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Towards a Compact for Ghana's Political  
and Economic Transformation

**CLIMATE ACTION:**  
**Understanding Constraints for Adaptation and  
Mitigation Measures**

Technical Background Paper

May 2023



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## List of Abbreviations

EPA	Environmental Protection Agency
G-CARP	Ghana Climate Ambitious Reporting Programme
GDP	Gross domestic product
INDC	Intended Nationally Determined Contributions
MESTI	Ministry of Environment, Science, Technology and Innovation
MOF	Ministry of Finance
NDC	Nationally Determined Contributions
POA	Program of Action
UN	United Nations
UNFCCC	United Nations Framework Convention for Climate Change
G-STEM	Green-Science, Technology, Engineering and Mathematics

## **Executive summary**

Recently, Ghana's government submitted its Fourth Communication to the United Nations Framework Convention on Climate Change (UNFCCC), completed the Intended National Determined Contributions (INDCs), and ratified the Paris Agreement. Ghana intends to unconditionally reduce 15% of the projected emission of 73.95 MtCO<sub>2</sub>e<sup>2</sup> (million tonnes of carbon dioxide equivalent) by 2030. With full funding support from the international community, the emissions are expected to even decline by about 30%. Since 2012, Ghana has implemented about nine different policy and strategy documents with specific targets and proposed mitigation and adaptation measures. These indicate significant efforts in the country's preparedness to address the impact of the climate crisis. However, progress towards the achievement of these targets, goals, and strategies to secure lives and livelihoods has been slow. The government must fast-track all of the measures possible between 2022 and 2030 if it is to achieve the Sustainable Development Goals (SDGs).

The government recognizes climate change as a major threat to economic growth and sustainable development that requires urgent action. The 31 mitigation and adaptation measures communicated in the Intended National Determined Contributions (INDC) and the Fourth Communication to UNFCCC have a cross-cutting development impact as the government seeks to scale up the adoption of renewable energy and alternative solid waste management, and to minimize emissions through sustainable forestry and land management, and to promote energy efficiency. However, these efforts are likely to be negatively impacted by several internal constraints that continue to hold back the potential impact of the measures implemented to address the climate crisis.

### **1. Institutional coordination on climate reporting has not been efficient**

One of the key constraints to the implementation of climate action program in Ghana is the absence of a well-coordinated institutional framework. The mitigation and adaptation measures cut across seven economic sectors: energy, agriculture, industry, transport, waste, forestry, and land use. These economic sectors are under the management of six different ministries – Ministry of Energy, Ministry of Food and Agriculture, Ministry of Trade and Industry, Ministry of Transport, Ministry of Sanitation, and Ministry of Lands and Natural resources – and several departments and agencies. The central oversight responsibility for climate change-related matters rests with the Ministry of Environment, Science, Technology and Innovation. The complexity is further compounded by the roles of the 254 local government units implementing some form of localized climate change mitigation and adaptation programs, and the functions of non-state actors.

### **2. High climate financing gap**

The 31 mitigation and adaptation measures in the INDCs are estimated to cost about US\$22.6 billion, almost half of the current gross public debt of US\$55.1 billion. Lack of fiscal space and poor revenue mobilization make it difficult for domestic financing of the INDCs. The national budget contribution to the US\$22.6 billion financial commitment is estimated at 6.2% (US\$1.4 billion), and over 90% is expected from corporate, commercial, and international sources. This indicates that Ghana's achievement of the INDCs hugely relies on international and commercial sources. With the current trend of resource allocation where interest payment is more than double capital expenditure, direct government financing of US\$1.4 billion remains uncertain.

### **3. Gender-sensitive adaptation and mitigation measures**

The effect of climate change on the population is not gender-neutral. The climate crisis is likely to deepen the discrimination women face in accessing critical assets such as land. When families migrate due to drought caused by climate change, men are more likely to secure assets such as land and earn income. However, women are likely to remain poor, especially in female headed-households, because they are unable to engage in income-earning opportunities. Also, girls are more likely to be deprived of education when families lose assets and income due to the climate crisis. Girls are more likely to miss class hours to search for water and firewood during climate crises. The harsh environmental conditions combined with the growing poverty in the northern parts of Ghana can potentially spark a surge in migration to the southern parts, and worsen the deplorable situations in the slums where they tend to reside. In most cases, the women and girls tend to have no skills to compete in the cities and end up as head-porters and other forms of stressful, low-income activities. With about 6 out of 10 girls between 5-14 years involved in sales and service activity in Greater Accra, climate change can potentially deepen this challenge. This implies that adaptation and mitigation measures must take cognizance of the gender implications of climate change.

These factors combined with the low uptake of modern technologies to consistently track the impact of adaptation and mitigation measures, relatively weak stakeholder engagement, and public involvement in climate policy-making and implementation continue to affect the effectiveness of the government's climate policy actions.

The Compact seeks to address three main challenges:

- 1. Institutional incoherence in implementing climate change policies:** The Compact focuses on **promoting the development and passage of a National Climate Act** that addresses the institutional coordination challenges, and makes the functions of all identified agencies binding. The legislation will also contribute to setting up formal monitoring results and a verification framework for the implementation of the INDCs.
- 2. Find alternative approaches to financing the adaptation and mitigation programs:** The current economic and fiscal situation of the country indicates that domestic resource mobilization will not be sufficient to address the financing gap. Thus, the analysis will consider mechanisms Ghana can adopt to attract both international institutional and corporate climate funds, and shift from a grant-based approach to implementing the adaptation measures.
- 3. Gender-sensitive climate policy mechanisms:** The approach the Compact takes is to consider solutions to ensure that climate change vulnerabilities are regularly monitored, reported, and analyzed from the gender-based impact approach. This would ensure that the mitigation and adaptation measures can adequately respond to the needs of a different gender.

## 1. Context

Ghana's economy has witnessed relatively stable growth since 2010, having benefitted from increased commercial production of petroleum resources and major commodities such as cocoa and gold. Overall real GDP over the period has averaged 3-4%. Despite the sustained growth, about a 6.8 million people continue to live in poverty<sup>1</sup>. Additionally, the real economic growth has not benefited all sections of the population, leading to an additional 400,000 people becoming poor between 2012 and 2017, and about 2.2 million people in the rural parts living in extreme poverty<sup>2</sup>. The health, economic and social shocks of the COVID-19 pandemic and Russia's war against Ukraine will increase the number of people living in poverty and further deepen social inequalities. In the end, the people in the rural parts of Ghana, particularly women, girls, and children are more likely to suffer the deprivations and devastating effects of these twin crises.

Aside from the threats of the above, the climate risk continues to have destructive effects on the economy and the well-being of people. Given that about 37.1% of the population is involved in agriculture and fisheries, the climate crisis poses a serious threat to the lives and livelihoods of many people in Ghana. Presently, about 3.6 million people are at risk of severe hunger and food insecurity is becoming worse for the entire country<sup>3</sup>, indicating the need for prudent policy measures to address the productivity losses, especially in the agricultural sector.<sup>4</sup> Climate change will lead to a decline in soil quality, increase aridity tendencies, and disrupt rainfall patterns, leading to massive destruction to human settlements<sup>5</sup>. Additionally, the rising temperature levels and erratic rainfall pose a severe threat to the energy security of Ghana since hydropower contributes about a third of the country's energy needs. The last time Ghana suffered a severe energy crisis – in 2014-2016 – estimates show that about 2% of GDP was wiped out, indicating the deleterious effect of the climate crisis if urgent steps are not taken to mitigate it<sup>6</sup>.

Recognizing these effects, the government has consistently implemented a raft of policies, regulations, and laws to reduce the effect of climate change. Recently, the government submitted its Fourth Communication to the UNFCCC, completed the Intended National Determined Contributions, and ratified the Paris Agreement. Ghana intends to unconditionally reduce 15% of the projected emission of 73.95 MtCO<sub>2</sub>e<sup>2</sup> (million tonnes of carbon dioxide equivalent) by 2030. With full funding support from the international community, the emissions are expected to even decline by about 30%. Since 2012, Ghana has implemented about nine different policy and strategy documents with specific targets and proposed mitigation and adaptation measures. These indicate significant progress in advancing the efforts towards preparedness to address the impact of the climate crisis. However, progress towards the achievement of these targets, goals, and strategies to secure lives and livelihoods has been slow. The government must fast-track all of the measures possible between 2022 and 2030 if it is to achieve the Sustainable Development Goals. Even if the goals are achieved, the current efforts are not sufficient to resolve the gains that will be eroded due to the climate crisis.

