COMPREHENSIVE ACTION FOR CLIMATE CHANGE INITIATIVE

ANAPRI CACCI REPORT #8

Ghana: An Integrated Result Framework for Tracking Progress in Climate Change Ambitions and Actions

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About ANAPRI CACCI Reports

ANAPRI CACCI Reports are publications stemming from implementation of the Comprehensive Action for Climate Change Initiative (CACCI) pilot project in Zambia and Ghana. CACCI is committed to expediting the implementation of Nationally Determined Contributions (NDCs) and National Adaptation Plans (NAPs) by addressing the need for data and analytics and bolstering institutional and coordination capacities. In Africa, CACCI collaborates closely with the African Union Commission, the African Network of Agricultural Policy Research Institutes (ANAPRI), AKADEMIYA2063, and climate stakeholders in selected countries. This partnership aims to inform climate planning and enhance capacities for evidence-based policymaking, advancing progress toward climate-related objectives.

ANAPRI's involvement in the CACCI contributes to the provision of technical expertise, strengthening national, regional, and continental capacities for NDCs and NAPs implementation. In close collaboration with its two-member centers, the Indaba Agricultural Policy Research Institute (IAPRI) in Zambia and the Institute of Statistical Social and Economic Research (ISSER) in Ghana, ANAPRI, through CACCI, supported the Climate Change Technical Working Groups within respective countries and the ministries responsible for coordinating these working groups by offering data and analytical support.

Jointly published with ANAPRI member centers (IAPRI and ISSER) and the Country Climate Change Technical Working Group, the CACCI reports catalogue the key deliverables under the project. The data shared through these reports aim to provide evidence-based insights to practitioners and policymakers spearheading climate action in countries where CACCI is being implemented. CACCI is generously supported by the U.S. Agency for International Development (USAID) through the Feed the Future Innovation Lab for Food Security Policy Research, Capacity, and Influence (PRCI), led by Michigan State University (MSU). It is important to note that the views expressed in this publication do not necessarily reflect those of the funder but represent the perspectives of the authors.

These reports were generated in 2023 and have been in use in-country since that time. All information about policies, programs, and processes are up-to-date as of June, 2023.

About ANAPRI

The African Network of Agricultural Policy Research Institutes (ANAPRI) is a network that brings together various agricultural policy research institutes in Africa. It serves as a platform for collaboration, knowledge sharing, and collective action among its member institutes. ANAPRI works towards promoting evidence-based policy formulation and implementation to enhance agricultural development and food security across the African continent. Through research, policy analysis, capacity building, and advocacy, ANAPRI aims to contribute to sustainable agricultural and rural development in Africa.

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About ISSER

ISSER was established in 1962 as the Institute of Statistics to provide a programme of teaching and research in statistics. In 1969, it was reorganized and renamed the Institute of Statistical, Social, and Economic Research with an expanded mandate to conduct research in the social sciences to generate solutions for national development. ISSER currently serves as the research wing under the College of Humanities, University of Ghana, and engages in several policy-relevant research whose findings are intended to help policymakers on the best policy decisions to make for national development.

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The Africa Network of Agricultural Policy Research Institutes (ANAPRI) is a consortium of national agricultural and food systems policy research centers in Africa. Our primary goal is to generate high-quality evidence that supports policymaking across the continent. We are committed to developing the capacity of national agricultural research institutes and fostering dynamic collaborations. Through effective outreach, we provide balanced and non-partisan advice to stakeholders at the national, regional, and continental levels.

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Please note that any views expressed or errors remaining are solely the responsibility of the authors. For comments and questions, please contact:

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1. Introduction

The impact of climate change on national development is no more an anticipation but a reality. For instance, development in many countries has been thwarted by climate change and its related impact (World Bank, 2018). As a result of the changing climatic conditions, sources of livelihood are affected, people are displaced and sources of revenue generation of various nations are cut off (FAO, 2014). Even though both developed and developing countries are affected, developing countries are more vulnerable to the effect of climate change relative to the developed world. The situation worsens when it comes to countries that depend heavily on agricultural and natural resources for livelihoods, especially in Sub-Sahara Africa (FES & GAWU, 2012).

