of Ghana's greenhouse gas emissions, is being tackled through the Food and Agricultural Sector Development Programme (FASDEP II). The policy contains interventions that will enhance the achievement of the sustainable management of land and environment strategic objective. The policy advocates for improving incentives and regulations to adopt more sustainable agricultural practices to protect the environment.

In the energy sector, the government has developed a National Energy Policy to decrease the environmental impact of the supply and consumption of energy by way of improved creation and the use of renewable energy while improving energy delivery efficiency. The country has also enacted the Renewable Energy Act, 2011 (Act 823) to create an enabling regulatory environment to attract private sector involvement in the development, management and utilization of renewable energy in an efficient and environmentally sustainable manner.

On Green Jobs, Ghana in 2014 developed a National Employment Policy (NEP) to promote an inter-sectoral and integrated approach toward achieving full, decent, productive and freely chosen employment for all Ghanaians who are able and willing to work, thereby improving the living conditions within the framework of equity, security and dignity. The NEP focuses on employment components such as entrepreneurial development, private sector competitiveness, linking agriculture to the other sector of the economy, research and innovation, vocational and technical skills development, productivity improvement, harnessing opportunities in labour migration and the green economy, among others.

A key objective of the NEP is to create more decent jobs to meet the demand for employment by among others promoting and supporting initiatives for the creation of green jobs in energy and industrial efficiency, energy supply, transportation, biodiversity, conservation and ecosystem restoration, soil and land management, and waste management. Also to achieve the objective of creating more decent jobs to meet the demand for employment in Ghana, the NEP aims to expand social protection mechanisms for workers exposed to external shocks (i.e. fire, flood, retrenchment, structural changes to green economy, etc), and develop new learning strategies to help them cope with these socio-economic shocks before they are re-integrated into the labour market.

2.3 Review of Ghana's Green Jobs Strategy

The objective of Ghana's Green Jobs Strategy is to support state institutions and private sector and non-state actors to position themselves strategically to mitigate the challenges and maximize the opportunities of climate change towards environmental sustainable growth.

The Ghana Green Jobs Strategy is in need of a number critical ingredients to contribute to its successful rollout. The document does not have a strategic indication of the number of green jobs desired to be created or expected to result from it. Second, as a green jobs strategy, its implementation needs to drive for an 'all of government' approach towards green economy/growth as well as establish linkages with other flagship ongoing governments initiatives such as the one district one factory initiative aimed at driving industrial growth at the district level utilizing local natural resource endowments; one village one dam initiative aimed at boosting irrigation facilities for farming in the off seasons; Planting for Food and Jobs Initiative which is boosting agricultural production through government subsidies to farmers. The lack of green in these flagship projects which is highly supported by the government leaves a great opportunity for the government to invest in the National Green Jobs Strategy.

The strategy does not provide entry points opportunities for greening and green jobs in its sectors of focus. Using a value chain approach, the strategy could provide indications of which sectors that green could be initiated. Moreover, the strategy

²³ Ghana's Intended Nationally Determined Conditions and Explanatory Note, 2015, accessed 3rd October 2020, available https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Ghana%20First/GH_INDC_2392015.pdf

²⁴ Ghana's Intended Nationally Determined Conditions and Explanatory Note, 2015, accessed 3rd October 2020, available https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Ghana%20First/GH_INDC_2392015.pdf

has not demonstrated the transformative effect of greening the sectors in focus in terms of the contribution to Greenhouse Gas emissions, Gross Domestic Product (GDP), ease of greening and the likely employment resulting from green jobs.

The strategy needs to further identify and create a balance for creating green jobs in existing sectors as well as nascent industries/sector. This is because, there seems to be a tendency to introduce greening of newer sectors, which may come at a relatively higher cost due to initial sunk cost for example compared to greening existing sectors once key entry points could be identified.

Finally, while the sectors have been identified, there is the need to explore linkages and areas of commonality in greening in the sectors identified. For example, there seems to be overlaps and areas of intersection between renewable energy and waste management and recycling as well as renewable energy and construction sectors. Exploring these linkages could help create synergies and sharing of lessons learned.

2.4 Structure of the Ghanaian Economy and Employment

2.4.1 The Economy of Ghana

Ghana's economy has been described as one of the relatively stable economies in Sub-Saharan Africa. Over the last decade Ghana recorded an average gross domestic product (GDP) growth of 6.79%. The growth was highest in 2011 when the country recorded real GDP growth rate of 14% which was driven mainly by commercial oil production. GDP growth subsequently declined to 2.2% in 2015 partly due to the effect of the energy sector challenges²⁵ and declining commodity prices that adversely affected the country's export earnings. In 2016, the economy grew slightly by 3.4% and in 2017, there was a rebound to 8.1% due to significant improvement in the oil and gas sector.²⁶ In 2018 GDP grew by 6.3%, a decline from 2017 but the economy expanded slightly in 2019 growing by 6.5%. The expansion in 2019 was driven by a strong recovery in the services sector.²⁷ In 2020, the economy was projected to grow by 6.8% but this was revised to 0.9% due to the Covid-19 pandemic.

Ghana's economy is segmented into three broad sectors- the Agriculture, Services and Industry Sectors- with each sector made of up different subsectors. The Agricultural subsector comprises the Crops, Livestock, Fishing and Forestry and Logging sub sectors. The Services subsectors are made up of Trade; Repair Of Vehicles, Household Goods; Hotels and Restaurants; Transport and Storage; Information and Communication; Financial and Insurance activities; Real Estate; Professional, Administrative and Support Service activities; Public Administration & Defense; Social Security; Education; Health and Social Work; and other Service activities. The Industry sector is made up of Mining and Quarrying, Manufacturing, Electricity, Water and Sewerage and Construction subsectors.

According to data from the Ghana Statistical Service (GSS), as indicated in Figure 2 the Services sector from 2010 to 2019 has remained the largest contributor to Ghana's GDP, followed by the industry sector which fell behind the agricultural sector only in 2010. The Agriculture sector over the same period has been the least contributor to Ghana's GDP. In 2019, the Services sector contributed 47.2% of the total GDP, the Industry Sector contributed 34.2% and the Agriculture sector contributed 18.5% (See Figure 2).

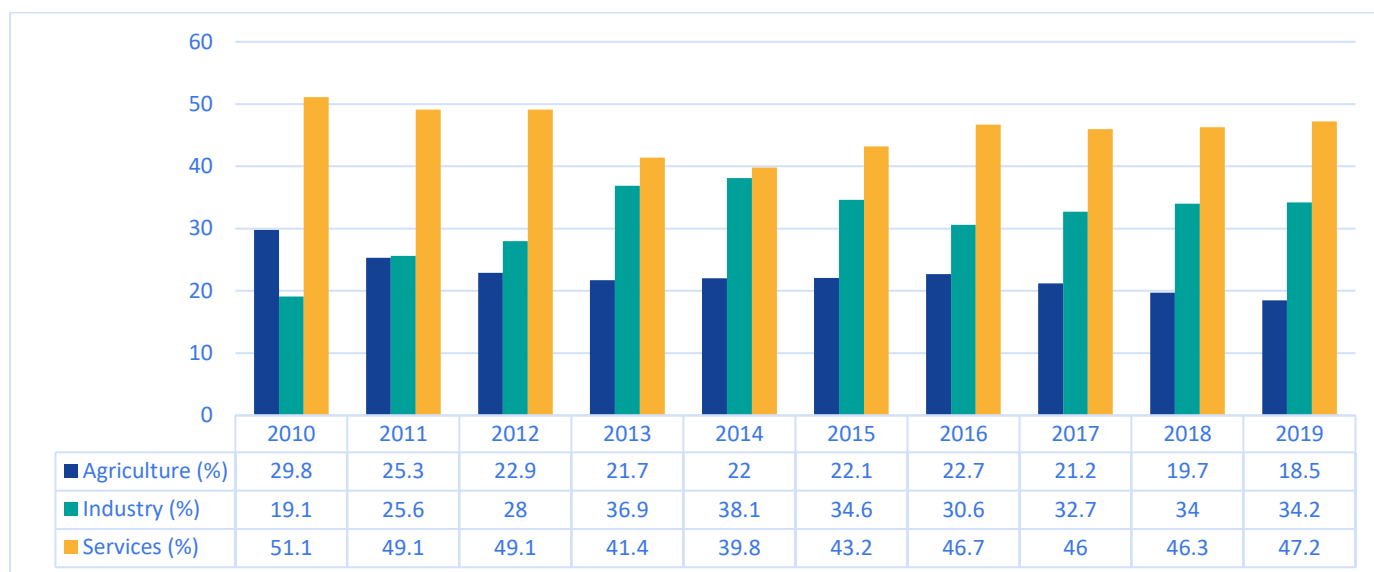
Figure 2: Share of Agricultural Sectors contribution to GDP declined by 10% over 10 years
Distribution of Gross Domestic Product by Sector (2010-2019)

²⁵ Bank of Ghana Annual Reports (2013 and 2014) (<https://www.bog.gov.gh/publications/annual-report/>) accessed 18/12/2020

²⁶ Bank of Ghana Annual Report 2017, <https://www.bog.gov.gh/wp-content/uploads/2019/07/AnnRep-2017.pdf> accessed 21/12/2020

²⁷World Bank in Ghana ,

<https://www.worldbank.org/en/country/ghana/overview#:~:text=Ghana's%20economy%20continued%20to%20expand,same%20period%20of%20last%20year.&text=The%20relatively%20high%20quarterly%20growth,compared%20with%201.2%25%20in%202018.>



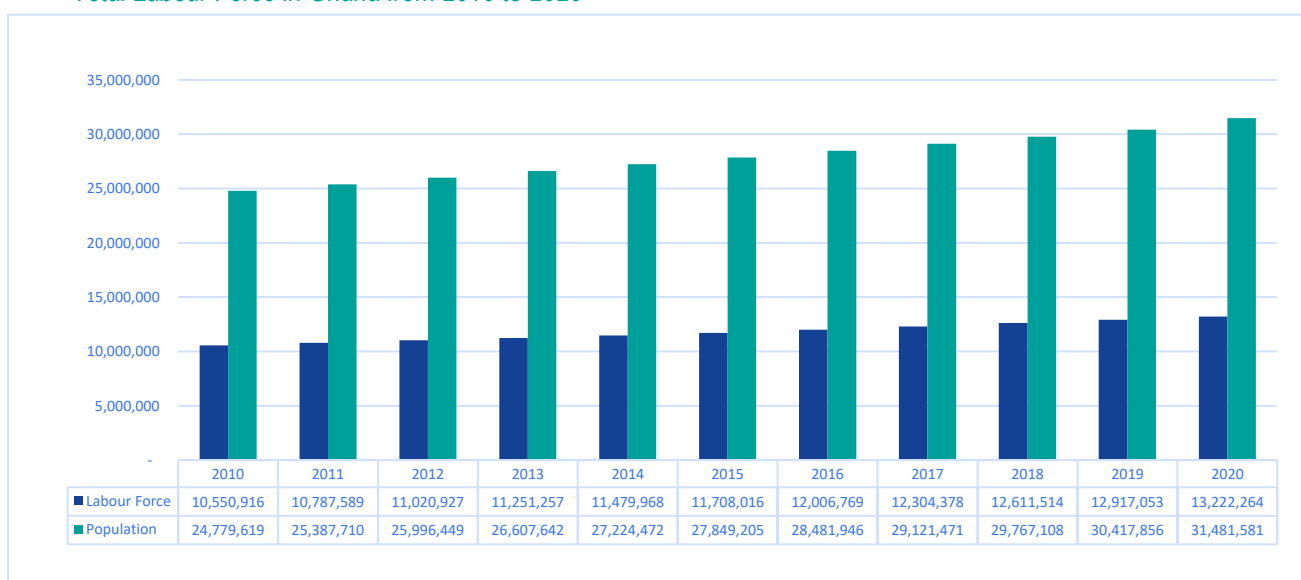
Source: GSS Rebased 2013-2019 Annual Gross Domestic Product, Annual Gross Domestic Product September 2015 edition

2.4.2 Employment in Ghana

According to data from the World Bank, Ghana's total labour force grew from 10,550,916 in 2010 to 13,222,264 in 2020²⁸ as indicated in Figure 3. The data indicates that each year, the total labour force of the country is about 42% of the total population.