The relevant stakeholder engagement mechanisms have not been effective in integrating the views of the myriad stakeholders who are affected by climate change. The political and economic Compact can contribute to developing a well-structured long-term plan built on the consensus between various political, state, and non-state actors to complement the current efforts by the government while

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<sup>1</sup> [Poverty Profile Report 2005 - 2017.pdf \(statsghana.gov.gh\)](#)

<sup>2</sup> Ghana Statistical Service. (2018). Ghana Poverty Profile Report. [Poverty Profile Report 2005 - 2017.pdf \(statsghana.gov.gh\)](#)

<sup>3</sup> [Comprehensive Food Security and Vulnerability Analysis \(CFSVA\).pdf \(statsghana.gov.gh\)](#)

<sup>4</sup> [GLSS7 MAIN REPORT FINAL.pdf \(statsghana.gov.gh\)](#)

<sup>5</sup> [15857-WB\\_Ghana Country Profile-WEB.pdf \(worldbank.org\)](#)

<sup>6</sup> T. Acheampong; B.O. Menyeh; D.E. Agbevivi; "Ghana's Changing Electricity Supply Mix and Tariff Pricing Regime: Implications for the Energy Trilemma" OGEL 3 (2021), [www.ogel.org](http://www.ogel.org)  
URL: [www.ogel.org/article.asp?key=3974](http://www.ogel.org/article.asp?key=3974)

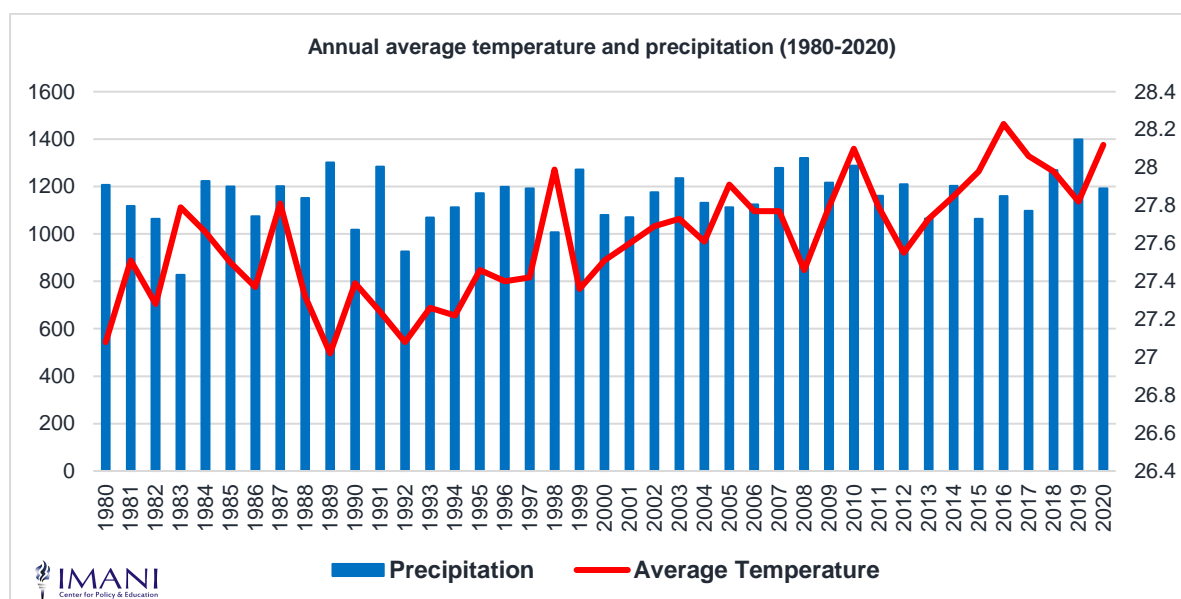
deepening transparency and accountability in climate change and related matters. Additionally, the Compact will provide alternative options for Ghana to enhance climate resilience and adaptability strategies for reducing carbon emissions.

## 2. Ghana's climate change situation

### *Average temperature and precipitation*

The rising temperatures, erratic rainfall, and recurrent flooding demonstrate that Ghana is vulnerable to the climate change crisis. Since 1980, Ghana has recorded an average temperature of about 27.6°C and a maximum temperature of 28°C, indicating a relatively high temperature (See Figure 2). The temperature variations tend to be higher in the northern part of Ghana compared to the southern and middle belts. Over the period, the average temperature has increased annually from 0.5°C to 1°C<sup>7</sup>. Over the same period, average precipitation (the measure of average rainfall annually) was 1,157.9mm. Figure 1 indicates that the average temperature has been increasing over the last 30 years while the average rainfall patterns have been volatile compared to the trend of temperature increase, indicating the tendency of many hot weather patterns and the possibility of aridity.

**Figure 1: Annual Average Temperature and Precipitation**

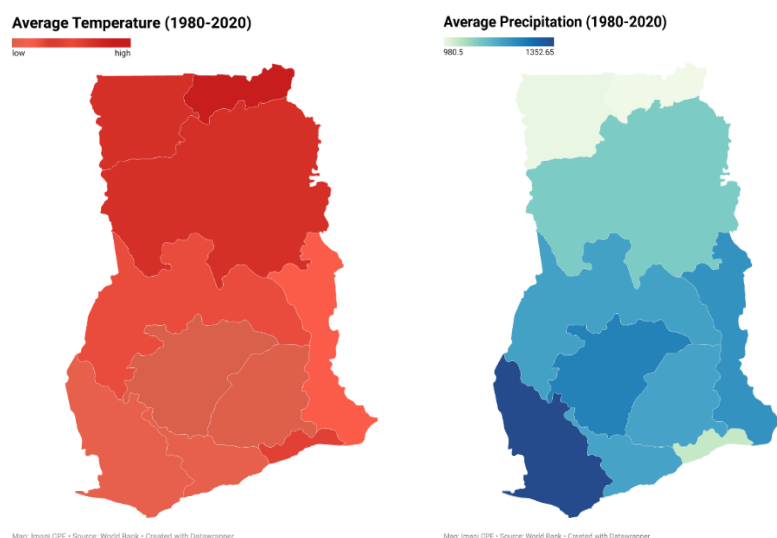


Source: World Bank<sup>8</sup>

<sup>7</sup>\*15857-WB\_Ghana Country Profile-WEB.pdf (worldbank.org)

<sup>8</sup>Download Data | Climate Change Knowledge Portal (worldbank.org)

Figure 2: Regional average temperature and precipitation (1980-2020)



**Source: World Bank<sup>9</sup> Chart: Imani CPE**

Figure 2 illustrates the average temperature and precipitation across what were then the 10 regions of Ghana. The data indicate relatively high intensity in terms of temperature levels across the country, particularly in the northern part of Ghana. The data also indicate relatively intense rainfall patterns, especially in southern Ghana. This means that the country is vulnerable to a mixed weather scenario, a high tendency of dry spells and floods. The World Bank estimates that since 1960, the number of sweltering days ( $T_{max} > 35^{\circ}\text{C}$ ) has increased by 13%, and the number of hot nights ( $T_{min} > 26^{\circ}\text{C}$ ) has increased by 20%<sup>10</sup>. Over the same period, the average decade rainfall pattern has declined by 2.4%. The World Bank further estimates that the number of hotter days and nights is more likely to increase by 18-59% by 2050, and there will be a general decrease in the number of cold days<sup>11</sup>. Additionally, other areas will have variable rainfall patterns and intense rainfall. This implies that the country is expected to be hotter and drier over the long term if critical steps are not taken to address the climate risk.

### ***Greenhouse gas (GHG) emissions***

Greenhouse gases (GHG) remain one of the primary drivers of the climate crisis. Since 1990, Ghana's GHG emissions have risen from 25.34 MtCo<sub>2e</sub> to about 42.15 MtCo<sub>2e</sub> in 2016<sup>12</sup> (Figure 3). This growth in emissions has been driven by energy, agriculture, waste, industrial process, and product use. From 1990 to 2020, agriculture, forestry, and other land uses (AFOLU) remain the largest contributors to GHG emissions. The AFOLU grouping accounts for 54.4% of overall GHG emissions, followed by the energy sector accounting for about 35.6%, the waste sector contributing 7.5%, and industrial processes and products being the lowest contributor, accounting for 2.5% of overall emissions<sup>13</sup>.