Ghana, an African country, is very vulnerable to climate change due to its heavy dependence on climate-sensitive sectors such as agriculture, energy, and forestry. The agriculture (crop, animal, and fish production) and forestry sectors serve as sources of livelihood for about 70% of the population in the country (NCCAS, 2010). For this reason, any minimal shock to the sectors due to changes in the climatic conditions heavily affects the nation. This, therefore, calls for pragmatic measures to ensure prevention and adaptability to these changes. For instance, the country's total land under irrigation was less than 1% as of 2010. This affected the living standards of the majority who depend on the sector.

The above makes it clear that the world is grappling with the pressing challenges of climate change, to develop comprehensive strategies for both urgently. As such, governments, communities, and individuals alike must urgently develop comprehensive strategies for adaptation and mitigation measures. Ghana, being no exception, has experienced adverse effects of climate change in recent years, such as droughts, floods, and rising temperatures. Over the past decade, the country has demonstrated a strong commitment to addressing climate change by formulating ambitious policies to combat these challenges.

One notable effort of the Government of Ghana to fight this global phenomenon is the steps taken to fulfil its obligation at the international level. In 2015, Ghana submitted its Intended Nationally Determined Contributions (INDCs) to the United Nations Framework

Convention on Climate Change (UNFCCC), outlining its climate change ambitions, adaptation, and mitigation policies. The INDCs encompass mitigation, adaptation, finance, technology, capacity building, and transparency measures (MESTI, 2015). The country's INDCs are built upon previous national documents submitted to the United Nations Framework Convention on Climate Change (UNFCCC), including the National Communications, Biennial Update Reports, Nationally Appropriate Mitigation Actions (NAMAs), and Technology Needs Assessments (TNAs) (UNFCCC, n.d). In 2020, the INDCs document was updated to enhance the country's commitment to the Treaty and, at the same time, to encapsulate the tenets of the African Union's Agenda 2063. In the updated NDCs, Ghana has developed a national strategy with 19 policy actions to achieve its climate goals, including 13 adaptation and 34 mitigation programmes (MESTI, 2021).

The 13 adaptation measures are divided into seven unconditional and six conditional programmes of action. Ghana aims to implement nine unconditional mitigation programmes that would result in 52.5 $ktCO_2e$ GHG reductions by 2025 and a further 60.7 $ktCO_2e$ by 2030 compared to the cumulative emissions from 2020 to 2030 in a baseline scenario. Also, Ghana can adopt an additional 25 conditional mitigation programmes that could achieve 44.3 $ktCO_2e$ by 2025 and 41.7 $ktCO_2e$ by 2030 if sufficient financial support is provided (UNFCCC, 2016; MESTI, 2021). To implement the 47 NDC measures from 2020 to 2030, Ghana requires an investment amount ranging from US$9.3 billion to US$15.5 billion. Out of this, US$3.9 billion would be needed to implement the 16 unconditional programmes of action until 2030. The remaining US$5.4 billion for the 31 conditional programmes of action would be mobilised from the public, international, and private sector sources, as well as carbon markets. Additionally, Ghana would require an extra US$3 million biennially to support coordination actions and international reporting (MESTI, 2021).

While Ghana has developed a comprehensive set of policies and strategies to address climate change, the effectiveness of these policies and strategies is not yet fully known. The lack of an effective results framework for monitoring and evaluation presents a significant challenge to Ghana's ability to implement its climate change adaptation and mitigation policies effectively. Thus, this document seeks to review the various climate change ambitions and actions so that a coherent set of approaches can be developed to

assess the impact of Ghana's NDCs and other climate change adaptation and mitigation policy initiatives.