Figure 3: Labor force participation has increased by 30% in 10 years

Total Labour Force in Ghana from 2010 to 2020



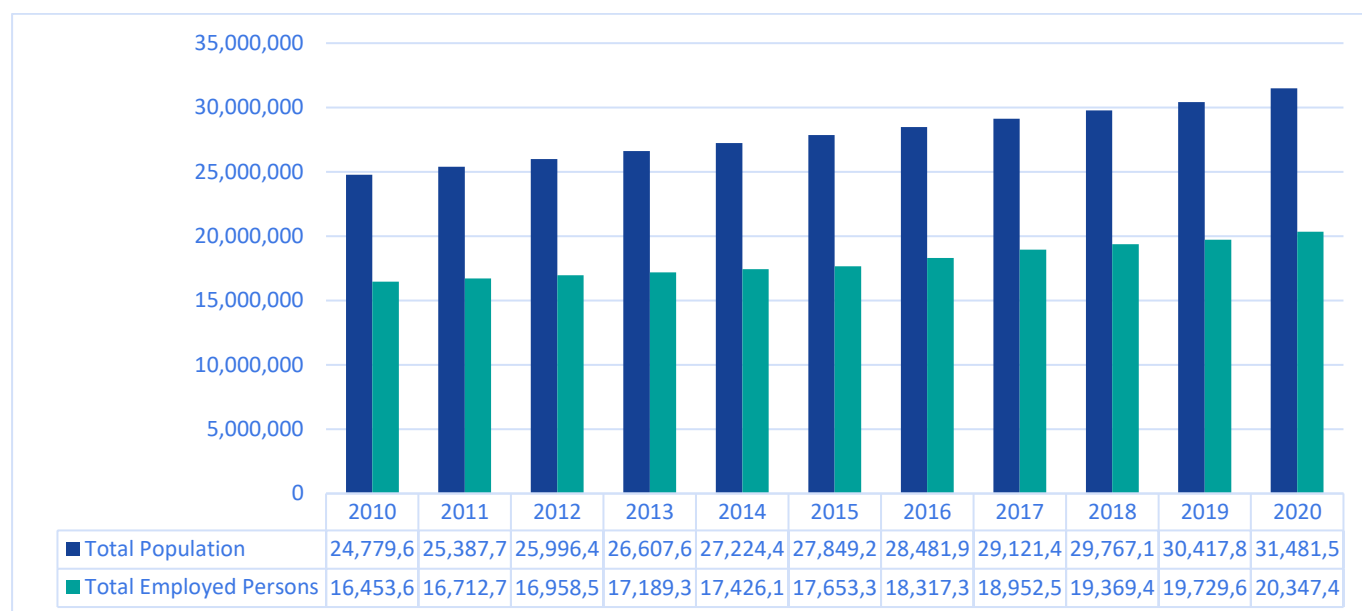
Source: World Bank (<https://data.worldbank.org/indicator/SL.TLF.TOTL.IN?locations=GH>); (<https://data.worldbank.org/indicator/SP.POP.TOTL?locations=GH>)

Employment to population ratio: The World Bank estimated the employment to population ratio as indicated in Figure 3 in Ghana in 2010 to be 66.4%. This increased to 65.83% in 2011 but gradually declined to 64.009% in 2014. In 2015, the employment to population ratio rose to 63.389% and continued to 65.081% in 2017 but declined to 64.633% in 2020.

²⁸ <https://data.worldbank.org/indicator/SL.TLF.TOTL.IN?locations=GH>

Based on the employment to population ratio provided above, it can be stated that the total number of employed persons out of the total population was 16,453,667 in 2010 and increased to 20,347,490 in 2020 (See Figure 4).

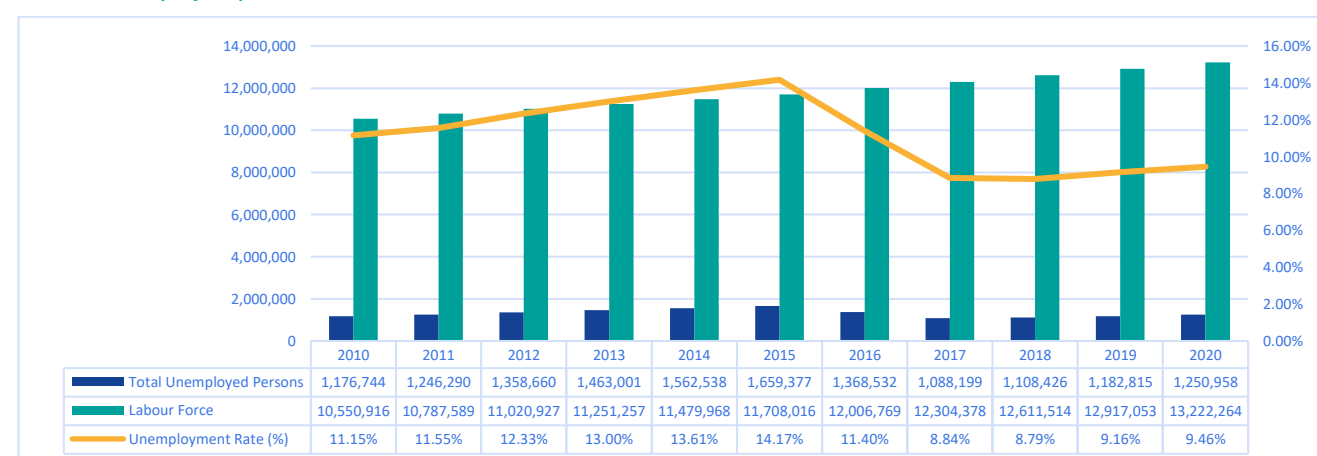
Figure 4: Ghana's employment to population ratio has been relatively stable
Total population and estimated employed persons.



Source: World Bank

Unemployment: The percentage of unemployment out of the total labour force in Ghana stood (see Figure 5) at 11.153% in 2010 and rose to 14.173% in 2015 but declined to 8.844% in 2017 as shown in Figure 4. In 2018, the unemployment rate rose to 8.789% and stood at 9.461% in 2020. The number of estimated unemployed persons also increased from 1,176,744 in 2010 to 1,250,958 in 2020.

Figure 5: Ghana's number of unemployed persons has remained relatively stable over 10 years.
Unemployment, total (% of total labor force) (modeled ILO estimate) – Ghana and estimated number of unemployed persons from 2010 to 2020



Source: World Bank

2.4.3 Employment by Sector

From 2010 to 2020, the Services sector has been the highest sector of employment, employing an average of 44% of the total employed persons in the country. This is followed by the Agricultural Sector which employed an average of 38% of the total employed persons in the country.

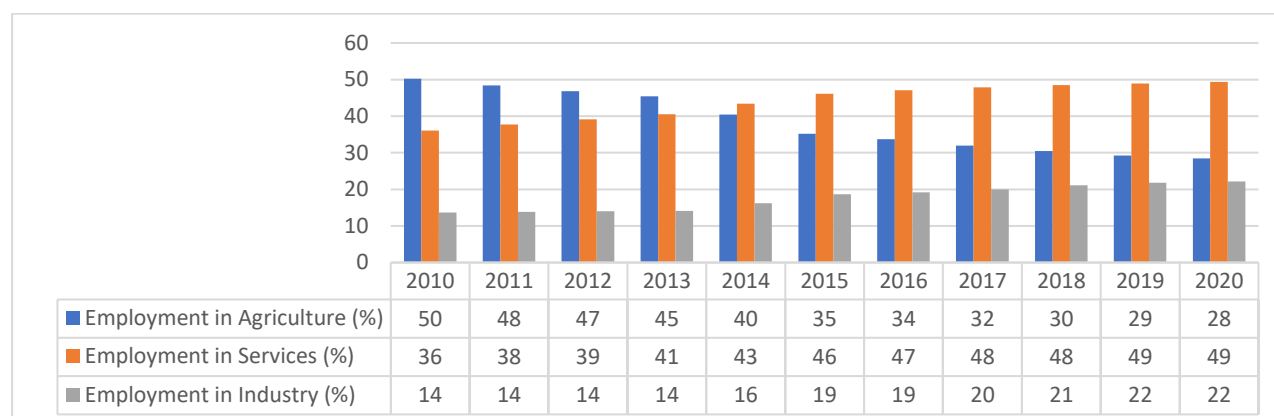
The Industry Sector employed an average of 18% of the total employed persons in the country over the same period. The Agriculture sector employed the highest number of people in the country from 2010 when it employed 50% of the total employed persons to 2013 when it employed 45% of total employed persons. The Agriculture sector contribution to employment creation continued to dwindle over the years reaching 28% in 2020.

Until 2014, the Services sector was the second highest sector of employment in the country. It employed 36% of the total employed persons in 2010 and this rose to 43% in 2014 when it overtook the Agriculture Sector (see Figure 6) as the leading sector of employment in the country. The rate of employment in the Services sector rose from 43% in 2014 to 49% in 2020.

The Industry sector employs the least number of persons in the country with the rate of employment standing at 22% in both 2019 and 2020. This however is an increase from the sector's employment rate of 14% from 2010 to 2013. In 2014 the sector employed 16% of the total employed persons in the country and this increased to 19% in 2015 and 2016 but rose gradually to 21% in 2018.

Figure 6: Services took over Agriculture as the largest employer sector over the last 10 years.

Employment by Sector

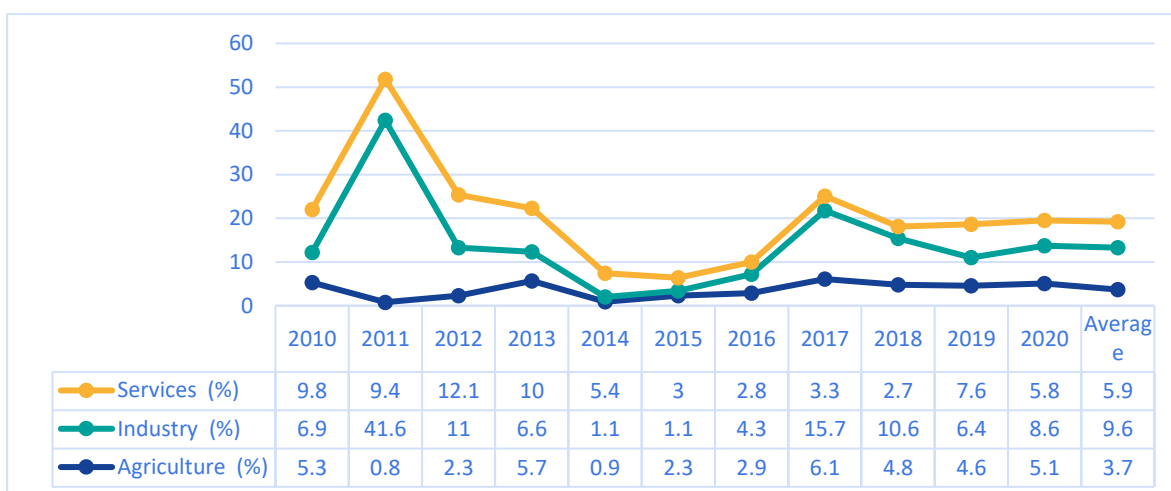


Source: World Bank - Employment in agriculture (<https://data.worldbank.org/indicator/SL.AGR.EMPL.ZS?locations=GH>); Employment in Services (<https://data.worldbank.org/indicator/SL.SRV.EMPL.ZS?locations=GH>); Employment in Industry (<https://data.worldbank.org/indicator/SL.IND.EMPL.ZS?locations=GH>). Accessed 22/12/2020

3.4.4 Sectoral Share of Employment and Growth Rate

The Services sector which employed the highest number of persons in the country (See Figure 6) from 2010 to 2020, was also the largest contributor to Ghana's Gross Domestic Product (GDP) (See Figure 2) with an average share of 45.99% over the same period but recorded an average growth rate of 5.9% as indicated in Figure 7, coming behind the Industry sector. Over, the same period, the Industry sector which contributed the least in terms of persons employed by sector recorded the highest average growth rate of 9.6% and was the second largest contributor to GDP in the country with an average share of 31.38% of the total GDP. The Agricultural Sector, the second highest sector of employment, contributed the lowest share to the country's GDP with an average share of 22.59% of total GDP and also recorded the least growth rate of 3.7% over the same period.

Figure 7: Sectoral Growth Rate from 2010 to 2020



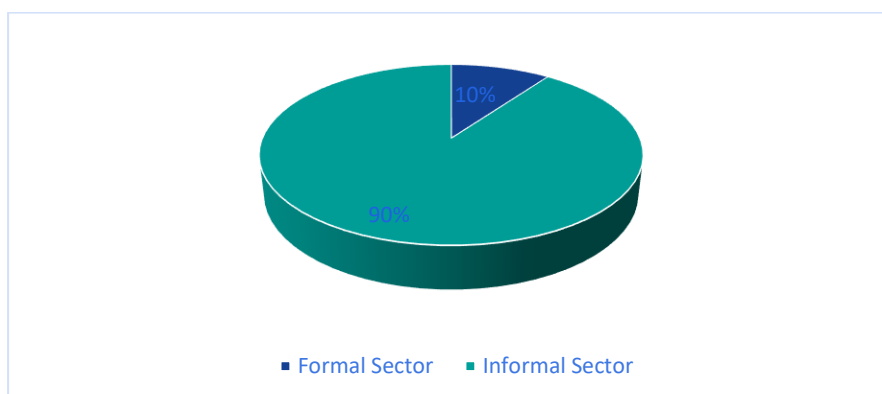
Source: World Bank

2.4.5 Employment in formal and informal sectors

According to available information from the 2015 Labour Force Report of the Ghana Statistical Service, the majority of employed persons (90%) in Ghana are in the informal sector. This indicates that only 10% of the employed persons are within the formal sector as indicated in Figure 8.