<sup>9</sup> [Download Data | Climate Change Knowledge Portal \(worldbank.org\)](https://data.worldbank.org/)

<sup>10</sup> [15857-WB\\_Ghana-Country-Profile-WEB.pdf \(worldbank.org\)](https://data.worldbank.org/indicator/15857-WB-Ghana-Country-Profile-WEB.pdf)

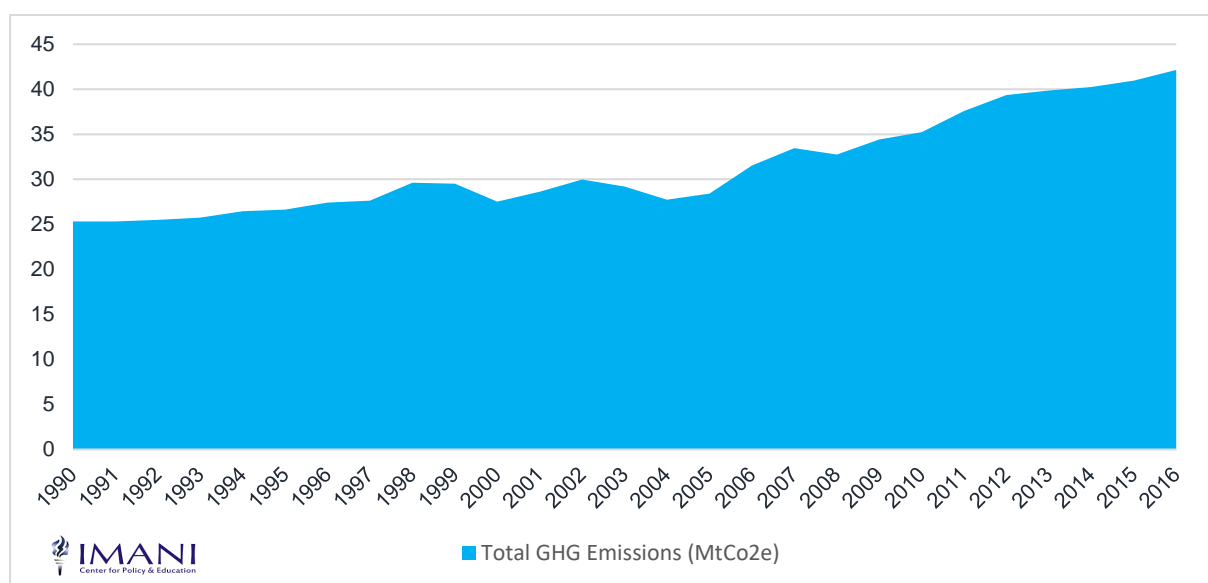
<sup>11</sup> [15857-WB\\_Ghana-Country-Profile-WEB.pdf \(worldbank.org\)](https://data.worldbank.org/indicator/15857-WB-Ghana-Country-Profile-WEB.pdf)

<sup>12</sup> [Ghana's Fourth National Communication to the United Nations Framework Convention on Climate Change \(unfccc.int\)](https://unfccc.int/ghana-fourth-national-communication)

<sup>13</sup> [Ghana's Fourth National Communication to the United Nations Framework Convention on Climate Change \(unfccc.int\)](https://unfccc.int/ghana-fourth-national-communication)



**Figure 3: Greenhouse gas emissions (MtCo2e) 1990-2016**



**Source: Ghana Climate Data Hub<sup>14</sup>**

From 1990 to 2016, the largest contributor to GHGs in Ghana has been carbon dioxide (CO<sub>2</sub>) emissions, followed by nitrous oxide (NO<sub>x</sub>), accounting for 49% and 26.3% respectively. Over the period, CO<sub>2</sub> emissions witnessed an upward trend with overall growth of about 1.6%. From 2012 to 2016, CO<sub>2</sub> emissions grew by about 6.7%. The increased emissions of CO<sub>2</sub> can be attributed to the energy industries, transportation, and land use<sup>15</sup>.

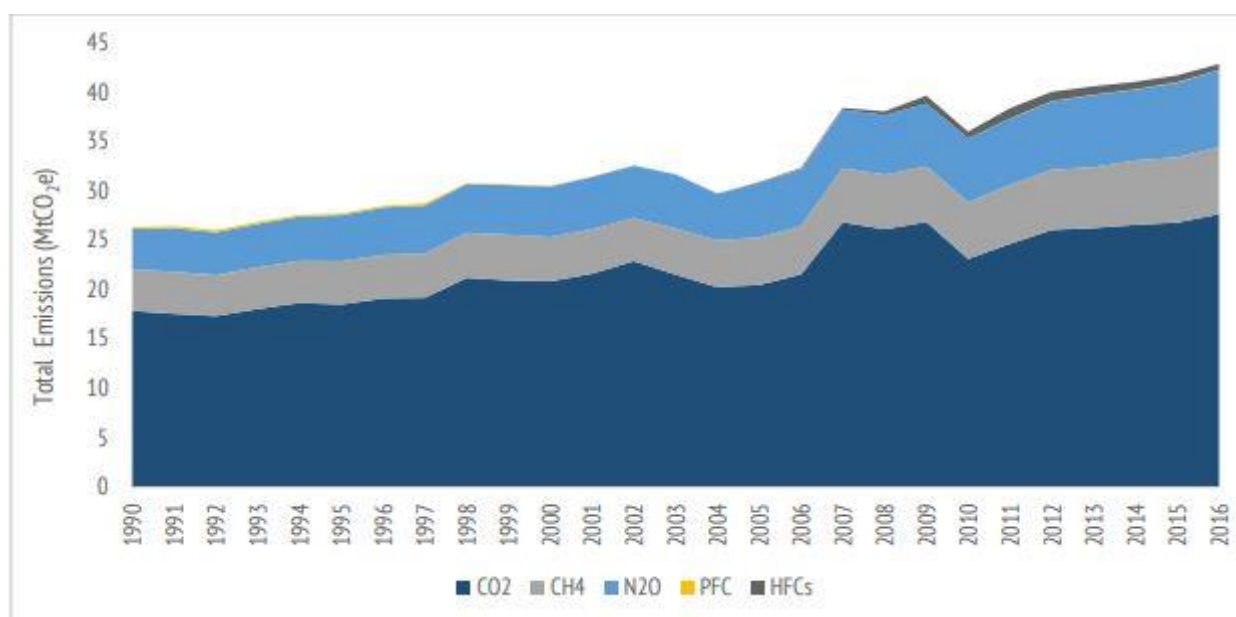
Over the same period, nitrous oxide grew by about 2.6% per annum and demonstrated an upward growth of about 12% from 2012. The main drivers of nitrous oxide were the increasing accumulation of nitrogen in the soil, improper land use management, and the continuous use of synthetic fertilizers and organic fertilizers. Other contributors to GHG emissions are perfluorocarbons (PFCs) which are emitted from the industrial activities of VALCO. In addition, hydrofluorocarbons (HFCs) are emitted from the gases used in refrigerators and air-conditioners. Since 2012, the emission of HFCs has declined by about 35%, largely due to the improved regulation of the importation of energy-efficient electrical items and the efforts towards phasing out ozone-depleting substances<sup>16</sup>.

<sup>14</sup>[GHG database – Climate Change Data Hub \(climatedatahub.com.gh\)](http://climatedatahub.com.gh)

<sup>15</sup>[Ghana's Fourth National Communication to the United Nations Framework Convention on Climate Change \(unfccc.int\)](http://unfccc.int)

<sup>16</sup> Ibid.

**Figure 4: GHG Emissions, by gas type**



**Source: Ministry of Environment, Science and Technology<sup>17</sup>**

The data presented demonstrate that Ghana's emission of GHG has increased as a result of the upward growth of major gases driving GHG. The upward growth of GHG emissions is likely to worsen in the future, which will result in further deterioration of the climate situation in Ghana.

These point to the fact that in the last three decades, Ghana's climate situation has worsened. The expected dry and wet spells are likely to worsen because the future trends of GHG emissions, temperature, and precipitation appear to follow the existing patterns. Over the last five decades, the observed hydro-meteorological events have affected over 16 million people and resulted in the death of about 400 people<sup>18</sup>. Five climate-induced disaster management and response strategies have been estimated to cost US\$120 million.

### 3. Key trends of climate change vulnerabilities

Ghana continues to face severe climate change vulnerabilities as it is expected to experience hotter temperatures and more wet spells that will expose the country to extreme climate conditions such as excessive floods and droughts. As the country becomes more urbanized, vulnerabilities to climate change effects such as floods are more likely to worsen, leading to increased climate adaptation and mitigation costs. Additionally, environmental degradation through uncontrolled artisanal mining, deforestation, and poor waste management will worsen climate-induced vulnerabilities such as water scarcity, food insecurity, and deteriorating biodiversity.

The agricultural sector is vulnerable to the climate crisis due to the poor investment in irrigation. Currently, less than 2% of the 1.9 million hectares of irrigable land are irrigated. High temperatures are likely to increase the tendencies of a dry spell which exposes the sector to persistent droughts. This will affect overall agricultural productivity in critical food staples such as plantain, maize, beans, and rice. By the middle of the century, the World Bank estimates that maize production is likely to decline by 7%, and cassava yields are expected to drop by about 28% in the last quarter of the century<sup>19</sup>. Furthermore, the average precipitation in the Western Region indicates the tendency for intense rainfall that can

<sup>17</sup> Ibid.

<sup>18</sup> Ibid.

<sup>19</sup> [15857-WB\\_Ghana Country Profile-WEB.pdf \(worldbank.org\)](https://www.worldbank.org/profile/ghana)

potentially lead to a high level of flooding and affect the regional output of critical export crops such as cocoa. Similarly, severe temperatures in the Northern Region will affect maize and yam production. Also, high temperatures are associated with the prevalence of pests and diseases, likely to result in crop failure.

About 30% of the electricity needs are sourced from hydroelectric power. The rising temperatures will negatively impact the water levels and result in a decline in hydropower generation. Additionally, the rising temperature levels can also affect the outcomes of community-based mini-hydro projects, and negatively impact access to electricity for rural areas disconnected through grid inaccessibility. Hotter temperatures are likely to disrupt electricity demand dynamics by increasing peak demand during hotter seasons.