2. Review of climate change ambitions and initiatives in Ghana

To propose an effective integrated results framework for Ghana, it is essential to review the country's climate change ambitions, actions, and commitments to serve as the foundation for building the framework. Ghana's main climate change policy initiative document is the National Climate Change Policy (NCCP). The NCCP provides a comprehensive policy framework for implementing various climate change initiatives. It sets the direction for integrating climate change considerations into national development plans, sectoral policies, and decision-making processes. The policy's strategies and action plans guide the formulation and implementation of measures and projects that align with Ghana's commitments to the fight against climate change. Among the various climate change initiatives implemented based on the NCCP framework are the ones in the updated NDCs and the Low Carbon Development Strategy (LCDS). Though the NCCP does not specify specific initiatives, actions, or ambitions, it gives a broad framework for implementing various climate change programmes in the country through the climate change master plan (2015-2020), which is now outdated. Additionally, it serves as a coordination mechanism for implementing climate change actions across different sectors and stakeholders in Ghana. It ensures coherence and synergy among various initiatives and programmes, including those related to mitigation, adaptation, finance, capacity building, and technology transfer.

Various important climate change-related policy documents currently prevail in Ghana are the LCDS and the updated NDCs. While the National Adaptation Plan (NAP) is still ongoing, Ghana, under the Cancun adaptation framework, developed a national climate change adaptation strategy (NCCAS), which was implemented between 2010 and 2020. The updated NDCs outline Ghana's mitigation and adaptation goals and strategies set to enhance its commitments to the global effort in combating climate change. The updated NDCs provide a specific and quantified roadmap for achieving Ghana's mitigation and adaptation targets, guided by the broader policy framework (NCCP). In addition, the updated NDCs align with evolving national priorities and international climate goals. The LCDS, on the other hand, is a long-term development plan that sets a pathway for Ghana

to achieve low-carbon growth. It identifies several key interventions, such as renewable energy, energy efficiency, and sustainable agriculture, that will help Ghana to reduce its emissions and build climate resilience. Thus, while the LCDS provides a long-term vision and strategic framework for achieving low-carbon development in Ghana, the updated NDCs outline the country's specific climate commitments and actions, including mitigation and adaptation measures as part of its effort to meet its commitments under the Paris Agreement.

It is, however, essential to recognise that the updated GH-NDCs cover all the initiatives specified in the LCDS. For instance, as the LCDS identifies renewable energy as a key priority for Ghana's low carbon transition, the NDCs set a target for Ghana to increase its share of renewable energy in its electricity mix to 10% by 2030 (MoF, 2016; MESTI, 2015; 2021). Again, while the LCDS identifies energy efficiency as a key priority, the NDCs set a target for Ghana to reduce its energy intensity by 30% by 2030 (MoF, 2016; MESTI, 2015; 2021). The LCDS also includes several measures to promote sustainable agriculture; the updated NDCs also set a target for Ghana to reduce its emissions from deforestation and forest degradation by 50% by 2030 (MESTI, 2015; 221). For this reason, the discussion in this document would consider the two as the composite climate change initiative.

2.1 The goals and ambitions of Ghana's climate change initiatives

Ghana's climate change initiatives, both past and present, are guided by several goals and ambitions aimed at addressing climate change impacts, reducing greenhouse gas emissions, building resilience, and promoting sustainable development. For instance, the NCCP, which is the implementation framework for all current climate change initiatives, has the vision "to ensure a climate-resilient and climate-compatible economy while achieving sustainable development through equitable low carbon economic growth for Ghana" (MESTI, 2012, pp. 1–8). Based on this, it is possible to group the country's goals and ambitions for climate change under two broad categories namely 1) mitigation goals and 2) adaptation goals. In addition, other specific initiatives are aimed at making these goals and ambitions more sustainable.