Figure 8: 90% of employment is informal in Ghana

Employment in formal and informal sectors in 2015



Source: Ghana Statistical Service: 2015 Labour Force Report

3.0 Green Jobs in Ghana

3.1 Ghana's Environmental Footprint

Ghana's economic development model has been on the back of commodities, mainly cocoa, as well as non-traditional exports which are mostly agro-based and natural resources extraction, such as gold and oil. This model of economic development has been highly associated with high greenhouse gas (GHGs) emissions. According to the National GHG Inventory for Ghana (April 2019), GHG for Ghana increased from 25.3 million tonnes (Mt) CO₂-equivalent to 42.15 Mt CO₂ equivalent in 2016, about 66.3% increase over the period.

Historical climate trends from 1960 indicate that Ghana has experienced increase in average temperatures of approximately 1°C; reduced rainfall of 2.4% per decade; increase in overall sea levels of 63mm and average coastal erosion of 1.13m per year.²⁹ If this trends continue, it is projected that Ghana will experience increase in average annual temperatures between 1.4–5.8°C by 2080; decrease in overall rainfall by 4.4% by 2040 becoming more erratic and intense; rise in sea levels by 75-190mm by 2100 and average coastal erosion and shoreline loss by 0.38m per year.³⁰

This implies that, if climate mitigation and green measures are not put in place; Ghana's agricultural sector will experience increase crop losses/failure to low rainfall and long drought periods; increase in pest and diseases and increase in desertification. For the fisheries sector, a continuation of the existing trend is likely to result in reduced fish stocks in the sea and in fresh waters. The country's water resources are likely to reduce, become more contaminated and affect the quality and quantity available for human consumption, agricultural and industrial use.

On the energy sector, the effect of climate change on water resources will affect power generation which would affect overall economic performance and development due to unstable or unavailable power supply.

The largest source of GHG Emissions is the Agriculture, Forestry, and Other Land Use (AFOLU) Sector, contributing 54.4%, followed by Energy sector with 35.6%. Waste Sector contributed 7.5% and Industrial Processes and Product Use (IPPU) contributed 2.5% in GHGs.

The key drivers of increased GHG emissions are increasing population growth with rapid urbanization, a high carbon-intensive, fossil fuel based economic growth model, deforestation and road transportation as well as electricity generation and solid waste disposal.

Ghana's cost of environmental degradation to the country is estimated to be around 10.7% of GDP.³¹

Air Pollution is the most significant cost (equivalent to 4.2 percent of GDP). This is primarily due to the impacts caused by household air pollution (causing about 8,800 premature deaths), and secondarily by ambient air pollution (about 7,200 premature deaths) in rural and urban areas.

Agricultural land degradation, deforestation, and overfishing are noteworthy due to their negative effects on resource productivity—impacting national economic growth drivers, jobs, and livelihoods—and ecosystem services.

Water Pollution causes significant damage (equivalent to 3 percent of GDP) due to the health effects of an inadequate water supply, poor sanitation, and inadequate hygiene (about 10,600 early deaths), as well as discharge of solid waste, industrial effluents, and toxic substances into water systems.

Gold mines, unmanaged solid waste, and other contaminated sites impose high costs on Ghana (1.2 percent of GDP).

Activities related to the recycling and disposal of electronic waste, burning of plastic waste, and artisanal small-scale gold mining, release hazardous chemicals and heavy metals, to which exposure can be fatal (e.g., 1,200 deaths due to lead exposure).

²⁹ Climate Change Risk Profile of Ghana 2017, USAID,

https://www.climatelinks.org/sites/default/files/asset/document/2017_USAID_Climate%20Change%20Risk%20Profile%20-%20Ghana.pdf

³⁰ Climate Change Risk Profile of Ghana 2017, USAID,

https://www.climatelinks.org/sites/default/files/asset/document/2017_USAID_Climate%20Change%20Risk%20Profile%20-%20Ghana.pdf

³¹ The World Bank Group, World Bank, Ghana Country Environmental Analysis, (Washington DC: World Bank, 2020),

<https://documents.worldbank.org/en/publication/documents-reports/documentdetail/419871588578973802/ghana-country-environmental-analysis>

3.2 Environmentally Related Jobs in Ghana

An assessment of environmentally related jobs in Ghana reveal the following economic sectors and sub-sectors are highly connected to the environment based on their contribution to Greenhouse Gases (GHG), Employment and Gross Domestic Product as indicated in Table 1. The sector with the largest contribution of GHG is the Agriculture, Fisheries and Forestry sector (54.4%) and employs a relatively large number compared to other sectors. The next is the Energy Production and Distribution contributing 36% of GHG and followed by Transportation (17%) and Waste Management (7.5%). Evidently, the Ghana National Green Jobs Strategy identified five key sectors for the promotion of green jobs in Ghana: Agriculture, Fisheries and Forestry; Waste Management and Recycling; Construction and Infrastructure, Renewable Energy; and Eco-Tourism and Nature-based Tourism Sectors.

Table 1: Sector contribution to GDP, GHG and Employment

Sector	GDP%	GHG ³²	Employment ³³
Agriculture Fisheries and Forestry	20	54.4%	38.30%
Waste Management	0.5	7.5%	1%
Energy Production and Distribution	1.5	36%	0.3%
Construction	18.8	0.39%	3%
Manufacturing	11.7	0.62%	12%
Transportation	7.5	17%	2%
Tourism	6.2	Not Available	5.9% ³⁴
Mining and Quarrying	7.6	1.7%	1%

Source: Ghana Statistical Service, Integrated Business Establishment Report; National Employment Report; 2015 and Ghana's Fourth National Greenhouse Gas Inventory Report

3.3 Sectoral Overview of Waste Management and Recycling

According to the World Bank, Ghana generates 0.51 kg per capita of waste daily comprising plastic, metal, food and green, paper and cardboard, wood, glass and other waste materials.³⁵ Waste recycling in Ghana is rather low as more emphasis is placed on collection and disposal with the private sector being the dominant actor in waste collection and recycling in the country.³⁶ Though official information is not available industry players indicate that, currently, landfilling remains the most prevalent (between 70-80%) waste treatment and disposal method- often open and uncontrolled dumpsites- even though it poses serious threat to human health and the environment at large.

Waste treatment and recycling is undertaken by a few private sector entities with plastics being the most recycled waste. Ghana has about 25 recycling companies that process about 320 tons of plastic waste per day.³⁷ E-waste recycling is

³² Source: Ghana's Fourth National Greenhouse Gas Inventory Report

³³ Source: Ghana Statistical Service, Integrated Business Establishment Report; National Employment Report; 2015

³⁴ <http://documents1.worldbank.org/curated/en/161661531711822807/pdf/Ghana-Tourism-project-appraisal-document-pad-P164211-25Jun18-06252018.pdf> (Page 8; Footnote 5) Accessed 4/2/2021

³⁵ What a Waste 2.0 A Global Snapshot of Solid Waste Management to 2050

³⁶ Market Survey Waste and Circular Economy in Ghana- Netherlands Enterprise Agency

³⁷ Market Survey Waste and Circular Economy in Ghana- Netherlands Enterprise Agency

carried out by informal sector actors who process e-waste manually due to the lack of formal technically adequate e-waste processing facilities in the country. Meanwhile organic waste conversion to energy is yet to be fully explored in the country.

3.3.1 Regulatory Environment Waste Management and Recycling in Ghana

Ministry of Local Government and Rural Development (MLGRD), among other things is responsible for the formulation of policies on governance (including decentralization policies), rural/urban development and environmental sanitation. The Metropolitan/Municipal and District Assemblies (MMDAs) are ultimately responsible for the collection and final disposal of solid waste through their respective Waste Management Departments, but have partnered with private sector waste management companies.

The Ministry of Sanitation and Water Resources (MSWR) is responsible for formulating and implementing policies, plans and programmes for the provision of environmental sanitation facilities, effective and sustainable management of liquid and solid waste in the country.

The Ministry of Environment, Science, Technology, and Innovation (MESTI) is responsible for promoting sustainable environmental management and the adoption and application of science and technological innovations through the formulation of policies, monitoring and evaluation of the implementation of sector plans, programmes, and projects for national development.

The Environmental Protection Agency of Ghana is the leading public agency responsible for protecting and improving the environment in Ghana.

The regulations/policies governing waste management and recycling in Ghana include:

- Local Government Act 2016 (Act 936) which establishes the framework for decentralized administration including waste collection, disposal and management at the sub-national level.
- Environmental Protection Agency (EPA) 1994 Act 490: provides for the establishment of the EPA which will be responsible for standards, compliance and control of all environmental matters in the country.
- Renewable Energy Act 2011 (Act 832): provides for the development, management, utilization, sustainability and adequate supply of renewable energy for heat and power. The Act covers renewable energy sources from waste including landfill, biomass, bio-fuel and sewage gas.
- Hazardous and Electronic Waste Control and Management Act (2016) Act 917: provides for the control, management, and disposal of hazardous waste, electrical and electronic waste.
- Ghana Landfill Guidelines EPA, MESTI, MLGRD, (2002): Best Practice: the guidelines covers landfill classification, site identification, design, upgrading of existing dump sites operation and maintenance, closure, restoration and aftercare.
- National Environmental Sanitation Policy (ESP)- Revised 2010: provides a systematic approach and framework within which environmental sanitation challenges can be addressed. It covers Collection and sanitary disposal of wastes, including solid wastes, liquid wastes, excreta, industrial wastes, health care and other hazardous wastes; (b) Storm water drainage; (c) Cleansing of thoroughfares, markets and other public spaces; (d) Control of pests and vectors of disease; (e) Food hygiene; (f) Environmental sanitation education; (g) Inspection and enforcement of sanitary regulations; (h) Disposal of the dead; (i) Control of rearing and straying of animals; (j) Monitoring the observance of environmental standards.
- National Environmental Sanitation Strategy and Action Plan (NESSAP)-2010: The NESSAP provides measures and action plans to address the objectives of the ESP i.e. (i) Capacity Development (ii) Information, Education and Communication (iii) Legislation and Regulation (iv) Levels of Service (v) Sustainable Financing and Cost Recovery (vi) Research and Development and (vii) Monitoring and Evaluation.
- Ghana National Climate Change Policy: The National Climate Change Policy (NCCP)-2013 is Ghana's integrated response to climate change. It has been prepared and designed within the context of national sustainable development priorities; it provides a clearly defined pathway for dealing with the challenges of climate change within the current socio-economic context of Ghana, and looks ahead to the opportunities and benefits of a green economy.
- Oxo-biodegradable Directive for Plastics by MESTI: a directive issued by MESTI effective November 2015 to plastic manufacturers in Ghana to include an oxo-biodegradable component to allow for decomposition.

3.3.2 Key Constraints Affecting Green Jobs Creation in Waste Management and Recycling Sector

- a. **Inadequate Waste Management and Recycling Infrastructure:** Although there have been some investment in the waste management and recycling sector, the current infrastructure is inadequate to support the creation of green jobs using best technologies and practices. Current landfill sites have been decommissioned and proper disposal facilities are lacking in the country for some waste fractions such as e-waste which causes pollution of the environment. Ideally, there should be infrastructure such as e-waste recycling and composting plants at the district levels to absorb waste and help incorporate the youth and existing associations and informal sector actors in the sector to facilitate transition into green jobs. Government is unable to finance infrastructure for waste management which is key to the creation of jobs. Existing infrastructure in the country are private owned and inadequate. Meanwhile a national e-waste plant is yet to be set up although a legal framework (Hazardous and Electronic Waste Control and Management Act 2016 (Act 917)) was proposed in 2016 for its establishment. Also there are no strategic transfer stations in communities and cities where waste can be aggregated for collection, therefore waste management companies incur high transportation cost (which is one of the highest cost elements in the waste business) in collecting and disposing waste. Waste transportation equipment should therefore be subsidized to make the ecosystem more business friendly.
- b. **Lack of Investment Incentives:** There is currently a seven-year tax holiday for investors in the waste management and recycling sector, however, industry players want more specific and targeted incentives. For example industry players indicate that waste collection trucks (which can only be used for one purpose) attract the same import duties as other trucks and moreover the duties are paid on CIF Value instead of FOB. Players would have appreciated an import waiver on waste collection trucks and recycling equipment. Such Incentives to green businesses in the sector will intensify waste collection and recycling into raw materials for industry thereby reducing their negative impacts on the environment and contribute to a sustainable green economy. The lack of incentives for businesses in the sector coupled with high taxes (especially on the import of waste equipment) increases the cost of operations for the private sector.
- c. **Low technical capacity of actors:** the different kinds of waste generated in Ghana requires different skills set for collection, sorting, transportation and disposal. However, there is a general lack of such skills. There is a relatively high number of informal sector actors (collectors) that dominate the sector and therefore their activities are not guided by standard operating procedures. The informal sector actors who are mainly involved in the collection and disposal of waste need to be trained on the different types of waste, how to segregate waste and adopt best practices in their approach in order to add value to the waste they collect. To some extent, the private sector actors in the formal sector have provided some level of capacity building to a number of these informal sector actors who work with them but this needs to be scaled up to reach many more actors along the value chain. Also, there is the need for skills upgrade for formal sector actors in waste management and recycling as there are no training opportunities (in terms of schools and training institutions) to train people in the sector.
- d. **Poor capacities of MMDAs:** MMDAs responsible for managing waste collection, transportation, disposal and recycling do not have the requisite expertise to undertake their responsibilities. Each MMDA is expected to have contractual arrangements with private sector operators to undertake the waste management functions, however, MMDAs lack the technical and resource capacity to evaluate the performance of waste management companies (service providers). There are no Key Performance Indicators (KPIs) to measure the performance of service providers who do not have a Fee and Performance Based Solid Waste Collection Service Franchise Agreement with MMDAs. Also, MMDAs are under-resourced and are unable to satisfactorily fulfil their obligations under the franchise agreement. The capacity of some MMDA staff who undertake the assessment is weak leading to poor and substandard performance evaluation of service providers. These weak capacities affect performance and contractual obligations among parties thereby affecting payment for services rendered.
- e. **High Level of Informality:** players in the waste management sector, especially, the collection and transportation aspects are highly informal, without training, do not adhere to any work safety protocols and therefore put themselves and the general public in danger. In terms of numbers, actors in this segment have offered employment opportunities to a number of people including youth and women, however, it would help a lot if they were organized into cooperatives, with structured leadership, training and ensure strict adherence to health and safety protocols and trained in how to handle all manner of waste. Having them organized into cooperatives would enable access to resources including financing, better advocacy and training opportunities.
- f. **Lack of enforcement of bye-laws and existing regulations:** Although there are various policy, legal and regulatory frameworks in the waste management sector, enforcement have not been effective. The lack of enforcement of sanitation bye-laws and regulations at the community, area and district levels continues to promote bad sanitation

practices that pollute and degrade the environment. Social perception and practices towards waste management is not encouraging. Although this has improved over the years through the efforts of some private sector actors, strong public education is needed to drive behavioural change toward waste as well as make the sector a valuable and attractive business for the youth.