Most vulnerable people are likely to suffer the health effects of the climate crisis as they tend to be vulnerable to flood and drought-related diseases such as cholera, malnutrition, diarrhea, and malaria. More than 13% of children aged under 5 experience malnutrition. Increased temperature levels will exacerbate the risk of drought, disrupt food systems, and water scarcity, which is likely to worsen the existing malnutrition situation<sup>20</sup>. Unsanitary human settlements arising out of extreme events like floods and drought may lead to an increased number of bacterial infections and malaria. The World Bank estimates that from 1900 to 2020, riverine floods affected 3.9 million people and resulted in 409 deaths. Over the same period, climate-induced bacterial infections affected about 90,000 people and resulted in 1,118 deaths<sup>21</sup>.

Cumulatively, Ghana's vulnerabilities to the climate crisis are summed up in the ND-GAIN Index<sup>22</sup>. The ND-GAIN Index summarizes a country's vulnerability to climate change and other developmental challenges, as well as the country's preparedness and resilience to the climate crisis. Additionally, it examines critical community investments that have the potential to enhance the responses to the threats posed by global development challenges like climate change. The higher a country's score on the index, the higher the country's resilience to the climate crisis. Ghana is ranked 111<sup>th</sup> out of 182 countries, indicating high vulnerability and poor resilience<sup>23</sup>. From 1995 to 2019, Ghana's ND-GAIN Index has increased by only 4 points, from 41 to 44.9, indicating continued overall high vulnerability and low readiness<sup>24</sup>. This also suggests that Ghana is in great need of investments to reduce vulnerabilities and enhance readiness to address the exposure to climate risk. Figure 5 illustrates Ghana's overall vulnerability to the climate crisis since 1995.

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<sup>20</sup>[15857-WB\\_Ghana\\_Country\\_Profile-WEB.pdf \(worldbank.org\)](#)

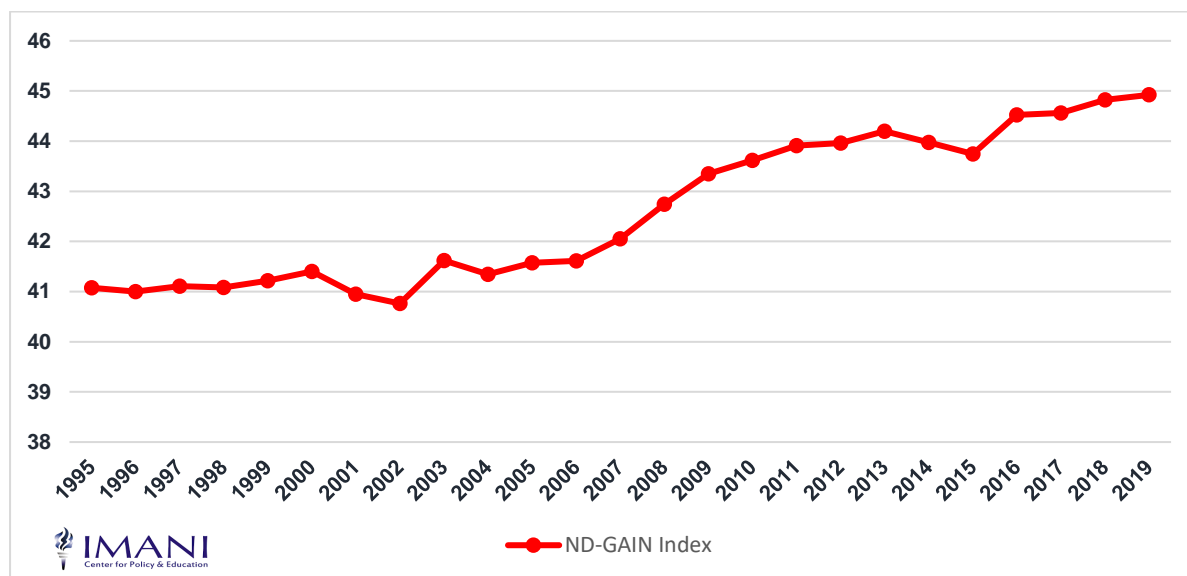
<sup>21</sup>[15857-WB\\_Ghana\\_Country\\_Profile-WEB.pdf \(worldbank.org\)](#)

<sup>22</sup>[Country Index // Notre Dame Global Adaptation Initiative // University of Notre Dame](#)

<sup>23</sup>[Country Index // Notre Dame Global Adaptation Initiative // University of Notre Dame](#)

<sup>24</sup>[Country Index // Notre Dame Global Adaptation Initiative // University of Notre Dame](#)

**Figure 5: Ghana's ND-GAIN Index (1995-2019)**

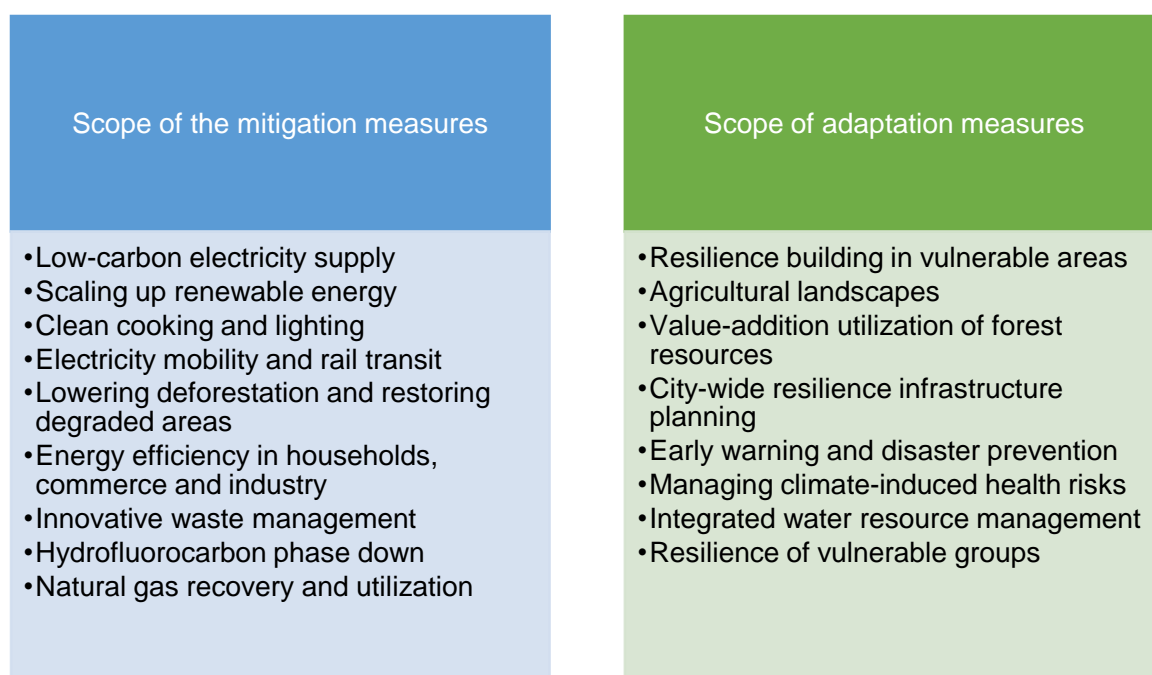


Source: University of Notre Dame<sup>25</sup>

#### 4. Scope of Ghana's climate mitigation and adaptation plans

Ghana's commitment to global climate action covers 20 mitigation and 11 adaptation actions across a broad spectrum of socio-economic activities. These 31 mitigation and adaptation programs of action have been designed to be implemented over a 10-year period (2020-2030) at a cost of US\$22.6 billion.

**Figure 6: Scope of mitigation and adaptation actions**



Source: [Ghana's NDC Financing Strategy | United Nations Development Programme \(undp.org\)](https://www.undp.org/ghana/national-determined-contribution/financing-strategy)

<sup>25</sup>[Download Data // Notre Dame Global Adaptation Initiative // University of Notre Dame \(nd.edu\)](https://www.nd.edu/ndgai/download-data/)

## 5. Key issues affecting Ghana's climate action measures

The government recognizes climate change as a major threat to economic growth and sustainable development which requires urgent action. The 31 mitigation and adaptation measures communicated in the INDC and the Fourth Communication to UNFCCC have a cross-cutting development impact as they seek to scale up the adoption of renewable energy, alternative solid waste management, minimize emissions through a sustainable forest and land management, and promote energy efficiency.

However, these efforts are likely to be negatively impacted by several internal constraints that continue to hold back the potential impact of the measures implemented to address the climate crisis.