2.1.1 Mitigation Goals

These are climate change ambitions and goals aimed at reducing Ghana's greenhouse gas emissions and contributing to the global efforts to combat climate change. These include all initiatives and actions taken at the national, sub-national, and community levels aimed at reducing GHG emissions. Through the updated NDCs, Ghana aims to achieve significant outcomes in GHG emission reductions by 2030. This includes an absolute GHG emission reduction of 64 MtCO2e and the creation of over one million decent and green jobs, which together with other related measures will contribute to avoiding at least 2,900 premature deaths annually due to improved air quality (MESTI, 2021). The updated NDCs have divided mitigation measures into unconditional and conditional actions. Under the updated NDCs, Ghana plans to implement nine (9) unconditional mitigation programmes that would result in 8.5 MtCO2e GHG reductions by 2025 and a further 24.6 MtCO2e by 2030. Additionally, there are 25 conditional mitigation programmes with the potential to achieve 16.7 MtCO2e by 2025 and 39.4 MtCO2e by 2030, contingent on financial support from the international and private sectors (MESTI, 2021).

2.1.2 Adaptation Goals

Adaptation goals are the various goals and ambitions aimed at building the country's resilience to tackle the effects of climate change. Such initiatives prioritise the building of resilience and the enhancement of people's adaptive capacity to cope with the impacts of climate change. The country aims to develop and implement national, sub-national, and community adaptation strategies and actions to address vulnerabilities and increase resilience across various sectors (EPA, 2019). Ghana's updated NDCs specify 13 adaptation programmes of action, which are divided into seven (7) unconditional and six (6) conditional programmes of action. The aim is to help the country build resilience to climate change.

Notwithstanding these two broad categorisations, there are specific initiatives (goals and ambitions) the country seeks to undertake. These initiatives are aligned with some specific sectors that are climate sensitive. They include the following:

Sustainable Energy Transition: Ghana is committed to transitioning to a low-carbon and sustainable energy system. The country aims to increase the share of renewable

energy in its energy mix and enhance energy efficiency. Ghana set a target of 10% of its electricity generation from renewable sources by 2020 and 50% by 2030 (Ministry of Energy, 2020). These targets are aimed at strengthening the country's mitigation goals of reducing overall emissions by 45% by 2030.

Sustainable Land Management: To combat deforestation, land degradation, and desertification, Ghana aims to promote sustainable land management practices. The country seeks to increase forest cover, restore degraded lands, and promote sustainable agriculture and agroforestry. These efforts contribute to climate change mitigation, and adaptation through biodiversity conservation and livelihood improvement (EPA, 2012).

Green Economy and Circular Economy: Ghana is committed to transitioning to a green and circular economy. The country aims to promote sustainable consumption and production patterns, reduce waste generation, and enhance resource efficiency. This includes initiatives such as waste management, recycling, and the promotion of sustainable business practices (GoG, 2015).

Ghana, through the updated NDCs, has designed 47 climate change mitigation and adaptation programmes. This is great as it indicates a step forward to contributing to the global climate change fight. However, as an African country and, for that matter, a developing country, Ghana's contribution to GHG emissions is insignificant (0.1% of global GHG emissions) relative to other industrial and advanced economies like the US, China, Japan, etc. (World Bank, 2016). Meanwhile, the country has committed more resources to adaptation/resilience programmes and actions in monetary (Dollars) than mitigation programmes and actions. Conversely, there are more programmes and actions on mitigation than adaptation. Thus, out of the 47 programmes of action specified in the updated GH-NDCs, only 13 are geared toward adaptation drive (MESTI, 2021). Though mitigation is key in the global fight against climate change, countries in Africa, such as Ghana, need to increase the number of adaptation programmes to be better prepared for the impact of climate change.

2.2 Priority Actions in Ghana's NDC

Ghana's NDCs encompass several priority actions across different sectors to address climate change. These priority actions focus on both mitigation (reducing greenhouse gas emissions) and adaptation (building resilience to climate change impacts). Here are some key priority actions highlighted in Ghana's NDCs:

Renewable Energy and Energy Efficiency: Ghana prioritises the promotion of renewable energy sources and energy efficiency measures. The NDCs aim to increase the share of renewable energy in the country's energy mix and enhance energy efficiency across various sectors. This includes expanding the deployment of solar, wind, and hydroelectric power, as well as implementing energy-saving initiatives in industries, buildings, transportation and promoting rural electrification. Specifically, the country plans to increase the share of renewable energy in its energy mix to 50% by 2030 (MESTI, 2021; MoE, 2020).