- g. **Inability to hit critical numbers and high-quality recycling needed for investment:** Waste recycling sector has failed to attract more investments because businesses do not have the capacity to both collect a critical mass of waste and recycle at the highest quality. The lack of general waste segregation at the point of collection is a major reason for this and also the sheer lack of volume. Available data indicates 61% of waste generated in Ghana are organic waste followed by plastics at 14%. The remaining are paper (5%), metals (3%), glass (3%), leather and rubber (1%), and textiles (2%).³⁸ Organic waste as well as other biodegradables (including paper) can be converted into organic compost for fertilizer. Plastics, textiles, glass, rubber could be recycled. Industry players however indicate that to have commercial level recycling will require higher volumes of waste for business to be profitable.
- h. **Low development and use of Compost:** There is a growing conversion of organic waste into compost for fertilizer. However, a number of challenges are affecting the large scale production and marketing of organic fertilizer:
 - i. **Government Fertilizer Subsidy Programme:** The Government of Ghana implements a Fertilizer Subsidy Programme (FSP) that provides 50% subsidy on fertilizer as well as other planting materials to farmers across the country. The objective of the FSP which started in 2008 is to promote fertilizer use to improve soil fertility in Ghana's agriculture. The FSP has contributed significantly to Ghana's use of fertilizer currently estimated to be around 50kg per hectare, higher than the Africa-wide average of 9kg per hectare. Available information indicates that most of the fertilizer supplied and used by the programme are inorganic. NPK, Urea and Ammonium Sulfate Fertilizers among others constituted 91.5% of inorganic fertilizer consumed in 2017 compared with 9% for organic fertilizer.³⁹ Between 2013 and 2017 organic fertilizer consumed in Ghana averaged 4.5%. The FSP therefore seems to encourage the use of more chemical fertilizers (which is relatively cheaper compared to compost) but does not promote the creation of a green economy.
 - ii. **Lack of specification and standardization for compost production:** Unlike inorganic fertilizer, which has an elaborate importation and marketing system as well as standards specifications and certifications, there are no standards and specifications in Ghana for the production of compost. Therefore, the quality of compost in the country cannot be guaranteed and producers adopt their own standards for production. The lack of standards contributes to the poor and unpredictable quality of compost, discouraging end-users from continuing compost use.
 - iii. **Cost of Compost:** Organic fertilizer costs are relatively higher compared to inorganic fertilizers-which again are more available and subsidized by governments. As many farmers (often smallholder farmers cultivating on less than 2 ha) are price sensitive, they often choose inorganic fertilizer.
- i. **Poor coordination between regulatory agencies:** The waste management and recycling sector has a number of regulatory agencies requiring better inter-agency coordination. The multiplicity of ministries, departments and agencies adds to the bureaucracy, overlaps, duplication of efforts and lack of clarity in the roles and responsibilities especially of private sector actors in the sector. Moreover, the effect is that private sector actors will have to deal with several agencies at a time and in some instances may not receive the needed attention due to lack of clarity on whose role it is. While the Local Government Ministry through the MMDAs is responsible for waste management, regulatory authority for waste is vested in the Environmental Protection Agency an agency under the MESTI. For example, the Hydrological Services Department of the Ministry of Works and Housing which is responsible for coastal protection works, construction and maintenance of storm drains countrywide and the monitoring and evaluation of surface water bodies in respect of floods overlaps with the Water Resources Commission which is responsible for the regulation and sustainable management and utilization of water resources.

Multiple Licensing Requirements: There are also multiple licensing requirements for waste management and recycling companies. These include permits from the Environmental Protection Agency after an environmental impact assessment; permit from the Ghana National Fire Service-for premises; in addition to operating permits from the

³⁸ Municipal solid waste characterization and quantification as a measure towards effective waste management in Ghana Waste Management Volume 46, December 2015, Pages 15-27

³⁹ Feed the Future, Ghana Fertilizer Value Chain Optimization Study, Revised August 2019, page 15

district, municipal or metropolitan area of operation.

3.3.3 Recommendations for Promoting Green Jobs in Waste Management and Recycling Sector

- **Improve Decentralized Level Waste Management and Recycling Infrastructure and Capacities:** since waste management is principally handled by the MMDAs, there is the need to improve the infrastructure for waste management and recycling at the MMDA level. Waste Aggregation Centers, separate Disposal locations for solid and liquid waste and waste recycling centers are some of the critical waste management infrastructure required at the MMDA level. The provision of waste management infrastructure could be under public private partnership (PPP) or the provision of attractive incentives for the private sector to invest. The capacity of the MMDA (Waste Management Departments) should also be developed to improve the management of contracts and ensure performance by private sector waste management companies. This effort must be led by the Ministry of Local Government and Rural Development.
- **Promote Domestic Production and Use of Compost in Ghana especially through the Fertilizer Subsidy Programme and the Planting for Food and Jobs Initiative:** As majority of the waste generated in Ghana is organic in nature, there should be a deliberate government policy and initiative to ensure recycling of the waste into compost for agricultural production. In doing so, MMDAs will reduce the need for land fill sites and other environmentally unfriendly forms of waste disposal. The use of organic fertilizer must become a major part of Ghana's efforts to greening and promoting agricultural development and hence organic fertilizer must be included in the Fertilizer Subsidy Programme and the Planting for Food and Jobs Initiative. This will require the government through the Ministry of Food and Agriculture and the Ghana Standards Authority to develop and promote standards for compost and ensure that compost producers comply with these standards. It will also be necessary to provide investment incentives.
- **Improve incentive regime for private sector investment in waste collection and recycling equipment:** There is the need for improvement in the incentive regime (taxes) for investors in the waste management and recycling regime. Reducing import tariffs on waste equipment and further reducing locational taxes at the MMDA level for waste recycling companies would provide improved enabling framework. This must be the responsibility of the Ministry of Finance, Ghana Investment Promotion Center and the MMDAs.
- **Facilitate Organization, Formalization and Capacity building of Waste Collectors and Players:** the high levels of informality among waste management actors must be addressed. The Department of Cooperatives under the Ministry of Employment and Labour Relations could spearhead this initiative with formalized private sector firms who work with many informal actors in the waste collection segment. The organization and formalization of these actors will contribute to improve their working conditions, health and safety and the further promotion of greening the waste management sector.
- **Streamline the Roles and Responsibilities of Regulatory Agencies:** there is the need to streamline the roles and responsibilities of the regulators and policy making institutions such as MESTI, MWH, MSWR, EPA and MMDAs. While streamlining, it will also be necessary to improve the collaboration among these institutions to improve the private sector participation in the waste management and recycling sector.

3.4 Overview of Agriculture, Fisheries and Forestry Sector

Agriculture is the main driving force behind Ghana's economy. The country has a total agricultural land area of 13,600,000 hectares⁴⁰ and employs 44.7% of the labour force.⁴¹ The agriculture sector is divided into four sub-sectors- crops, livestock, forestry and logging, and fishing.

The crops sub-sector comprises the cultivation of staples (including cereals, fruits and vegetables) and processing and marketing of such produce in local and domestic markets. Cocoa production is a major component of Ghana's crops sub-sector. The crops-sector constitutes about 65% of the Agricultural sector GDP. The agriculture sector in Ghana is largely informal comprising predominately of smallholder farmers (80%) using traditional and rain-fed methods of production. Due to this, the country continues to depend heavily on imports to augment domestic production. Livestock sector constitutes

⁴⁰ Ghana has a total land area of 23,884,245 hectares

⁴¹ Agric in Ghana Facts and Figures 2016.

9% of the sector's GDP.

The Forestry and Logging sub-sector employs an estimated 2 million people, however continuous pressures such as deforestation and traditional farming practices has put Ghana among the tropical countries with the fastest rate of loss of forest cover. The fisheries sub-sector contributes about 4.5% to GDP and employs an estimated 10% of the Ghanaian population. The sub-sector has begun witnessing decline in fisheries stock which threatens to affect livelihoods of the many employed as well as the nutritional contribution of the sector.

3.4.1 Regulatory Environment for Agriculture, Fisheries and Forestry Sector

The main Ministry overseeing the agriculture sector in Ghana is the Ministry of Food and Agriculture (MoFA) responsible for developing and executing policies and strategies for the agriculture sector within the context of a coordinated national socio-economic growth and development agenda. Ghana Cocoa Board (Cocobod) facilitates the production, processing and marketing of cocoa, coffee and shea nut. The agricultural sector is governed by a number of policies and programmes such as the Food and Agriculture Sector Development Policy (FASDEP II) which emphasizes the sustainable utilization of all resources and commercialization of activities in the sector with market-driven perspective. The One District One Factory (1D1F) Initiative aims to promote district level industrialization through the establishment of factories utilizing the natural resource base of the district. The Planting for Food and Jobs Programme aims to boost and modernize agricultural production in Ghana through the provision of subsidized inputs and extension as well as linkages to markets.

The Ministry of Fisheries and Aquaculture Development (MOFAD) is responsible for promoting accelerated fisheries sector development as a viable economic segment that will contribute to the overall development of Ghana in line with medium to long-term National Development Policy Frameworks. The Fisheries sector is regulated by the Fisheries Amendment Act 2014 (Act 880) which provides for the regulation and management of fisheries and development of the fishing industry and the sustainable exploitation of fishery resources as well as Ghana's international obligations on conservation and management of fisheries resources. The main policy document driving the sector is the National Policy for the Management of Marine Fisheries Sector (2015-2019) to halt the decline in the country's fisheries resources. The Fisheries Commission established by the Fisheries Act 2002 (Act 625) is to regulate and manage the utilization of the fishery resources of Ghana and co-ordinate the policies in relation to them.

The Forestry Sector regulatory functions fall with the Ministry of Lands and Natural Resources which is responsible for policy direction and monitoring of programmes to ensure the sustainable management and utilization of the nation's lands, forests and wildlife resources as well as the efficient management of the mineral resources for socio-economic growth and development. In addition, the Forestry Commission (FC) is tasked with implementing policies to regulate the management and utilization of forest and wildlife resources. Forestry protection and development laws in Ghana includes the Forest and Plantation Development Fund Act 2000 (Act 583) which establishes a fund for the development of private forest plantations on lands suitable for commercial timber production and the Timber Resources Management Act 2002 (Act 617) to grant timber rights and provides incentives for investment in forestry and wildlife enterprise.

3.4.2 Key Constraints Affecting Green Jobs Creation in Agriculture, Forestry and Fisheries Sector

- a. **Land Availability:** Ghana has over 13million hectares of agricultural land available, however, land tenure and ownership is a major challenge. First land ownership varies across all the regions of the country. Land ownership in Ghana often comprises state land vest in the government, customary land in clans, extended families and customary authorities (known as stools or skins) and individual/private land in individuals or private entities. Each of these land ownership types has implications for accessibility, use and tenure especially for women and youth. While state lands are managed on behalf of the Government by the Lands Commission, through which access may be obtained, stool/skin lands are accessible through family heads who are custodians on behalf of their stools. In terms of tenure, land may be available as leasehold and or freehold.
- b. **Non-enforcement of land use policies and environmental protection laws:** Ghana has not developed and enforced a comprehensive land use policy that allows land to be identified and used for specific purposes including residential, commercial and agricultural use. Currently, most agricultural lands are competing with other land use needs. Moreover, emerging environmental challenges such as illegal mining is destroying agricultural lands and forest reserves.
- c. **Low Capacity of Actors in Green Agriculture:** there have been efforts to promote good agronomic practices (GAPs) among farmers and efficient/ good manufacturing practices (GMP) among processors along the agricultural value chain. However, green/sustainable agriculture requires capacity of farmers to be developed also. To many actors, green agriculture seems to be a new approach to their traditional or newly acquired training

in GAPs. For example Greenhouse Farming, Aquaponics, Solar Irrigation Technologies, Climate Smart Agriculture among others require training that are not readily available to many actors in the agricultural sector.