### 1. Institutional coordination on climate reporting has been inefficient

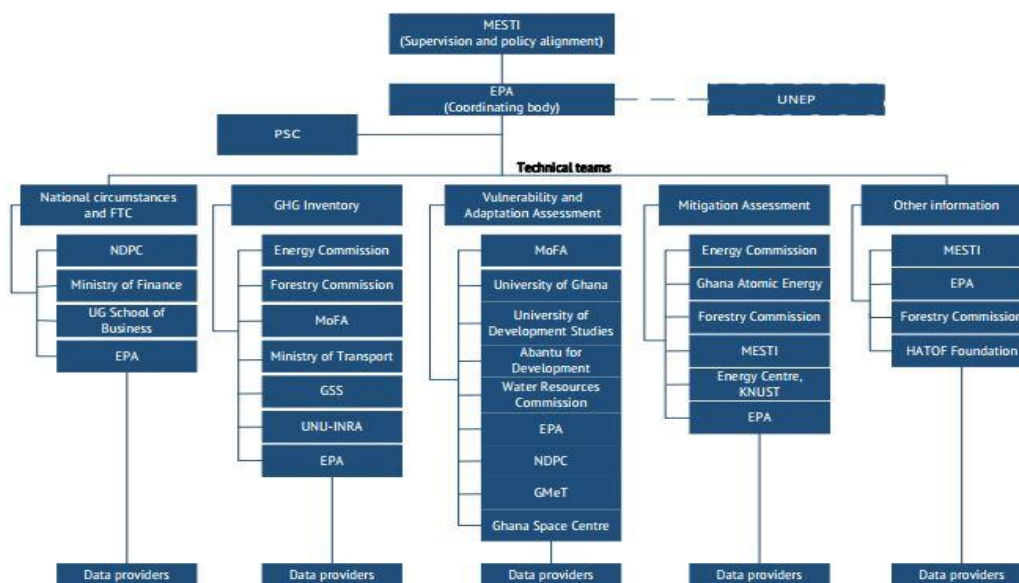
One of the key constraints to the implementation of the climate action programs in Ghana is the absence of a well-coordinated institutional framework. The mitigation and adaptation measures cut across seven economic sectors – energy, agriculture, industry, transport, waste, forestry, and land use. These economic sectors are under the management of six different ministries – Ministry of Energy, Ministry of Food and Agriculture, Ministry of Trade and Industry, Ministry of Transport, Ministry of Sanitation, and Ministry of Lands and Natural resources – and several departments and agencies. The central oversight responsibility for climate change-related matters rests with the Ministry of Environment, Science, Technology, and Innovation. The complexity is further compounded by the roles of the 254 local government units implementing some form of localized climate change mitigation and adaptation programs, and the functions of non-state actors.

The Environmental Protection Agency (EPA) implemented the Ghana Climate Ambitious Reporting Programme (G-CARP) in 2010 as the main national platform for climate reporting and coordinating the activities among all the state and non-state actors. The G-CARP has been successful in ensuring that climate data flow from all the actors and national communication is completed. So far, the government has completed four national communications, two biennial updates, and an international consultation analysis<sup>26</sup>. **However, the timely flow of information from all actors down the chain has been moderately successful.** The main challenge is that the relationship between the actors is ad hoc, and managed only by a memorandum of understanding (MOU) between the EPA and all other actors. As a result, there is no binding responsibility on the part of other MDAs to include climate reporting in their developmental reports and key annual reports. This is because of the absence of singular national climate legislation that legally establishes a legal framework and makes the roles of the institutions binding. Additionally, some of the MDAs do not fully comply with the MOU. In the Fourth Communication to the UNFCCC, **weak institutional and technical capacity** was cited as one of the main barriers to climate adaptation policies and programs.

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<sup>26</sup> [Ghana's Fourth National Communication to the United Nations Framework Convention on Climate Change \(unfccc.int\)](https://unfccc.int/ghana-fourth-national-communication-to-the-united-nations-framework-convention-on-climate-change)

**Figure 7: Institutional framework for national communication**



**Source: Environmental Protection Agency**

Also, the current institutional architecture places more fiscal and technical responsibilities on the EPA. The EPA is responsible for capacity building on climate reporting and other associated issues in all the line MDAs. The line MDAs prioritize their core functions over technical capacity building for staff in climate reporting. There have been instances where staff at the respective line ministries pay less attention to regular climate reporting since it is not part of their performance appraisal. **Having dedicated climate legislation would address this problem because it would make climate reporting mandatory for all the other agencies, and ensure that the timelines are complied with.** Addressing these constraints is crucial because it will ease the institutional bottlenecks that are likely to affect the Enhanced Transparency Framework under the Paris Agreement.

## 2. Wide climate financing gap

The 31 mitigation and adaptation measures in the INDCs are estimated to cost about US\$22.6 billion, almost half of the current gross public debt of US\$55.1 billion. Ghana's lack of fiscal space and poor revenue mobilization make it difficult for domestic financing of the INDC. The national budget contribution to the US\$22.6 billion financial commitment is estimated at 6.2% (US\$1.4 billion), and over 90% is expected from corporate, commercial, and international sources. This indicates that Ghana's achievement of the INDCs hugely relies on international and commercial sources. With the current trend of resource allocation where interest payment is more than double capital expenditure, direct government financing of US\$1.4 billion remains uncertain.

With an overall SDGs annual financing deficit of about US\$42.3 billion, the mitigation and adaptation measures are hanging by a thread. Over the period from 2011 to 2019, total climate-related financial investment was estimated at US\$15.5 billion<sup>27</sup>. Actual climate financing investment over the period was US\$1.3 billion when the investment in the natural gas industry is excluded. Loans and national budget contribution to the US\$1.3 billion (GH¢2.5 billion) was 27.6%. Almost 72% of the total climate financing was received through grants. Thus, a more strategic approach is required to increase GoG contributions and loans to the climate financing investments. Moreover, there is currently no comprehensive climate financing policy document that indicates specific financing arrangements the government wants to

<sup>27</sup>[Ghana's Fourth National Communication to the United Nations Framework Convention on Climate Change \(unfccc.int\)](https://unfccc.int)

pursue, over what period, and the expected liquidity to raise. None of the financing options currently explored (Box 1) are backed by parliamentary promulgation, thus most of these financing strategies are subject to the political cycle and its attendant changes in policy direction.

Given the high financing deficit the government faces in implementing the INDCs, it has rolled out a raft of financial instruments and is developing other mechanisms to ensure the financial needs for mitigating the climate crisis are addressed. The government is combining both multilateral support, bonds, carbon pricing, and trust funds to raise the requisite financial needs for the INDCs (See **Box 1**).

### Box 1: Existing and proposed climate financing instruments

**1. Climate trust funds:** The Ministry of Finance is currently working with the German development agency GIZ to implement legislation towards the establishment of the Ghana Green Funds, which will be a vehicle for facilitating, co-financing, and directing investment towards climate-related projects. The government has also introduced the SDG Delivery Fund and the Green Fund, which are expected to mobilize US\$100 million and US\$200 million respectively. Also, Ghana has mobilised mitigation finance from international sources such as Climate Investment Funds (CIF), Global Environment Facility (GEF) and the Green Climate Funds. Under the CIF28, the government and its partners are investing US\$75 million to enhance forest landscape vitality. An additional US\$40 million is being invested in scaling up renewable energy penetration.

**2. Carbon pricing, carbon trading and offset mechanisms:** Carbon pricing is one of the new innovative financing tools the government intends to use to raise the needed funds for implementing the INDCs. Ghana initiated discussions with the UNFCCC office in Lomé to explore the approaches to formally introduce the carbon pricing policy in Ghana.

**3. Green Bonds:** Through the Green Bonds, Ghana intends to mobilize finance from the international and domestic capital markets. UNDP and the Ministry of Finance are implementing a capacity building program to train staff on how to raise capital through this avenue.

Other options the government is implementing include the use of business innovation centres and incubators to develop climate-focused innovations and business models that are linked to the INDCs. A typical example is the [Ghana Climate Innovation Centre \(GCIC\)](#) implemented by Ashesi University. The Centre supports enterprises that work in five specific sectors: climate smart agriculture, energy efficiency, solar power, domestic waste management, and water management and purification. Since 2021, the Centre now also supports growing enterprises that want to infuse sustainability and climate adaption into their strategy and operations. Since inception, the Centre has devised a unique program for women entrepreneurs in the green economy called Women Entrepreneurs Transformation Program. The grant from the World Bank was \$8.5 million over four years, and in 2021, the GCIC raised an additional CAD10 min in grants from Global Affairs Canada for an additional four years.

**Regional climate change financing opportunities:** Ministries and departments could leverage existing climate financing of small, medium and large grants in the regional market to implement the low-hanging fruits of adaptation measures. For example, the [African Development Bank's Africa Climate Change Fund Programme](#).

### 3. Gender-sensitive adaptation and mitigation measures

**The effect of climate change on the population is not gender-neutral.** The climate crisis is likely to deepen the discrimination women face in accessing critical assets such as land. When families migrate due to drought caused by climate change, men are more likely to secure assets such as land and earn income. However, women are likely to be poor, especially in female-headed households, because they are unable to engage in income-earning opportunities. Also, girls are more likely to be deprived of education when families lose assets and income due to the climate crisis. Girls are more likely to miss class hours to search for water and firewood during climate crises. The harsh environmental conditions combined with the growing poverty in the northern parts of Ghana can potentially spark a surge in migration to the southern parts, and worsen the deplorable situation in the slums where they tend to reside. In most cases, the women and girls tend to have no skills to compete in the cities and end up as head-porters and other hazardous occupations. With about 6 out of 10 girls aged between 5-14 years involved in sales and service activity in Greater Accra, climate change can potentially deepen this challenge. This implies that adaptation and mitigation measures must take cognizance of the gender implications of climate change.