Forestry and Land Use: Through the NDCs, Ghana prioritises sustainable forest management to protect its forests and mitigate climate change. Priority actions include increasing forest cover, implementing reforestation and afforestation programmes, and promoting agroforestry practices. This will be achieved through several measures, including the promotion of community-based forest management and the update and strict enforcement of the provisions in the Forest and Wildlife Policy of Ghana (Ghana Forestry Commission, 2021; MESTI, 2021).

Agriculture: The NDCs document identifies sustainable agricultural practices as a priority to enhance food security, reduce vulnerability to climate change, and reduce GHG emissions. The various actions to attain these goals include promoting climate-smart agriculture (development of climate-resilient crops), agroecology, efficient irrigation techniques, and extension services. Additionally, the need to improve early warning systems and climate information services for farmers as action points have been highlighted in the NDCs document (MESTI, 2021).

Waste Management: Ghana's NDCs emphasise the importance of proper waste management in reducing GHG emissions and promoting a circular economy paradigm. In

that light, the priority actions include waste reduction, recycling, and waste-to-energy initiatives. Of significant importance, as identified in the NDCs document, is the critical need for capacity building and increased public awareness to champion sustainable waste management practices (MESTI, 2021; EPA, 2019).

Water Resources and Coastal Zones Management: The vulnerability of coastal areas (both humans and resources) and the various water resources to climate change in Ghana meant prioritising actions in the NDCs to enhance the resilience of the natural resources and the adaptive capacity of the inhabitants. The prioritised actions include the development of integrated water resources management strategies, the protection of coastal ecosystems, and the implementation of climate-resilient infrastructure and coastal zone management plans (MESTI, 2021).

It is important to note that Ghana's NDCs provide a comprehensive set of priority actions across multiple sectors. The specific measures and their implementation may vary over time, depending on the nature of various national priorities at each point in time and the available financial, technical, and human resources. Continuous updates and revisions to the country's NDCs promote alignment with the changing circumstances and the advancement of the climate change agenda.

3. The Ghana Climate Ambitious Reporting Programme

The Paris Agreement (Article 13) introduced an enhanced transparency framework (ETF) with new additional reporting requirements. Ghana launched a Climate Ambitious Reporting Programme (G-CARP) in 2013, in response to the call to establish a domestic monitoring and reporting system. The G-CARP was meant to facilitate the establishment of an integrated climate data management system that can support the preparation of national and international reports on GHG, climate actions implemented, financial and technical support received, and the tracking of NDCs targets and indicators (MESTI, 2019). The domestic Measuring, Reporting and Verification (MRV) system aims to ensure that the existing sector-specific and national development Measurement and Evaluation (M&E) systems is able to measure: (a) GHG emissions or reductions attributed to mitigation actions (b) climate-related support provided by the Government of Ghana or donors in the form of finance, technology transfer and capacity-building to enable

implementation of a certain action, or as a result of an action taken in a particular sector of the economy; (c) sustainable development benefits of mitigation actions. The MRV system has four key components, viz, the institutional arrangements (identification of institutions and their roles within the systems), data handling (identification of data to be collected, data sources, templates and data collection frequencies), the methods, tools and protocols (guidelines, GHG manuals, data quality control and assurance manual), and lastly, skills development (which deals with continuous capacity development and learning by doing).

The G-CARP system identified a number of existing national/international reporting mechanisms that would assist in the collection and tracking of data (e.g., indicators) on the progress of the implementation of mitigation actions in Ghana. A list of approximately 40 existing reporting channels for collecting and tracking data was identified from the national to the project levels, including national budgets, agricultural census, NCs and reports from various sector-specific projects. Thus, the plan is to make use of the existing reporting platforms relevant to the MRV process. The country's Annual Progress Reporting (APR) tool has been identified as being robust and would be integrated into the MRV system.