- d. **Access and use of appropriate equipment and technology:** Access to agricultural equipment and technology is challenging for the majority of stakeholders in the sector. Conservation agriculture, or organic farming for instance require the use of equipment that promotes minimum soil disturbance, maintains soil cover, and enhance biodiversity and natural biological processes. There are emerging technologies such as solar powered irrigation systems that are difficult to obtain due to lack of funding and availability to farmers. In the absence of these technologies, stakeholders resort to the use of available technologies that do not ensure environmental sustainability. In addition, although mechanization services centers exist and some farmers are able to access equipment through the intervention of government and other stakeholders, proper training is required to ensure appropriate usage of equipment to promote green agriculture.
- e. **Access to finance for Agriculture:** Finance from the Banking sector to the Agricultural Sector is estimated to be around 5% for a sector that employs majority of Ghanaians. Besides, the unavailability of technologies access to finance is a major challenge in the agricultural sector because it is perceived to be a high risk sector. The high interest rates and collateral required by financial institutions is a threat to the establishment of green startups and the expansion of already existing agricultural enterprises that may want to adopt green practices. The majority of agricultural sector actors (eg. smallholder farmers) continue to rely on traditional methods and the use of crude implements for production due to the cost involved in adopting new technologies. Also, access to funding is a major challenge to agriculture growth and development in Ghana.
- f. **Lack of comprehensive policies promoting green agricultural:** There are a number of initiatives that encourages sustainable agricultural production in Ghana. Ghana has developed a National Climate Smart Agriculture and Food Security Action Plan (2016-2020) which provides an implementation framework for an effective development of climate-smart agriculture in Ghana. In spite of these policies, there are no comprehensive policies that direct the initiatives of government agencies, private sector and donors towards sustainable agriculture. For instance, the Food Research Institute of the CSIR encourages snail farming, bee keeping and mushroom farming among others but there is no comprehensive green policy guiding these initiatives.
- g. **Non-availability and high cost of inputs for green agriculture:** The majority of stakeholders continue to resort to conventional brown inputs and brown means of production due to the high cost of green inputs and green production. Brown inputs (eg. chemical fertilizers) are readily available and are relatively cheaper and less quantities are required to achieve higher yields. On the other hand, green inputs (eg. organic fertilizers) are scarce, costly and requires more quantities to achieve higher crop yields. This increases the cost of green production which translates to higher product price making organic products uncompetitive in the market. In addition, sustainability of organic farming is challenging because after sometime, the productivity level of the soil reduces. There are few green input producers in the country who are not able to produce on a large scale to meet market demand. This creates scarcity and high cost of green inputs. Also there is a wrong perception that green related agricultural activities produce relatively low yields compared to other production methods. For instance, the use of chemical fertilizers for crop production gives a much higher yield compared to the use of the same quantity of organic fertilizers.
- h. **Nascent Market for Green/Sustainable Agricultural Production:** Even though there is growing health consciousness among Ghanaians especially the middle class, there is a relatively small market for agricultural products produced organically or in an environmental friendly manner. Moreover, consumers are not willing to pay a market premium for environmentally produced goods, often due to the lack of awareness of the health benefits and how their patronage contributes to environmental sustainability. This indirectly affects the willingness of operators in the sector to invest in greening the agricultural value chains.
- i. **Highly Informal Organization of Agricultural Operators: Poor working conditions:** Workers in the informal agricultural sector do not have access to good working conditions as well as safety and personal protective equipment. And this goes against the idea of green jobs.

3.4.3 Recommendations for Promoting Green Jobs in Agriculture, Fisheries and Forestry

- **Develop Comprehensive Government Policy on Climate-Smart Agriculture:** A comprehensive policy direction is needed on Climate-Smart Agriculture that takes into consideration food security, environmental quality and protection, sustainable use of renewable and non-renewable resources and enhances quality of life for farmers and society is needed. Currently a diversity of policies and initiatives are promoting climate-smart agriculture, but not in a holistic or complementary way. The policy must underlie all government projects and initiatives as well as the investment of the private sector and support of development partners in agricultural modernization.
- **Build Capacity of on Greening Agriculture among actors:** actors in agricultural production and other segments need capacity development on greening the agricultural sector. Capacities are needed in climate smart agriculture which focuses on sustainably improving agricultural productivity (benefiting farmers' incomes and food security) while reducing greenhouse gas emissions and adapting and building resilience of agricultural production systems. Also no-till agriculture, use of solar irrigation, solar dryers and general good agronomic practices will go a long way to support the greening of the agricultural sector. There is the need to promote the organization and formalization of Farmer Based Organization and Commodity Marketing Organizations to enhance capacity building. Capacities of District-based Agricultural Departments and Extension Agents should be built on sustainable agriculture and should be adequately resourced to operate and enhance the capacities of farmers in sustainable agriculture.
- **Promote use of Organic Fertilizer:** as already indicated under the recommendations of the waste management section, equal attention must be given to the promotion of standardized and certified organic fertilizer from locally made organic waste recycled into compost in the agricultural sector. Promotion of Organic Fertilizer from locally generated organic waste converted into compost into Ghana's agricultural development programmes will create jobs and protect value chain actors including consumers.
- **Promote Availability and Accessibility to Green Technologies:** government has been keen in promoting mechanization of the agricultural sector. This initiative must make deliberate efforts to provide and make available technologies that have minimal environmental impact. Solar powered irrigation systems, solar dryers and threshers as well as greenhouse production systems are often not available and where they are available are expensive to acquire and operate. Alongside government subsidies and mechanization initiatives, the government could provide the equipment listed on loan to farmers and actors who can demonstrate interest and commitment in going green. This could serve a demonstration effect for other farmers to follow.

3.5 Overview of Renewable Energy Sector

According to the Ministry of Energy, renewable energy currently contributes 1% to the Ghana's energy mix.⁴² This is because although Ghana is well endowed with renewable energy resources (such as biomass, hydropower and wind potentials as well as solar irradiation)⁴³ these resources are yet to be fully exploited. The main renewable energy resources that have to some extent been explored in the country include Bio Energy (Biomass including waste-to-energy and Bio fuel), Tidal and Wave power, Solar Energy (Photo-Voltaic and Thermal), Wind Power, and Hydropower (small and large).⁴⁴ The government has indicated the desire to increase the share of renewable energy to 10% of the country's energy mix by 2020. However, this is yet to be achieved.

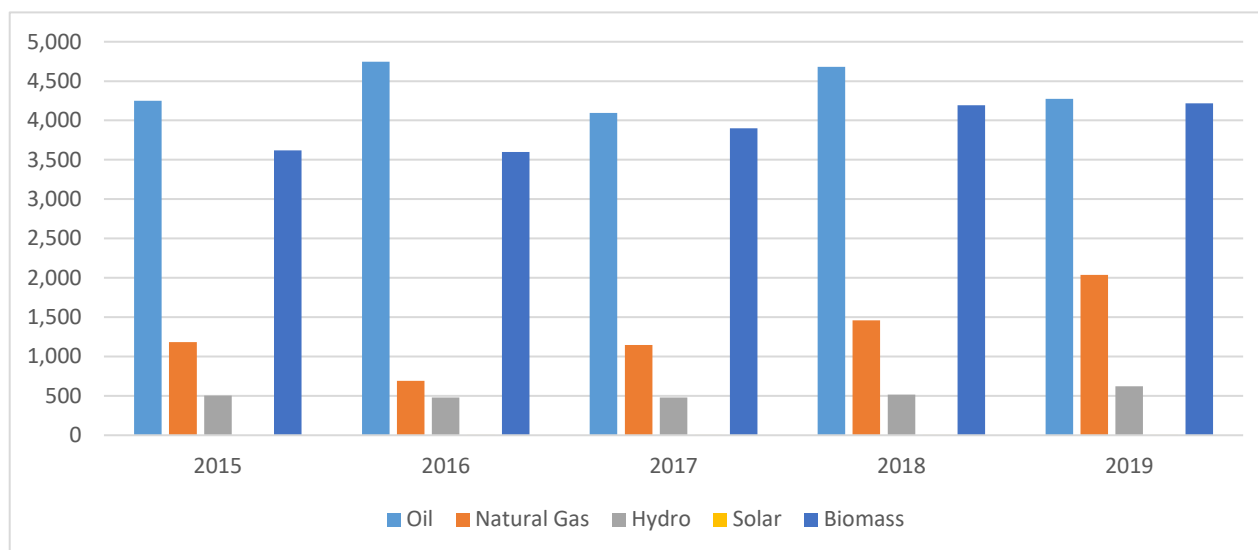
From 2015 to 2019, total primary energy supplied increased with oil being the dominant primary energy supplied in the country, followed by biomass. The total primary energy supplied in Ghana was 11,149 Ktoe in 2019 and oil, biomass and natural gas constituted 38.3%, 37.8% and 18.2% respectively.

⁴² Ministry of Energy, Overview of Renewable Energy Sector, <https://www.energymin.gov.gh/sector-overview>

⁴³ Ministry of Energy, Overview of Renewable Energy Sector: <https://www.energymin.gov.gh/sector-overview#:~:text=Ghana%20is%20well%20endowed%20with,in%20the%20mix%20by%202020.>

⁴⁴ SNV Sector Report on Business Opportunities for Renewable Energy in Ghana 2016

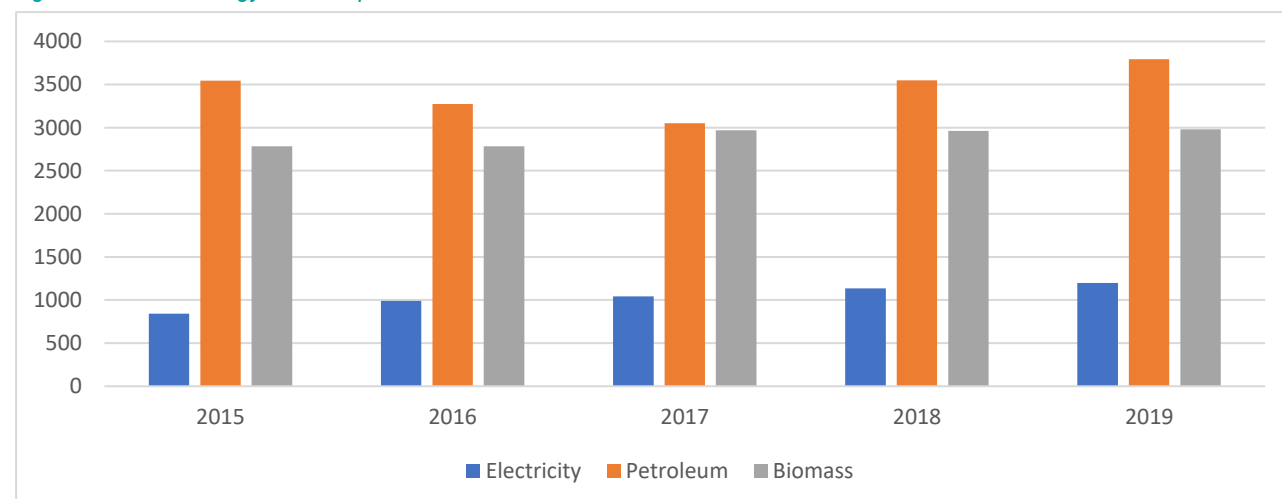
Figure 9: Primary Energy Supply



Source: National Energy Statistics 2000 - 2019

In terms of consumption, three main sources stand out: electricity, petroleum and biomass. Petroleum products (including gasoline, diesel, LPG and jet fuel) are the most widely consumed energy from 2015 to 2019. This is followed by biomass (in the form of firewood, charcoal and agricultural residue) and electricity. Total energy consumed in 2019 was 7,974.5 Ktoe of which petroleum constituted 47.6%; biomass, 37.4%; and electricity 15%. Ghana's current total installed capacity is 4,695 MW. It comprises hydro (1,580MW), thermal (3,549MW) and Renewable (42.6MW).⁴⁵

Figure 10: Final Energy Consumption



Source: National Energy Statistics 2000 - 2019

3.5.1 Regulatory Environment for Renewable Energy Sector

The Renewable Energy (RE) sector is regulated by the Renewable Energy Act 2011 (Act 832). The Ministry of Energy is the policy making body for Renewable Energy in Ghana. The primary role of the Ministry is to ensure policy development, coordination and implementation as well as supervision of operations and activities of sector institutions in the country.