These factors, combined with the low uptake of modern technologies to consistently track the impact of adaptation and mitigation measures, relatively weak stakeholder engagement, and public involvement in climate policy-making and implementation, continue to affect the effectiveness of the government's climate policy actions. The Compact seeks to address three main challenges:

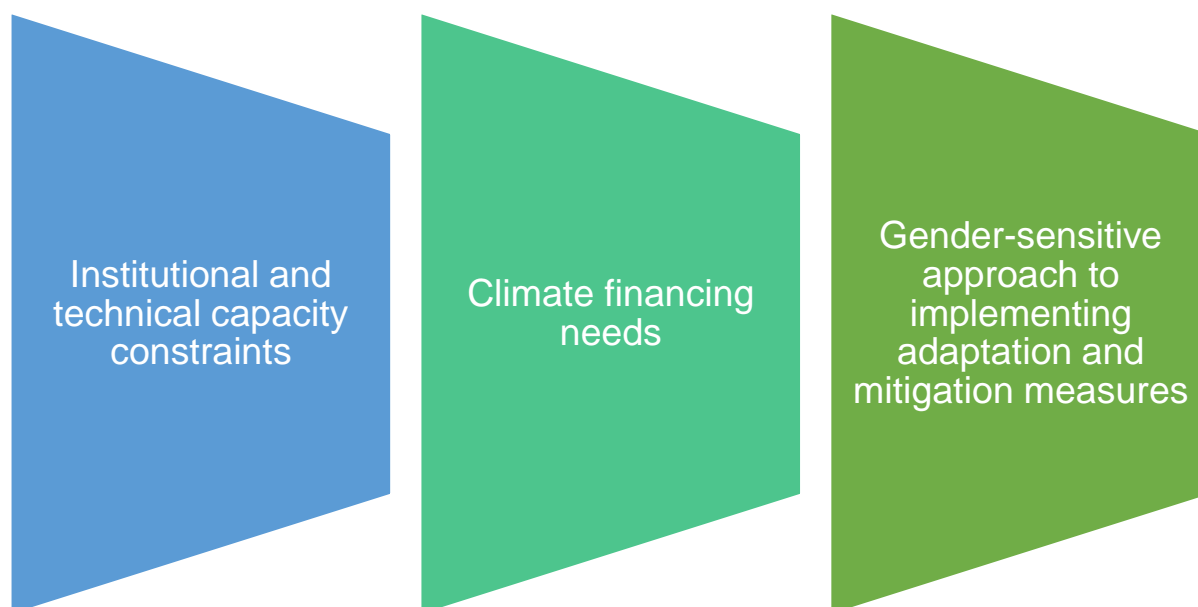
**1. Institutional incoherence in implementing climate change policies:** The Compact focuses on promoting the development and passage of a National Climate Act that addresses the institutional coordination challenges, and makes the functions of all identified agencies binding. The legislation will also contribute to setting up formal monitoring results and a verification framework for the implementation of the INDCs.

**2. Alternative approaches to financing the adaptation and mitigation programs:** The current economic and fiscal situation of the country indicates that domestic resource mobilization would not be sufficient to address the financing gap. Thus, the analysis will consider mechanisms Ghana can adopt to attract both international institutional and corporate climate funds, and shift from a grant-based approach to implementing the adaptation measures.

**3. Gender-sensitive climate policy mechanisms:** The approach the Compact takes is to consider solutions to ensure that climate change vulnerabilities are regularly monitored, reported, and analyzed from the gender-based impact approach. This would ensure that the mitigation and adaptation measures can adequately respond to the needs of different genders.



Figure 8: Key focus issues for the Compact



#### 6. Strategies for addressing climate financing constraints

While Ghana recognizes climate change as a major threat to economic development, it has not approached it as a development issue. As a result, none of the policies and regulatory frameworks, and development programs provide a clear pathway for financing the climate resilience programs in the INDCs. The National Climate Change Policy, which provides a framework for conceptualizing Ghana's climate action, does not provide a clear climate financing framework or mechanism except for recognizing the immense contribution of the private sector<sup>28</sup>. The Climate Change Investment Guide<sup>29</sup> developed in 2014 is not comprehensive, and rather scanty in terms of the financing approach, suitable business models, and strategies to attract private capital to fund the INDCs.

Additionally, the Coordinated Programme of Economic and Social Development Policies (2017-2024) only recognizes climate change as one of the prominent constraints to development. However, it contains no climate financing mechanisms to guide the decision and policies of the line MDAs. Climate change and associated financing approaches were not part of the Ghana Beyond Aid Charter<sup>30</sup> developed to provide a blueprint for economic transformation in Ghana. These indicate that there is insufficient information available for potential investors to clearly understand the government's plans, business and investment opportunities linked to the strategy, and the risk. The absence of a clear policy on financing strategy increases the difficulty of accessing climate finance and potentially results in the government pursuing financing approaches that may not be attractive to investors. Moreover, the lack of a comprehensive policy on climate financing creates duplication of climate investment by multiple agencies and affects the ability of the government to fully monitor fiscal support and international flows of climate change finance to other agencies that may not necessarily go through the central budget management center (Ministry of Finance).

With a climate financing gap of about US\$16.3 billion and the government's intention to raise more than 90% of the climate finance from a combination of domestic private and international climate finance sources, the achievement of the mitigation and adaptation programs of action depends greatly

<sup>28</sup> [gha169292.pdf \(fao.org\)](#)

<sup>29</sup> [Ghana NAMA Investor Guide\\_final\\_web.pdf \(pef.org.gh\)](#)

<sup>30</sup> [ghana\\_beyond\\_aid\\_charter.pdf \(osm.gov.gh\)](#)

on the extent to which private sector interest and participation are intensified<sup>31</sup>. Thus, the purpose of the Compact in this regard must focus on ***(i) increasing awareness within the private sector; (ii) enhancing capacity building of public and private actors; and (iii) improving the data management system.***

The programs of action of the mitigation and adaptation plans provide many opportunities for SMEs and large businesses to leverage both domestic and international climate finance toward the achievement of the NDCs. However, awareness of these business opportunities has not been widespread, leading to minimal participation of the domestic private sector. Additionally, the low level of awareness contributes to the limited financial products tailored to the mitigation and adaptation areas of the INDCs. Also, attracting both domestic private and public/private international climate finance requires that the projects are bankable and commercially viable. This requires that public and private sector actors have the requisite capacity to design bankable projects, and tailor adaptation and mitigation programs of action to the trend of climate finance. Considering the numerous donor support programs being implemented across multiple sectors of the economy, it is imperative to develop an appropriate climate finance data tracking and management platform. This platform should be capable of capturing all climate-related inflows (grants, commercial loans, institutional capacity support, etc.), as well as determine fiscal resources (taxes, rents, and waivers) spent on climate-related projects to understand how much of state-side resources are flowing into climate finance since they also contribute to de-risking the sector for investment. This is particularly important because the regular budget of the Ministry of Finance does not delineate climate-financed projects to enable proper tracking and accountability. In Table 1 below, we provide detailed information on how the government can increase awareness among businesses, increase capacity and improve data management to accelerate climate finance in Ghana.

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<sup>31</sup> [Ghana's NDC Financing Strategy | United Nations Development Programme \(undp.org\)](#)

Table 1: Accelerating climate finance in Ghana

SHORT TERM (UP TO 2 YEARS)				
Focus areas	Key activities	Questions	Targets	Outcomes
<p><b>1. Increasing awareness within the private sector of the business opportunities in the Mitigation and Adaptation Plans.</b></p>	<p>1. Develop a revised climate-business investment guide that shows the different portfolio projects currently underway and future projects, prospects, and available support.</p> <p>2. Design and develop a National Financing Framework based on the programs of action, indicating the appropriate blend of financing to address each of the programs of action.</p> <p>3. Hold a business summit and policy dialogue on the available business opportunities in the Mitigation and Adaptation Strategies, targeting more international investors as well as local private sector actors.</p> <p>4. Conduct a mapping of annual climate financing sources both in the domestic</p>	<p>1. What factors drive domestic private sector climate financing investment?</p> <p>2. How can international public and private climate finance be attracted to Ghana?</p> <p>3. What is the level of risk in climate financing in Ghana?</p>	<p>1. A National Climate Financing Framework supported by Parliament, CSOs, and other partners of the climate action. The framework must be linked to the Coordinated Programme for Economic and Social Development Policies.</p> <p>2. Institutionalize an annual climate finance business summit that explores available innovative climate financing frameworks and resources for the private sector and international investors.</p>	<p>1. At least 10 domestic businesses utilize the climate finance investment guide and resources to access domestic and international climate finance</p>

	and international market, and link it to the programs of action to support businesses to create awareness for businesses on financing options to pursue.			
<b>MEDIUM TERM (3-5 YEARS)</b>				
<b>2. Climate expenditure and financial in-flow tracking data management platform</b>	<p>Currently, the Natural Resource, Environment and Climate Change Unit at the Ministry of Finance is responsible for managing information related to spending on climate-related projects. Despite the establishment of a unit to manage the data on climate expenditure, the reporting structure and processes are not coherent.</p> <p>1. Work with the Natural Resource, Environment and Climate Change Unit to develop a climate expenditure tracking system that provides data on the government revenue allocated to climate-related projects.</p> <p>2. Engage the Ministry of Finance to enhance the</p>	<p>1. What are the modalities for tracking climate-related expenditure at the Ministry of Finance?</p> <p>2. How are sub-national agencies integrated into the current processes for reporting climate-related expenditure or climate budget tagging?</p> <p>3. How can climate-expenditure reporting or climate-budget tagging be utilized to incentivize private sector/public and private international climate finance?</p>	1. Develop a robust climate-expenditure/ climate budget tagging framework.	Improved climate expenditure monitoring and results framework.