The MRV is integrated into the existing national development M&E system at the national, sectoral, and as much as possible at the sub-national levels. As part of the integration process, indicators for climate mitigation actions, effects, and co-benefits for key policies and measures have been developed and included in the national M&E framework. The M&E framework will track the implementation of national and sector policies and programmes, including those on climate mitigation and adaptation, and report annually in the APR. The APR is meant to become the main M&E framework for monitoring the implementation of mitigation actions, their GHG impacts, and co-benefits. The existing annual reports submitted by industries to regulatory bodies such as the Environmental Protection Agency (EPA) and the Energy Commission of Ghana are to be used to monitor facility-level reporting. The MRV/M&E templates have been developed for use in the collection and reporting of data by relevant institutions, ministries, and agencies in the country. Most of the government institutions have established a data platform from which the climate change mitigation data are collected. In each of the NDCs sectors (E.g., Energy,

Transport, Forestry, and Waste) there are contact persons responsible for the collection, processing, and documentation of information on specific mitigation actions assigned to them. They are to collect the information using the MRV data template for mitigation actions that are hosted on the secured web.

3.1 The Ghana National Monitoring and Evaluation System

Recognising the importance of monitoring and evaluation for national development planning and programming, the Government of Ghana sought to strengthen the institutionalisation of the National Development Monitoring and Evaluation System in 2017 with the creation of a Ministry of Monitoring and Evaluation in 2017, backed by the drafting of a National M&E Policy document in 2019 (NDPC, 2019). However, the Ministry of Monitoring and Evaluation ceased to exist in 2021. The M&E at the national level is an aggregation of all the M&E systems in the country. The coordination of all M&E activities in the country is the responsibility of the National Development Planning Commission (NDPC). The national M&E system provides the mechanisms to monitor and evaluate the implementation of government policies and programmes at all levels of governance, as shown in Figure 1. Additionally, the M&E system provides the basis for monitoring the progress of implementation of internationally agreed development goals and other partnership agreements such as the Sustainable Development Goals (SDGs), NDCs, and Multi-Donor Budget Support (MDBS) triggers and targets. The output of the national M&E system provides the most authoritative source of information on progress towards the achievement of the goals and objectives of all national development programmes and partnership agreements, including the NDCs.