The Energy Commission is required by law to regulate and manage the development and utilization of energy resources in Ghana as well as to provide the legal, regulatory and supervisory framework for all providers of energy in the country, specifically by granting licenses for the transmission, wholesale, supply, distribution and sale of electricity and natural gas and related matters. The Energy Commission also serves as the Government's energy policy adviser and provides national

⁴⁵ National Energy Statistics, Energy Commission of Ghana, <http://www.energycom.gov.gh/files/ENERGY%20STATISTICS-2020.pdf>

energy policy recommendations to the Minister of Energy.

According to the Renewable Energy Act, the Public Utilities Regulatory Commission (PURC) is mandated to approve rates chargeable for the purchase of electricity from RE by public utilities, charges for grid connection, and rates chargeable for wheeling electricity from Renewable Energy.

Ghana through the Energy Commission and the Ministry of Energy have developed the Renewable Energy Masterplan which aims to provide investment-focused framework for the promotion and development of the country's rich renewable energy resources for sustainable economic growth, contribute to improved social life and reduce adverse climate change effects. The plan is expected to create 220,000 jobs, lead to an installed electricity capacity of 1363.63 MW (with grid connected systems totalling 1094.63 MW), and carbon savings of about 11 million tonnes of CO₂ by 2030.⁴⁶

3.5.3 Key Constraints in Creating Green Jobs the Renewable Energy Sector

- a. **Poor institutional Collaboration and Coordination:** There is poor coordination and collaboration between regulatory institutions in the energy sector. A number of regulatory institutions are involved in granting permits and licenses for renewable energy projects. The duplicative roles of these institutions and the poor collaboration between them make the entire process cumbersome and time consuming for the private sector. For instance, the Energy Commission, Forestry Commission, the Environmental Protection Agency (EPA) and the Lands Commission among others are among the number of regulatory agencies that an investor has to engage in order to site a large scale renewable project.
- b. **Inadequate local skills and expertise for some technologies:** Local expertise and skills are not available to manufacture and install sophisticated technologies required in the sector (e.g. solar battery systems and panels, wind turbines and interactive mini-grids). These technologies and skills are imported. Besides, local firms cannot manufacture basic products (e.g. improved cook stoves) on a very large scale.
- c. **High upfront cost of renewable energy technologies and products:** Renewable energy technologies, because they are usually imported, are expensive making the initial operating cost in renewable energy very high for businesses. Similarly, renewable energy products for the domestic market (such as solar panels) are expensive for end-users though its long term economic benefits are enormous. This initial high cost does not incentivize people to use renewable energy technologies and products.
- d. **Low levels of technology transfer:** Renewable energy technology transfer in Ghana is low due to high initial costs, low level of expertise, underdeveloped supply chain for other renewable energy products apart from solar, and relatively small market (in terms off-takers) for some renewable energy technologies (such as wind). In fact, successful renewable energy technology transfers in Ghana have been dependent on external support from donors.
- e. **Unattractive taxation systems for technologies:** Taxes on the importation of renewable energy technologies add up to the cost of operation of companies in the sector. Previously, there was no Value Added Tax on the import of a complete solar system and this attracted investment into the sector. Currently, the tax on imported solar systems adds to the cost of operation of producers which translates to high cost of products to end-users.
- f. **Lack of financing schemes:** There are no financing schemes to support renewable energy technology providers and end-users to adopt green renewable technologies in view of the high cost of renewable energy technologies and products. A financing scheme from government and financial institution that supports businesses to produce green renewable energy products as well as subsidizes the products for consumers will increase demand for green renewable energy technologies. Some renewable energy projects such as wind and solar are very expensive and local financial institutions may not be willing to support them.
- g. **Difficulty in accessing funding by SMEs in the Renewable Energy Sector:** Many SMEs in the country are unable to access funding for their operations either because they lack the capacity to write the right proposals or are unable to meet the demands and requirements of financial institutions. On the other hand, there are not many financial institutions who understand the RE sector or are innovative enough to come with tailored financial products for the sector.
- h. **Low incentives for private sector to invest in renewable energy projects:** The regulatory environment does

⁴⁶ Ghana Renewable Energy Master Plan, Ministry of Energy, <http://www.energycom.gov.gh/files/Renewable-Energy-Masterplan-February-2019.pdf>

not offer enough incentives to attract investment in renewable energy.

- i. **Relatively small market opportunities for renewable energy technologies:** There is small market for renewable technologies in Ghana. For some technologies such as improved cook stoves and solar PVs, there is appetite, however, their cost is affecting consumers' willingness to buy.
- j. **Lack of clear quality control systems and standards for the installation of renewable products:** There are no standards for the installation, operation and maintenance of renewable energy technologies in the country. In addition, there are no certifications for solar PV installations, clean cook stoves, and bio-digester installations. This has led to poor installations and operations of renewable energy products. However, the Ghana Standards Authority is in the process of developing these standards.
- k. **High preference for solar over other renewable energy sources:** There seems to be a preference for the development of solar energy to other renewable energy sources in Ghana. This is because the government considers the generation mix to determine which source of generation is available, safe, affordable and economical. The development of a particular energy source by stakeholders is determined by the availability of resources, availability of technology, availability of knowledge and skills incentives from the government.
- l. **Cumbersome and restrictive licensing and certification procedures:** The certification and licensing procedure for businesses is very restrictive because there are different regulators in the sector. For instance, the fees involved in acquiring permits to produce charcoal for export is high, and the process is cumbersome leading to delays in permit acquisition. In worse cases some exporters miss the vessels that are to transport their products and have to restart the certification process all over.
- m. **Non-enforcement of policies and regulations:** The non-enforcement of current policies in the sector does not encourage the private sector. The Net Metering Sub Code, a billing related mechanism designed to encourage electricity consumers to supplement their purchase of electricity with grid-connected renewable energy self-generation, was introduced to attract consumers especially the commercial and industrial players. This policy is however not operational.
- n. **Lack of a dedicated investment agency:** The renewable energy sector lacks a dedicated agency that exclusively promotes investment in renewable energy. Currently, the Ghana Investment Promotion Center (GIPC) is the main agency in the country that facilitates investment promotion in all sectors of the economy including the renewable energy sector.
- o. **Low Private sector involvement in the management of mini-grids:** Private sector involvement in the management of mini-grids is low because they are mainly owned and managed by the government. This is because of government objective of subsidizing the cost of utilities in rural areas. On the contrary, if entirely responsible for managing mini-grids, the private sector will increase the cost of utilities for rural areas (who may not be able to afford) in an attempt to maximize profit.

3.5.3 Recommendations on Promoting Green Jobs in the Renewable Energy Sector

- **Establish Renewable Energy Authority and Operationalize the Renewable Energy Fund:** The Renewable Energy Authority will be a dedicated institution for the development of renewable energy projects resourced by the Renewable Energy Fund which was established to provide incentives for the promotion, development and utilization of renewable energy resources.
- **Promote Local Production/Assembling of Renewable Energy Equipment:** the production/assembling of renewable energy equipment could contribute significantly to green jobs in Ghana. The manufacture or assembly of solar panels, batteries, fuel efficient cook stoves etc will boost green jobs creation in Ghana. Currently most of the renewable energy components are imported and are subject to exchange rate appreciations, import tariffs and other domestic taxes.
- **Promote Skills Training on Renewable Energy Technologies:** the dearth of skills in the RE sector needs addressing through extensive training at the secondary and technical level. The promotion of Technical and Vocational Education on RE is very critical to promoting green jobs in Ghana especially in the RE Sector. Also other related jobs/services in the sector such as Energy Auditing, Energy Performance Contractors should be promoted.
- **Streamline Licensing and Incentives for Renewable Energy Investments:** There is the need to streamline licensing and improve incentives for renewable energy sector actors. Though RE licensing is primarily with the

Energy Commission, agencies such as the Public Utilities and Regulatory Commission and Environmental Protection Agency play roles in the licensing process. Simplification and harmonization of processes among these organizations will reduce the cost and time for obtaining licenses. For RE projects located outside of the national and regional capitals, processes can be streamlined to enhance and reduce sunk costs in acquiring licenses. Similarly, licensing and permits at the decentralized level (MMDAs) must also be streamlined to be cost effective and not serve as a disincentive to investors as many RE projects come with relatively high sunk costs in exploration, siting, testing and licensing.

- **Facilitate Access to Finance for Renewable Energy Sector Players:** existing financial instruments from the financial sector are not tailored to meet the needs of SMEs in the RE Sector. Financial institutions must be identified and made aware of the investment opportunities in the renewable energy support as well as supported to be able to develop products for RE SMEs. Additionally, such financial institutions could also be supported through technical assistance in product development to develop specific financial products for RE consumers to bridge the demand and supply for RE products and services.

3.6 Overview of Construction and Infrastructure Sector

Ghana has a vibrant construction sector that employs about 320,000 people⁴⁷ and has been estimated to create about 1 million jobs in the next 10 years. The construction sector can be categorized into the following sub-sectors: building construction (residential and non-residential buildings), infrastructure development, (heavy civil or heavy engineering includes bridges, dams, roads and highways, boreholes, water and utility distribution) and industrial construction (includes refineries, process chemicals, power generation plants, and manufacturing plants). Ghana's construction sector is dominated by the private sector with local firms (in the formal and informal sectors) dominating the building construction sub-sector while international companies deal mainly with larger infrastructural projects. The informal sector is however made up of homeowners and individual small scale contractors usually involved in building residential properties. It is estimated that the informal sector accounts for about 90% of the country's urban housing stock.⁴⁸

3.6.1 Regulatory Environment for Construction and Infrastructure Sector

The Ministry of Roads and Highways (MRH) regulates construction activities related to roads. The Ministry of Works and Housing (MWH) is the government agency responsible for formulating policies and programmes for the Housing and Works sub-sectors of the economy.

The Environmental Protection Agency (EPA) mandates every developer to undertake environmental impact assessment for large, medium and small scale projects including road construction and building and real estate development before issuing out environmental permits. The Ministry of Railways Development oversees Ghana's rail sector.

The Ministry of Sanitation and Water Resources (MSWR), is a ministry in the Infrastructure Sector responsible for formulating and implementing policies, plans and programmes for the sustainable management of water resources, the provision of safe, adequate and affordable water; provision of environmental sanitation facilities, effective and sustainable management of liquid and solid waste in the country.

The Local Government Act 2016 mandates the District Planning Authorities in the various Metropolitan, Municipal and District Assemblies (MMDAs) to issue building permits to contractors before they undertake building or other infrastructural projects.

There are existing regulatory frameworks, standards and certifications that support green projects in the construction sector. They include the Ghana Building Code, Public Procurement Act that ensures sustainable public procurement of goods, works and services, the Environmental Impact Assessment Regulation, the Green Building Certification System as well as IFC's EDGE (Excellence in Design for Greater Efficiencies) Certification.

There are a number of experts, professional bodies and business associations in the sector that are already knowledgeable in green technologies and can easily facilitate the transition to a green construction sector. The professional bodies include the Ghana Institution of Surveyors, Ghana Institute of Architects, Ghana Institution of Engineering and the Ghana Institute of Foresters. The business associations also include the Ghana Real Estate Developers Association (GREDA), Association of Building and Civil Engineering Contractors of Ghana (ABCECG), Association of Road Contractors of Ghana

⁴⁷ <https://oxfordbusinessgroup.com/overview/forward-momentum-construction-sector-continues-be-major-engine-growth>

⁴⁸ <https://www.odi.org/sites/odi.org.uk/files/resource-documents/10787.pdf>

(ASROC), Progressive Road Contractors Association (PROCA), and the Ghana Chamber of Construction Industries among others.

There are a number of institutions that regulate the construction sector and facilitate greening of the sector. They include the Ministry of Works and Housing, the Ministry of Roads and Highways, Ministry of Local Government and Rural Development (MLGRD), Ghana Green Building Council, MMDAs, EPA, Ministry of Energy, Ministry of Environment, Science, Technology and Innovation (MESTI), Architects Registration Council of Ghana and the Engineering Council.

Challenges in the construction sector include access to land, unfavourable foreign exchange rates, issues of land tenure, high interest rates, the rising costs of utilities and building materials and inadequate machinery. The construction industry is also one of Ghana's most hazardous industries in terms of accidents and fatalities⁴⁹ and this in part is due to the lack of training of artisans in occupational health and safety and lack of capacity to implement sustainable practices. Construction related hazards include soil and ground contamination, underground water contamination, construction and demolition waste, noise and vibration, dust, hazardous emissions and odours as well as negative impacts on wildlife and natural features.