	<p>transparency of climate budget/expenditure tagging processes. Such expenditure tagging must transcend domestic revenues to include other grants that do not pass through the Ministry of Finance. This can be done using the GIFMIS to indicate if the project relates to climate change.</p> <p>3. Provide capacity building to line MDAs on climate budget tagging, and reporting to the Natural Resource, Environment, and Climate Change.</p>			
<p><b>3. Technical capacity building for public and private sector actors in Ghana.</b></p>	<p>Developing bankable investment projects is critical to attracting climate finance to implement the programs of action under the mitigation and adaptation measures.</p> <p>1. Organize a technical workshop for private sector actors (SMEs, Chamber of Commerce, and other groups) on approaches to developing bankable projects that attract climate</p>	<p>1. What are the identified technical and institutional capacity constraints in accessing high-value climate finance instruments in Ghana?</p>	<p>1. Contribute to developing at least three bankable projects with the private sector, and public institutions.</p>	<p>Improved capacity in the development of bankable and viable projects that attract climate finance from domestic and international financial markets.</p>

	<p>investment funds in the domestic and international capital market.</p> <p>2. Organize capacity-building programs for public institutions on climate finance opportunities, and how to increase the investment potential and bankability of climate projects initiated by the government. This can include how to structure a possible public-private partnership that minimizes risk and increases the viability of the projects.</p> <p>3. Organize capacity-building programs for sub-national institutions where climate expertise to undertake proper tracking, monitoring, and expenditure tracking is limited.</p>			
Long-Term				
<p><b>4. Leverage the national development bank to raise Climate Bonds and Climate Trust Funds.</b></p>	<p>Banks play a key role in mobilizing finance for climate action because the risk of climate change affects many of the portfolio investments the banks support. Recently,</p>	<p>1. How can the national development bank be positioned to mobilize more domestic and international climate funds to finance the INDCs?</p>	<p>1. Design a Climate Finance Investment Portfolio with the national development bank to raise more climate finance for Ghana.</p>	<p>Development of a specialized climate or green bank that mobilizes climate financial resources to support private and public sector initiatives that are linked to</p>

	<p>the government established a national development bank to drive private sector investment in various aspects of the economy. In the long term, the Compact can critically look at how the various financing vehicles (Climate Trust Fund, Climate Bonds, and SDG Fund) can be initiated and managed by the national development bank.</p> <p>1. The development bank can create a separate investment portfolio to support private sector initiatives in the core focus areas of the adaptation and mitigation measures in the INDCs.</p>			<p>implementing the adaptation and mitigation measures.</p>
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## Box 2: How data on climate spending are improving climate finance decision making in Chile

At the forefront of the Chilean government's response to climate change, the [Ministry for Finance](#) and the Budget Office ([Dirección de Presupuestos, or DIPRES](#)) are leading several key initiatives. These include an effort to better understand public spending on climate change-related programs and investments (adaptation and mitigation), including those related to water access. Under the NDC Support Programme, UNDP has been supporting the Ministry and DIPRES to advance its climate agenda, drawing on the methodologies of Climate Public Expenditure and Institutional Review (CPEIR) and [Climate Budget Tagging \(CBT\)](#).

The [results](#) so far include the identification of adaptation and mitigation initiatives across different ministries, including the Ministries for [Public Works](#), [Agriculture](#), and [Energy](#).

For example, according to data available from the National System of Investment ([Sistema Nacional de Inversiones](#), or SNI), 170 rural drinking water projects were developed between [2016 and 2020](#) across the Coquimbo, Valparaíso, O'Higgins, and the Metropolitan regions (regions that face severe water scarcity and were recently declared to be under an [agricultural emergency](#)). More than 134 billion Chilean pesos (approximately US\$6.5 billion), averaging around 27 billion pesos per year, have been channeled by the Ministry of Public Works and Regional Governments towards these projects.

In another example, data gathered under the [Bank of Social Programs and Non-Social Programs](#) of the [Ministry of Social Development and Family](#) and DIPRES revealed that of 32 programs identified as associated with climate change, five addressed the impacts of water shortages.

The data highlight significant government efforts already underway to address the impacts of climate change, with direct benefits for communities. However, and most importantly, the data also help to identify the gaps, investment priorities, and policies that will allow Chile to continue to address climate change impacts in the years ahead. DIPRES has now committed to reporting the results annually to Parliament.

"By classifying public spending and its contribution to climate change, it is possible to evaluate the effect of policies and activities carried out at the national level, in addition to determining the efficiency and effectiveness of budget spending", says Cristobal Gamboni, Macroeconomic, and International Finance Coordinator at the Ministry of Finance.

"This classification helps generate indicators for the management of climate spending, quantifying the fiscal cost of both mitigation and adaptation measures in the long-term, making their impact visible and deciding with more information – which also enables the alignment of environmental objectives, national objectives, and international commitments.

"This is why the Ministry of Finance of Chile considers it essential to have this kind of classification for public spending, giving priority to this work."

Source: [Where the money flows: How data on climate spending is informing better decision making in Chile \(undp.org\)](#)

The challenge with mobilizing climate finance in Ghana from the analysis is not one of lack of financial resources, but one of lack of the requisite technical capacity to design bankable projects that attract both domestic and international climate finance resources. Additionally, the right institutional structures have not been implemented to promote transparency in climate spending, and sufficient awareness has not been created about the potential business opportunities the mitigation and adaptation measures offer.



## 7. Developing a gender-sensitive climate adaptation and mitigation program of action

Climate change affects women differently from men because women and girls constitute a large proportion of the vulnerable population in society. Women also encounter varying forms of discrimination from limited access to property rights to full or partial exclusion from decision making about critical issues such as resource allocation, financial assets, health, and economic freedom, which affect the outcomes of their standard of living. In rural areas, patriarchal systems and deliberate stereotypes worsen women's exposure to discrimination. When a climate crisis strikes, the devastating effect combines with the existing discrimination, making it difficult for them to mitigate the effects of climate change. As a result, effective climate action policies must take cognizance of the peculiar challenges women face, and integrate measures to minimize the effect of the climate crisis on women. Also, girls are more likely to suffer a high dropout rate when the income and property assets of families are diminished due to climate change.

For climate mitigation plans to be effective, women's participation is crucial in climate adaptation and mitigation programs of action decision making, and integration of laws and policies that promote equality and fair access to resources in climate actions. The UN estimates that if all women smallholders received equal access to productive resources, farm yields would rise by 20-30% and 100-150 million people would escape hunger, and CO<sub>2</sub> emissions would be reduced by 2.1 gigatons by 2050<sup>32</sup>. To effectively integrate the needs of women and girls in climate action decision making, their vulnerabilities must be carefully understood, and sensitization programs enhanced to increase women's interest and participation in climate decision-making process. The Compact must focus on addressing three main issues; *(i) Timely and accurate gender-responsive reporting of the vulnerabilities and disasters caused by climate change, (ii) Increasing sensitization of the varying ways climate change affects women, (iii) Ensuring full participation of women in the decision making of the climate mitigation and adaptation measures, and (iv) Promote green STEM and entrepreneurship for women.*

Timely and accurate information with regard to the risk and vulnerabilities disaggregated from a gender perspective is essential for both government and private sector actors to map the trend of vulnerabilities women face, which would inform policy and tailor-made solutions that maximize opportunities for women in the adaptation and mitigation programs. Also, gender-specific adaptation programs ensure that the needs of different people are addressed, and information and resource dissemination reflects the underlying differences of the groups affected by the adaptation policies. Currently, the monitoring and results framework used by the line MDAs does not provide detailed disaggregated gender-specific vulnerabilities and risks. This can worsen the plight of women groups if the adaptation policies do not consider the particular issues that affect them, and entry points to mitigating the existing constraints they face are blocked.

Factors that discriminate against women have the potential to distort information and communication and limit the extent to which women have timely access to climate change adaptation information. For example, in areas where women are excluded from public discourse and community engagement, women are likely to be left behind in accessing information, become disempowered because they lose control of planning, and suffer more vulnerabilities. Thus, increased sensitization must seek to develop

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<sup>32</sup> <https://documents-dds-ny.un.org/doc/UNDOC/GEN/G19/120/13/PDF/G1912013.pdf?OpenElement>

targeted communication for the different groups, and ensure that everyone receives the right information that enables them to make informed decisions.