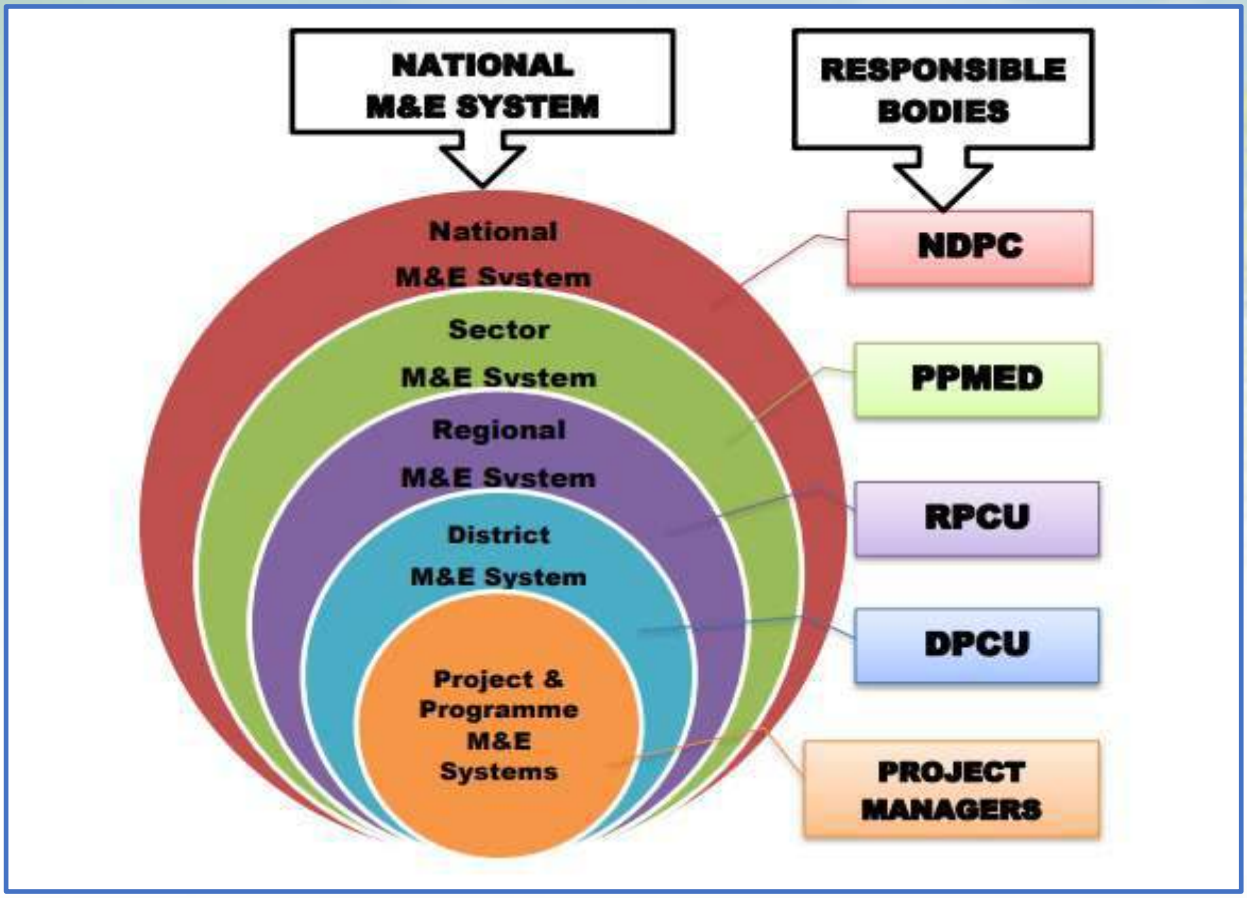

Figure 1: Hierarchy of National M&E System in Ghana

Source: NDPC, 2019

As captured in Figure 1, the NDPC is responsible for M&E at the national level. At the same time, sectoral M&E activities are headed by the Policy, Planning, Monitoring and Evaluation Divisions of the various sector ministries. Regional and District levels M&E systems are manned by the regional planning and coordination unit, and district planning and coordination units, respectively. Project and programmes-based M&E systems are the responsibility of the projects/programme managers. M&E data/reports are expected to feed into the upper levels by each successive lower-level M&E system (Figure 1).

The current national monitoring system is based on core national indicators, including indicators on climate change adaptation and mitigation, that form the basis of performance reporting at the sector and district levels. A key output of the national level monitoring system is the APR, prepared by each sector and every Metropolitan, Municipal, and District Assembly (MMDA), which is submitted to Parliament for review. The NDPC, which is responsible for developing the framework for the national monitoring

system, develops a result framework in sync with the National Medium-Term Development Plan and tracks the performance of projects and programmes. Figure 2 is a diagrammatic representation of the results framework of the National Development Monitoring and Evaluation System.