3.6.2 Key Factors Affecting the Creation of Green Jobs in Construction and Infrastructure Sector

- a. **Low levels of locally manufactured construction materials:** Greening the construction sector will require the use of local materials and technologies adapted to local contexts, however, industry players estimated that about 80% of materials used in the construction sector in the country is imported. With the import of construction materials also comes the use of imported technologies, some of which the skills required do not exist locally or has to be imported. For example the use of clay bricks (locally produced) is deemed safe for the environment, however, clay bricks and brick layers are difficult to access; many construction projects use cement blocks which are relatively less environmentally friendly, however block layers abound.
- b. **Lack of long-term financing for Construction/Infrastructure Projects:** The absence of long-term financing for the construction sector is a challenge affecting greening of the construction sector. Developing green products in construction require long term financing. However, most of the banks in the country are retail banks and there are very few development banks that are willing to support long term financing in the construction sector.
- c. **Low Green Construction/Infrastructure Skills Gap:** In the construction sector in Ghana capacity and expertise in green construction/infrastructure is very limited. There are a few architectural firms, architects and contractors who are trained and understand the need to design and build infrastructure that takes into consideration the environmental impact, energy use and efficiency and recycling of building waste materials. Industry players are not aware of the emergence of green building codes and others such as EDGE introduced by the IFC. This situation coupled with low membership of professional building and construction associations makes it more challenging to disseminate and build capacity of sector players on such trends.
- d. **Perceived High Cost of Green Construction Projects:** The market (end-users) perceive green construction projects to be expensive without taking into account the long-term benefits (low maintenance and running costs) and therefore opt for conventional construction. As a result, contractors are forced to produce what is demanded by the market in order to stay competitive in the industry. On the other hand the general public is not well informed on the benefits of green projects/products and may not easily procure green technologies in construction. Currently, the designs demanded by clients (owners and financiers of residential, commercial and industrial properties), in the various sectors of the economy consume more energy; and service providers (architects and contractors) are unable to convince these clients to go green. It is therefore necessary for the government to embark on massive public education on green construction to sensitize clients on the benefits as well.

3.6.3 Recommendations on Promoting Green Jobs in the Construction and Infrastructure Sector

- **Promotion of Green Construction through Government Projects:** the government of Ghana is the largest player in the construction and infrastructure sector and could use this position to promote green construction. The government procures through public works many infrastructure/capital projects and with such purchasing power can influence/incentivize industry players to go green. The government could promote the use of a substantial quantity of locally produced raw materials and labour in the construction sector. The government for example intends to construct 88 regional and district hospitals across the country to boost Ghana's health infrastructure; greening such a project will promote green jobs and the use of green technologies in the

⁴⁹ <https://www.odi.org/sites/odi.org.uk/files/resource-documents/10787.pdf>

construction and running of these hospitals.

- **Training and Capacity Building on Green Construction for Sector Players:** training of industry players of all categories (architects, draughtsmen, masons, quantity surveyors, engineers, contractors, project managers etc) on green building and infrastructure will go a long way. The Works Departments of MMDAs and District Level Engineers who supervise and certify construction works need capacity building on green construction.
- **Promotion of Green Certification for Construction Stakeholders:** developing and standardizing both local and international green certification for professionals and artisans in the construction sector as well as the projects undertaken can contribute to creating green jobs in the sector.
- **Facilitation of Access to Financing For Green Projects:** long term finance sources need to be developed and tapped into for the construction sector especially green projects. The Ghana Infrastructure Investment Fund is a laudable initiative, however, long-term funding (7 to 15 years) for the private sector would go a long way.
- **Development and Promotion of a Green Building Code:** the government and private sector stakeholders in the sector can develop and promote a Green Building Code as a voluntary standard that could create awareness and moral suasion for the adoption of green inputs and processes in the sector. The Ghana Green Building Council which has already been established, could be a starting point for initiating and promoting this code.

3.7 Eco-Tourism and Nature-Based Tourism

Ghana's tourism industry is a major source of foreign exchange and employment creation and contributes significantly to the conservation of biodiversity. The tourism sector is the fourth-highest foreign currency earner behind gold, cocoa and remittances and creates an estimated 682,000 jobs⁵⁰. These notwithstanding, the sector has significant potential and a range of facilities and tours at some of the main parks and reserves such as the Mole National Park, Kakum National Park, the Ankasa Conservation Area and Shai Hills Resource Reserve⁵¹. Ghana has also developed community-based ecotourism that ensures a mutually beneficial relationship between conservationists, tourists and local communities⁵².

3.7.1 Regulatory Environment for Eco-Tourism and Nature-based Tourism Sector

The tourism sector is regulated by the Ghana Tourism Act, 2011 (Act 817) which provides the regulatory framework for the establishment of the Ghana Tourism Authority, mandated to regulate the tourism sector including registration and licensing of operators in the sector as well as the establishment of the Tourism Development Fund. The Ghana Tourism Authority is therefore the main government institution responsible for promoting the sustainable development of the tourism industry internationally and within the country under the oversight of the Ministry of Tourism, Arts and Culture which is responsible for development and promotion of tourism-related activities in Ghana. The Forestry Commission is responsible for the regulation of utilization of forest and wildlife resources, the conservation and management of these resources most of which are natural tourist attractions. The Ghana Museums and Monuments Board is the legal custodian of Ghana's material cultural heritage (movable and immovable heritage).

The sector has a National Tourism Development Plan (2013-2027) which proposes more than double tourism revenue from the current \$2.2 million to \$8.38 billion by 2027.⁵³ The Plan identifies and categorizes four tourism resources: 1) natural attractions; 2) historical heritage; 3) cultural heritage; and 4) other types of attractions. Natural attractions in Ghana include national parks, resource reserves, wildlife sanctuaries, and Ramsar sites as well as good beaches, lakes and rivers, waterfalls and general scenic beauty. Historical heritage resources include historic and archaeological sites in Ghana, including the forts and castles along the southern coast, traditional buildings, mosques, churches and major shrines.

The country's cultural heritage resources encompass festivals and funerals; traditional crafts and contemporary arts; music and dance; traditional beliefs and practices. Other tourism resources in Ghana include museums, cultural centres, churches and mosques, theatres and libraries, sports and recreation, gold and diamond mines, as well as special facilities

⁵⁰ <https://oxfordbusinessgroup.com/overview/renewed-ambitions-influx-foreign-tourists-and-priority-funding-strategies-are-driving-growth-sector#:~:text=With%20significant%20potential%20to%20drive,focus%20for%20investment%20in%20Ghana.&text=In%20terms%20of%20employment%2C%20the,total%20national%20employment%2C%20in%202017.>

⁵¹ <https://oxfordbusinessgroup.com/analysis/ghana%E2%80%99s-emerging-ecotourism-segment-making-headway-wild-card>

⁵² <https://touringghana.com/ecotourism/>

such as Akosombo dam on the Volta River-a man-made lake.

The government of Ghana has indicated its commitment in promoting a sustainable Tourism Sector, however not much strategies and activities have been outlined to promote greening of these sub-sectors.

The eco-tourism sector employs several people in the formal and informal sectors of the country, therefore, development of the sector will create more green jobs, such as the development of homesteads around tourist sites to accommodate researchers and tourists.

Eco-tourism facilities give visibility and prominence to the towns and communities where they are located leading to some level of development in these areas.

3.7.2 Key Constraints in Creating Green Jobs Creation in the Eco-Tourism and Nature-Based Tourism Sector in Ghana

- a. **Multiplicity of Regulators and Lack of Collaboration:** The multiplicity of institutions, overseen by different ministries, involved in the governance and regulation of the tourism sector leads to duplication and conflict of the roles and responsibilities of these institutions. The collaboration among these regulators have not been very effective and has hindered the proper development, management and promotion of eco-tourism and tourism related products.
 - i. **Weak regulatory institutions within the sector:** Although the sector has a number of regulatory institutions, the role and influence (power) of some of these institutions such as the Department of Parks and Gardens and the Ghana Museums and Monuments Board among others are not known to the stakeholders and therefore do not play a significant role in promoting eco and nature-based tourism in Ghana. For example, the Department of Parks and Gardens exist to “facilitate the rapid development of the horticultural potential of Ghana, for the benefit of the people through public education, effective landscape beautification, maintenance programme and conservation through competent staff and technology.” However, due to poor public funding and weak institutional structures the Department is not able to fulfill its mandate.
 - ii. **Weak implementation of policies:** Although Ghana has instituted several policies to encourage the development of the eco-tourism industry in a sustainable manner (conservation of water resources, protection of wildlife), the country has been weak in implementing these policies.
- b. **Community Resistance:** Local communities that derive their livelihood from the natural environment from time to time resist the utilization of such natural resources for tourism purposes. Often they sight lack of joint ownership and inclusiveness in the management of these resources. The resistance is even stronger if the land tenure system is problematic, traditional leaders are not paid royalties, the communities are not provided with basic social amenities and the community members are not employed in these facilities or empowered and provided with alternative means of livelihood. Successful models of community involvement in the management of tourism sites were provided:
 - At the Kintampo Waterfalls, the Ghana Tourism Authority have entered an agreement with the community where revenue from the facility is shared between the community (traditional authority), the facility and the Ghana Tourism Authority.
 - Also, the Wildlife Division of the Forestry Commission of Ghana is implementing the Community Resource Management Area (CREMA), an initiative that gives communities and land owners more rights to access and control the sustainable use of their natural resources which otherwise is the prerogative of government. The CREMA operates as a community based organization with an executive structure, a constitution and relevant bye-laws that guide and regulate natural resource governance and management activities in the respective constituent communities.
 - The Kakum National Park have set up a trust fund where annually proceeds from the fund is shared between the Park, the surrounding communities and partners of the fund.
- a. **Poaching, illegal mining and logging and land encroachment:** Activities of poachers, illegal miners and loggers are depleting the country of natural vegetation and forests, destroying wildlife and polluting waterbodies. Many tourism sites are located in green belts that are becoming targets for residential and commercial property development. There seems to be a wrong perception that green belts (including forest reserves) must necessarily be replaced with buildings. Also, at the MMDA level, development is measured in terms of construction and

reduction of forests and reserves. These perceptions are fueling the depletion and destruction of eco and nature-based tourism facilities.

- b. **Low investments in Eco-Tourism Facilities:** The eco-tourism sector have not been able to attract significant investments needed to develop the sector. There are a number of undeveloped and yet to be marketed eco-tourism sites which will boost the sectors ability to create more employment. Investments are required for the development of eco-tourism sites as well as ancillary facilities such as reception facilities for visitors, washrooms, road infrastructure etc. Apart from investment in hard infrastructure, investments are required in eco-tourism product development, marketing, human resource development, community engagement and participation.
- c. **Poor infrastructure:** Most eco-tourism sites are located far from urbanized cities and regions and this, coupled with traffic congestion and bad road networks, poses a challenge to many urban dwellers who have limited time (weekends) of their busy work schedules. Moreover, the infrastructure especially road network to some eco-tourism sites in Ghana is poorly developed and does not incentivize people to patronize these facilities.
- d. **Low interest in tourism:** Local interest in tourism is low. Most Ghanaians do not include local tourism in their recreational plans but would rather travel abroad for vacations.

3.7.3 Recommendations for Green Jobs Creation in the Eco-Tourism and Nature-Based Tourism Sector in Ghana

- **Streamline Process and Promote Stronger Interagency Collaboration on Eco-Tourism:** the regulatory institutions in the sector must streamline their processes and foster collaboration to ensure clarity of ownership, management and oversight of eco-tourism sites. In many cases eco-tourism sites would have more than one regulatory institution working together (e.g Forestry and Wildlife Commissions and Ghana Tourism Authority), however the strict adherence to 'mandate' without looking at the bigger picture affects the effectiveness of the Eco-Tourism sites. The Ghana Tourism Authority should explore and implement public-private partnerships (PPP) of eco-tourism sites. This must include host communities who can be encouraged to be parties to such PPPs to obtain their buy-in and contribution to the successful management of the eco-tourism sites. Such arrangements should also provide clarity of the benefits to hosts communities and provide alternative livelihoods especially in green sectors for community members.
- **Increased Investment in Developing More Eco-Tourism Sites:** the government could use funds from the Tourism Development Fund to invest in Tourism Site Developments to make it more attractive to tourists. Local and international tourists have complained about poor visitor infrastructure at tourism sites, which though collect fees from visitors are unable to invest in decent and welcoming facilities. The Tourism Development Fund can also be used to invest in the development of new eco-tourism sites to enhance the country's tourism earnings.
- **Improvement in Infrastructure connected with Eco-Tourism:** It is reported that many of the public infrastructure associated with eco-tourism sites are deplorable. These include road networks; and tele-communication services may be non-existent. This creates a disinterest for many tourists who consider the journey to the tourism sites difficult compared with the expected enjoyment they wish to have. MMDAs and government institutions such as the Ghana Highway Authority and Ghana Tourism Authority, need to work hand-in-hand to develop road infrastructure leading to eco-tourism sites.
- **Promotion and Certification of Eco-Tourism Locations:** the Ghana Tourism Authority and private sector stakeholders in the eco-tourism sector can develop and promote certification for facilities and actors (travel and tour operators, car rental companies, hoteliers etc) who are environmentally minded and promote sustainable tourism practices.

3.8 Promoting Green Jobs at the Sub-national Level

Ghana implements a four-tier governance and development planning and implementation structure: comprising national/central government ministries, agencies and departments. At the national/ central level is the National Development Planning Commission (NDPC) that provides national direction on planning, issues development planning guidelines including the National Developing Planning Framework-short, medium and long term development planning as well as sectoral planning frameworks with Ministries, Departments and Agencies (MDAs). The NDPC is mandated to provide guidelines on the development of medium-term development planning processes to districts and ministries, departments and agencies. National Development Planning System Act 480 Article 1 (3) states: "The decentralized national development planning system shall be regulated by legislative instruments and guidelines issued by the Commission."