Women understand the varying ways through which climate change affects them, their work, and their families. For instance, women involved in agriculture have a deep understanding of how they work around climate risk. As such, women must be involved at all levels of decision making of the adaptation programs. Through this, they share lived experiences that enable policy makers to understand the feasible solutions from the perspective of the people affected by the climate crisis. Through this, state actors maximize women's agency and leadership in addressing the climate crisis.

Green STEM (G-STEM) and climate-focused entrepreneurship are critical areas that could accelerate Ghana's effort to promote climate change solutions in the business sector. Focusing several women-led businesses in this direction could enhance inclusion and diversity in the climate policy goals in Ghana. Additionally, the new all-female STEM high school at Bosomtwe could be used as a launchpad for introducing G-STEM programs and solutions in Ghana. Accurate and timely data on the number of women-led green solutions/businesses are critical re-define women's role in G-STEM, align funding, and business development opportunities.

**Table 2: Increasing Gender-Responsiveness of Ghana's Climate Action Policies**

SHORT-TERM (UP TO 2 YEARS)				
Focus areas	Key activities	Questions	Target	Outcome
<b>1. Increase sensitization of the impact of climate change on women and girls.</b>	<p>1. Identify and work with CSOs both at the national and community level, and other partners already implementing climate sensitization programs on the varying ways women are affected by climate change and the feasible pathways to increasing their adaptation.</p> <p>2. Develop targeted communication solutions to communicate with women, particularly in climate-affected areas on the impact on women. Both traditional and social media can be used to achieve this purpose.</p> <p>3. Identify gender champions both at the national and community level, who will promote advocacy for more inclusion of women in climate action decision making.</p>	<p>1. In what ways are women affected by climate change?</p> <p>2. How can the voices and leadership of women be integrated into climate decision making?</p>	<p>1. A national climate gender sensitization program advocating for the inclusion of women's needs in climate action decision making.</p>	<p>1. Increased understanding of the impact of climate change on women in climate-affected areas.</p>
<b>Medium to Long Term</b>				
<b>2. Ensure full participation of women in the decision making of climate mitigation and adaptation measures.</b>	<p>Increasing women's participation in the climate adaptation decision is critical to the success of the climate program of action. This requires reviewing the existing layers of decision making of the National</p>	<p>1. How can women's participation and representation in climate decision-making processes be improved?</p> <p>2. What institutional reforms must be undertaken to</p>	<p>At least two women are on the planning and implementation committees of the national adaptation measures at all levels.</p>	<p>The rights of women to equal participation and representation in climate change decision making is upheld.</p>

	<p>Adaptation Program (both at the national and sub-national levels) to ensure equal participation of women in all the committees. Considering that there is no climate change legislation, such arrangements are likely to be ad-hoc and overlooked when governments change. The Compact must advocate for the development and passage of a Climate Change Law, that recognizes women's participation and makes provision for women to be part of decision-making committees of the National Adaptation Programs.</p> <p>1. In the meantime, the Compact must seek to work with EPA to review the National Adaptation Plan implementation committees at all levels to ensure equal representation of women on the committees.</p>	<p>formalize the representation of women in climate decision making?</p>		
<p><b>3. Timely and accurate gender-responsive reporting of the vulnerabilities and disasters caused by climate change</b></p>	<p>1. Work with the EPA to develop a separate gender vulnerability and climate exposure report after the annual reporting through the Ghana Climate Ambitious Reporting Programme (G-CARP).</p> <p>3. Work with the EPA and MMDAs to provide capacity</p>	<p>1. What technology and institutional reforms are required to ensure timely and accurate gender-responsive climate vulnerability reporting?</p>	<p>1. Publish an annual gender-based climate vulnerability report, and ensure the integration of the findings in the National Adaptation Plans.</p>	<p>1. A national database on the gender-based impact of climate change.</p> <p>2. Increased understanding of alternative measures to reform adaptation policies to benefit women and girls.</p>

	<p>building to reporting officers on the approaches to gender-sensitive climate change reporting using the UNFCCC framework for gender-responsive climate action.</p> <p>2. Work with the EPA, MESTI, and Parliament to pass the Climate Change Bill. The Compact must advocate for the production of the annual climate vulnerability report from a gender perspective.</p>			
<p><b>4. Promote Green STEM and entrepreneurship for women</b></p>	<p>1. EPA/MESTI must work with the Ministry of Trade and Industry to identify women-driven green solutions or businesses and create opportunities to include them in climate stakeholder decision making and events that offer specific capacity enhancement for businesses in green solutions.</p> <p>2. EPA/MESTI must encourage the development of specific grants and financing opportunities for women-led businesses that promote G-STEM.</p>	<p>How can G-STEM and women-led climate solutions be promoted in Ghana?</p>	<p>Conduct a comprehensive market search of women-led green solutions, create a database of the identified business, align them to financing, and report annually on women-led green solutions supported.</p>	<p>Increased participation of women businesses in the climate change action of Ghana. At least 5%-10% of funding to be provided to female green solutions.</p>

	3. Introduce G-STEM in the educational programs of the STEM-focused institutions in Ghana.			
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## 8. Addressing the institutional synergies and technical capacity gaps

The Ghana Climate Ambitious Reporting Programme (G-CARP) establishes a formal institutional framework for coordinating the implementation of the adaptation and mitigation programs, reporting, and monitoring of results. However, the implementing officers, especially at the local level, do not have the requisite capacity to integrate climate adaptation measures into the sub-national development plans. This makes consistent expenditure allocation, monitoring, and evaluation complex, and challenging. Additionally, the Ministry of Local Government, Decentralization and Rural Development, and the MMDAs have not integrated climate change impact in the approved MMDA development plans due to a lack of support for locally feasible adaptation measures. The Compact must focus on addressing two main issues; *(i) Providing a capacity development program for sub-national institutions on climate change impact reporting; (ii) Supporting local-level institutions with capacity development programs to include climate change in development plans and implement localized adaptation measures.* All these solutions must be tailored to support the existing framework established by G-CARP.

**Table 3: Addressing institutional technical capacity gaps and synergy**

Focus areas	Key activities	Questions	Target	Outcomes
<b>1. Providing a capacity development program for sub-national institutions on climate change impact reporting</b>	<p>1. Work with EPA and the line ministries to conduct a technology and capacity gap assessment to understand the core capacity constraints in the various institutions involved in the implementation of the climate adaptation programs.</p> <p>2. Develop a roadmap of capacity enhancement programs for the line ministries, departments, and agencies. This must be accompanied by securing a grant/ funding arrangement to consistently implement</p>	<p>1. What are the existing technology and capacity gaps in the implementation of climate adaptation measures in the various institutions?</p> <p>2. How can the Ghana Climate Ambitious Reporting Programme (G-CARP) institutional framework be formalized to ensure full compliance and support by the line ministries?</p>	<p>1. Develop a national climate institutional capacity-building program.</p> <p>2. Secure a grant to support the consistent implementation of climate change capacity-enhancement programs.</p>	Improved institutional coordination and seamless flow of data between the various institutions involved in the implementation of climate adaptation measures.

	<p>the program due to the financial constraints the institutions face.</p> <p>3. Work with the EPA, Parliament, and the line ministries to ensure that the Climate Change Bill is passed to formalize the current institutional structure under the Ghana Climate Ambitious Reporting Programme (G-CARP). This would ensure that the responsibility to report climate vulnerability and adaptation programs becomes mandatory.</p>			
<p><b>2. Supporting local-level institutions with the capacity-development programs to include climate change in development plans and implement localized adaptation measures.</b></p>	<p>1. Work with the Ministry of Local Government, Decentralization, Rural Development, MESTI, and EPA to provide capacity-building support to the MMDAs on mechanisms to integrate the climate adaptation measures in the MMDA development plans.</p> <p>2. Secure funding arrangements to support localized climate adaptation measures.</p>	<p>1. How can MMDA development plans reflect climate change vulnerabilities?</p> <p>2. What alternative solutions can be pursued to promote localized climate adaptation programs?</p>	<p>1. Sub-national climate change capacity enhancement programs.</p> <p>2. A formal Climate-Responsive MMDA Development Plan.</p>	<p>1. Climate-sensitive local government development plan.</p>





## 9. Conclusion

Ghana has made significant strides in the development of a robust climate action program to address the looming threats of food insecurity, migration, poverty, and deep social inequalities that accompany climate change. However, significant challenges remain in the level of institution cohesion, technical capacity, adequate financial resources, and the integration of gender-responsive approaches in the NDCs.

To mitigate these constraints, the Compact process increased awareness of the business opportunities available through the implementation of the NDCs, improve climate finance data management, and implement measures to de-risk the climate finance investment environment in Ghana. Additionally, improved institutional technical capacity enhancement and formal monitoring and results verification systems are required to ensure that line ministries comply with the Ghana Climate Ambitious Reporting Programme (G-CARP).

Additionally, localized adaptation measures can be accelerated when sub-national units are supported to integrate them into their development plans. To ensure that the NDCs do not further deepen existing inequalities, the government must revise the institutional framework to ensure full representation and participation of women at all levels of climate action decision making.