3.8.1 Regulatory Environment for Green Jobs at the Sub-National Level

Ghana has 16 administrative regions, and 260 MMDAs and nearly 1700 Urban, Town, Area and Zonal Councils, which represent the base of the sub-national structures.

At the regional level, we have the Regional Coordinating Councils (RCCs) working with the Decentralized Ministries, Departments and Agencies to implement development plans at the regional level. Below this level are the Metropolitan, Municipal and District Assemblies alongside decentralized MDAs that are responsible for the development of their respective assemblies.

Article 10 of the Local Government Act 936, 2016 states among others that the District Assembly is the Development Authority responsible for the overall development of the district including the preparation and submission of development plans and budgets through the RCC. Also the Assembly shall formulate and execute plans, programmes and strategies for the effective mobilization of the resources necessary for the overall development of the district. Furthermore, the Assembly shall be responsible for development of infrastructure, improvement in human settlements and the environment.

This implies that implementing green jobs at the sub-national level is contingent on the capacity of national, sub-national and local government authorities to support integrated development strategies that take specific measures to catalyse transitions to sustainability, and avoid spending limited funds on initiatives that are contrary to this aim.

- There is a clear legal framework at the national and sub-national levels to protect the environment and thereby promote the creation of green jobs: MMDAs have a responsibility to identify, develop and respond swiftly to environmental challenges at the sub-national level.
- MMDAs have climate adaption plans and environmental protection policies to mitigate the challenges of climate change and thereby promote green jobs creation. Both the National Climate Change Policy 2013 and the National Climate Change Adaptation Plan have outlined strategies for mainstreaming climate adaptation at the district and community levels. The strategies include the preparation of climate change adaptation programmes and projects at the district level, selection of programmes/projects and the sharing of implementation responsibilities between the MMDAs and the sub-district local authorities at the community levels; establishment of District Assembly Environmental Committees to prepare and implement related plans.
- To a large extent, MMDAs have the requisite structures, staffing and institutional arrangements to promote green businesses and jobs: at the sub-national level, there are institutional structures and arrangements for green businesses and green jobs. The establishment of the Development Planning and Environmental Committees at the District level gives credence to importance of protecting the environment and promoting green enterprises. The establishment at the decentralized level the Waste Management Officers, the National Board for Small Scale Industry Business Advisory Centers in all districts indicate a commitment to environmental sustainability and promoting green jobs.
- There have been a number of projects and activities at the MMDA and community levels to promote environmental protection and sustainability and green jobs creation: there are a combination of efforts being undertaken by a number of stakeholders (communities, MMDAs, Donors, NGOs/CSOs) in protecting the environment, natural eco-systems, improving agriculture, and promoting innovative green businesses at the sub-national and community levels.

3.8.2 Key Constraints to Creating Green Jobs at the Subnational Level

- **Non-Availability and Inadequate Information on Green Jobs Opportunities:** for the teeming youth of Ghana, especially those at the sub-national levels, business opportunities to them are often limited to traditional sectors such as agriculture, commerce, transport among others and less in emerging and green sectors such as organic agriculture, greenhouse farming, recycling, renewable energy etc. This points to the lack of information on green business opportunities and where available the inadequacy of information on such opportunities. The information asymmetry applies to both public sector and private sector as well.
- **Even though the MMDAs have the legal, regulatory and institutional arrangements for development and protection of the environment, the concept of 'green' has not been prioritized.** Often citing poverty levels, there has been little efforts at protecting the environment at the sub-national level. Sometimes the situation can be so challenging at the district and community level. Where exploitation of the environment provides livelihood and revenues to the MMDAs, they seem to have little commitment in protecting the environment and or promoting alternative livelihoods. An example is the menace of illegal and small scale community mining that has permeated many rural communities and destroyed the environment. Even though the MMDAs acknowledge the damaging effects of illegal mining of the overall rural economy they seem to be unable to curb the menace.

- **There is a general lack of enforcement of environmental laws at the sub-national level.** Even where the responsibility for environmental protection/sustainability action falls within the purview of MMDAs, they often do not take the needed action. For example, the siting and decommissioning of landfills are the responsibility of the district assembly. There are instances where the MMDAs have not identified and sited a landfill site causing serious environmental challenges especially for private sector operators in the waste management sector who either may have to travel longer distances (exposing people to public health dangers) to dispose off waste. Building code regulations, permitting, bylaws on toilets are all not enforced by the MMDAs. Enforcing these laws will provide an enabling environment for businesses in the green space at the sub-national level.
- **Lack of appropriate technology and low levels of technology adoption at the sub-national level are inhibiting green jobs creation.** For many sectors (including agriculture) there is a general lack of access to appropriate (efficient) mechanization and low levels of technology adoption further creating low productivity, high energy use and cost as well as high post-harvest losses. Over dependence on rainfall and low levels of irrigation facilities all affect agricultural productivity.
- **Centralization of Business Registration, Permitting and Licensing Processes:** the enabling environment for business registration, operation, permitting and licensing in Ghana is generally centralized in the regional and national capitals. For green businesses, especially those in the start-up and early phases, this presents a challenge in terms of business operating cost and time to obtain the necessary permits and licenses. A case in point could be a green business that aims to convert waste into compost. To obtain standards for certification, the business will need to send samples to a centralized Ghana Standards Authority in Accra. Businesses in charcoal briquettes for exports need similar permits from EPA and Energy Commission both of which are based in Accra.
- **Lack of Funding and Ecosystem Support for Green Start-ups and Businesses:** There is a general dearth of funding for SMEs in Ghana at the national and sub-national levels. The situation is more challenging if an SME is rural-based, woman/youth led and possibly in a nascent industry (including green sectors). Formal financial institutions are unwilling to support SMEs; where there is support, loan terms include high interest and short tenors (up to two years). Informal financial sources are available, but interest rates are much higher and the loan duration are lower. The lack of financing at the sub-national level and also a general lack of support (business advisory services) creates challenges for SMEs in green businesses at the sub-national level. The Government has responded with initiatives such as the Microfinance and Small Loans Centre (MASLOC), Youth Enterprises Support and National Entrepreneurship and Innovation Programme, however their operations does not prioritize or promote green businesses, and they do not provide the adequate financial resources to support SMEs. The lack of training for would-be enterprises on green business ideas and options is another challenge.
- **Limited Awareness and Markets for Green Products/Services:** such products/services are often new on the national and sub-national markets and therefore often face stiffer competition from non-green products. The general lack of awareness and the lack of buyers creates challenges for green businesses. For example, organic compost products made from waste face stiffer competition from inorganic fertilizer products from two angles; first is the lack of awareness of the locally made compost compared with imported/locally-blended fertilizer and also the price competitiveness of these products. Whereas the green locally made from waste compost will be relatively expensive compared to the inorganic one, the market appetite will be for the inorganic fertilizer as it is cheaper. Even where green products exist, most of them are 'new' in the market and may not be standardized and hence market actors may be unsure of the efficacy of these products. A case in point is organic compost discussed in the Agricultural Sector. For the services sector, there is the lack of awareness and availability at the sub-national level of many green services such as conducting energy audits, installation and maintenance of renewable energy equipment, and extension services focusing on climate-smart agriculture practices.
- **Metropolitan/Municipal and District Assemblies procurement and direct and indirect promotion of non-green products and services:** MMDAs procure products and services for their use at the district level: electricity for their offices, agricultural implements and machinery, agricultural inputs (including seeds, fertilizer and pesticides). This procurement power of the MMDAs often do not consider the procurement of green products and services and often do not consider the procurement of green products made within the community. Often the main procurement criteria may be cost and less on life-cycle cost and environmental impact as well as the promotion of green businesses in the district.

3.8.3 Recommendations for Promoting Green Jobs at the Sub-National Level

- **Develop and Promote Green Business Opportunities at the Sub-National Level:** green business ideas and processes need to be identified, developed and promoted at the sub-national level. This will help in directing would-be entrepreneurs when they are considering which businesses to enter into. Green business ideas include traditional sectors such as agriculture and also emerging sectors in ICT and renewable energy.
- **Develop Ecosystem to Support Green Jobs at the Sub-National Level:** there is little or no support ecosystem for businesses in general and green businesses. An ecosystem of business incubators and accelerators, financial institutions, financial service providers, business advisory services, legal support etc that help businesses survive and thrive at the subnational level would spur growth in green businesses. The Business Advisory Centers of the National Board for Small-Scale Industries (NBSSI) and the newly formed Business Resource Centers can become a hub for the promotion of green business ideas. There is a strong relationship between business survival and job creation and therefore developing and building subnational business ecosystem that supports green businesses will invariably contribute to the creation of green jobs.
- **Streamline and Decentralize Business Licensing and Permitting Regimes:** alongside developing the support ecosystem for green businesses, there is the need to bring to the subnational level licensing and permitting for businesses including green businesses. For example, the Ghana Standards Authority, Food and Drugs Authority, Energy Commission and similar institutions need to decentralize their activities/services and or work through other decentralized bodies such as the Business Advisory Services (NBSSI) and BRCs. This could facilitate access to such services at a reasonable fee.
- **Investment in Green Public Infrastructure at the Sub-National Level:** At the subnational level, procurement of works, goods and services can include a strong component of green to promote green jobs. For example construction of schools at the sub-national level could consider using locally made raw materials and with energy efficiency designs (ventilation and sunlight for lighting).

4.0 Conclusions

Ghana has signaled strong policy commitment to going green and promoting green jobs through the development of a National Green Jobs Strategy which aims to facilitate a just transition to an environmentally sustainable economy through the promotion of green jobs.

The largest contributing sectors to greenhouse gas emissions are: Agriculture, Fisheries and Forestry; Waste Management Recycling; Renewable Energy; Construction and Infrastructure; and Eco-Tourism and Nature-based Tourism. These sectors were therefore identified in the Ghana National Green Jobs Strategy as having the potential for creating jobs once the key regulatory, institutional, administrative and behavioral constraints are identified and addressed. Also these sectors were also identified as having significant cross-linkages and therefore improving the business environment for any of them would have a significant impact on the other sector. An analysis of the greenhouse gas contributions of each of these sectors as well as the sectors contributions to GDP and employment further indicate the potential for greening and creating green jobs in Ghana.

An assessment of the business enabling environment for these sectors was conducted based on literature review and the outcome of a series of sectoral public-private dialogue sessions where each of the sectors represented by stakeholders identified during a mapping exercise. There were also public institutions represented through ministries, agencies and departments to ensure policy direction and implementation of policies.

For all the sectors assessed, it was observed that there was the legal, regulatory and policy framework for promoting green business. These were in terms of laws, acts of parliament, sectoral plans and policy documents.

However, it was observed that there is a general low level of knowledge and understanding of 'green' and green jobs among stakeholders. This low level of knowledge and understanding coupled with a relatively emerging market for green products and services requires more effort to promote. For those in the public sector, capacity on green jobs promotion and development is low and it is critical to support public institutions to create the enabling environment for green jobs. Moreover, there is the need for more promotion and communication on green economic opportunities and jobs to raise awareness among both the public and private sectors.

The key constraints to promoting green jobs in Ghana identified includes the lack of collaboration and coordination among the multiple regulatory institutions in the sectors identified. The lack of coordination creates burdensome bureaucracies, duplication of efforts and overlaps, and contributes to high entry and business cost for the private sector. It was also observed that alongside the multiple regulatory institutions are the multiple legislations and policies which are often conflicting and not supportive of greening the sectors. A streamlining of the legal and administrative processes as well as enhanced collaboration will promote green jobs.

Across all the sectors assessed there is a general lack of finance for the sector as a whole and consequently green businesses. Business growth requires different forms of finance including short-term working capital and finance to invest in capital assets which require long-term financing as well as financing for research and development, marketing and marketing development. For each of the financing described, it was observed that there were no financial services or products tailored to green business for all the sectors assessed.

At the subnational level, the needed legal framework and structures exist for the promotion of green jobs through the MMDAs which are the development authority at the subnational level. Again a general lack of awareness and capacities on green jobs is a challenge at the subnational level.

To promote green jobs, the key proponent should be the Government of Ghana working through the Ministry of Employment and Labour Relations to lead in building capacity of Ministries, Departments and Agencies on green jobs and to facilitate the mainstreaming of green jobs creation the national medium-term development plan as well as sectoral medium-term development plans through the oversight of the National Development Planning Commission. Government can also use its procurement power to foster green growth by requiring works, goods and services that take the environment into consideration thereby creating green jobs.

For the private sector, there is the need for a support ecosystem comprising of incubators, accelerators, financial institutions and services, business advisory and legal services to provide the needed support services to enhance business survival and growth of green businesses to enable them maintain and create green jobs. On the other hand also, the private sector. On the other hand, the private sector needs to take up the already identified opportunities in the green sector, by shifting to green practices and processes in their business and investing in employee skills to meet the demands of the green economy.

Finally, there is the need for a strong emphasis of training and skills development for green jobs. The dearth of skills for these sectors is one major inhibitor to green job creation. Training and skills development institutions need to adapt their curricula and training content to meet the needs of these sectors.



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