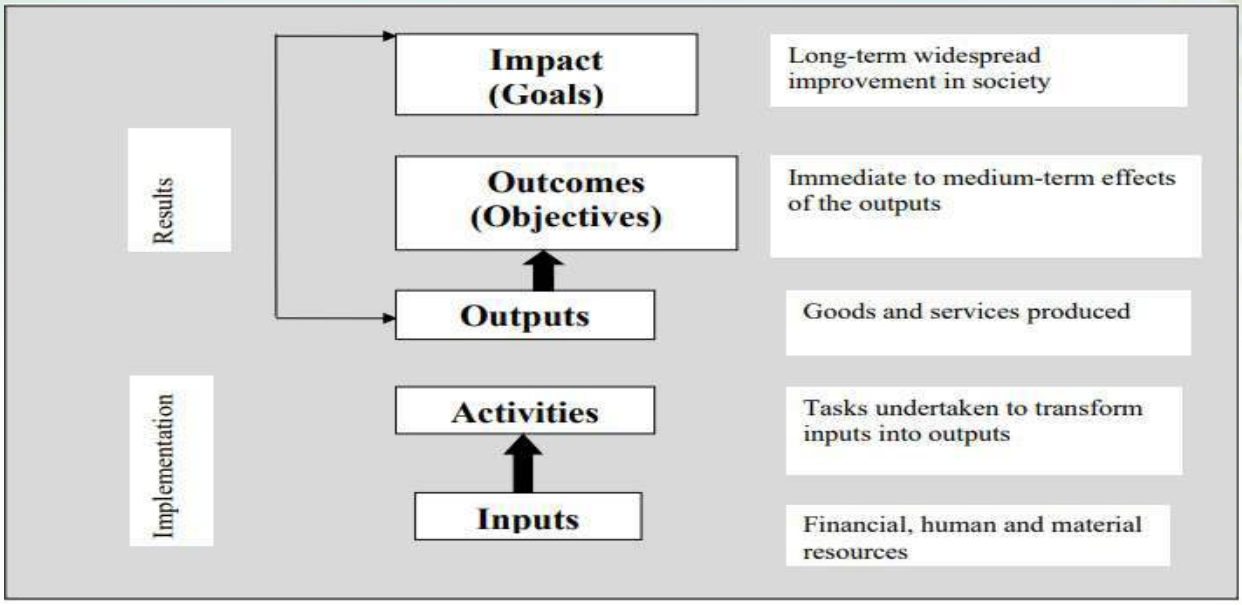

Figure 2: National M&E Results Chain in Ghana

Source: NDPC, 2019

The results chain provides a set of logical relationships in the process of implementing development interventions from the inputs to the impact levels. The results chain forms the basis for the development of a Logical Framework and the Theory of Change approaches in designing development programmes and projects. The results chain, as per Figure 2, means that national development interventions are designed to bring about long-term change in the lives of all the people living in Ghana. However, to achieve these, some financial, human, and material resources are required (inputs). As part of the process, some activities must be carried out using the inputs. The activities are completely dependent on a combination of the inputs. The performance of these activities will then lead to the production of goods and services (outputs) for consumption of the target beneficiaries. The utilisation of these outputs in the short-term is expected to bring about changes in attitudes and behaviour (outcomes) in the population. Over the longer term, changes in livelihoods and standards of living (impact) in the target population are expected.

3.2 Integrating Monitoring and Evaluation Systems

The National Development M&E System is expected to integrate all M&E systems in the country, from sectorial to the MMDA levels. The various sectors are expected to develop integrated monitoring indicators relevant to their sectors. As such, the NDCs indicators are captured regarding the sector-specific M&E plans of all ministries and collated into the national M&E indicator framework. The various MMDAs are expected to develop their own local development M&E indicators, capturing indicators relevant to the NDCs, as provided in the national development indicator framework. Thus, a parallel M&E system for the NDCs has not been developed, but NDCs indicators are captured in single, integrated, sector-based, regional level, and MMDA levels M&E systems. These indicators are monitored and reported yearly in the APRs of the various sector ministries, regions, and MMDAs.

The G-CARP has provided for this integration, and a good level of progress has been made in that regard. The G-CARP system identifies institutional roles in MVR data generation and reporting. This has already been done for several relevant sectors and institutions, as shown in Table 1. The system will then seek to integrate the relevant indicators into the M&E systems of these institutions and sector ministries, which will be monitored and reported on in the APRs. This process is planned to be replicated downwards as much as possible, even at the MMDA levels. Thus, the G-CARP will be fully integrated into the National M&E system, reporting on all development indicators, including the NDCs indicators, in the APRs.

Table 1: Institutional Roles/Involvement in the G-CARP Data Generation

Institutions	Data Platform	Data Type	Frequency	Format
Ministry of Food and Agriculture (SRID)	Agriculture Facts and Figures	Food, livestock data	Annual	Pdf online
Energy Commission (Strategic Planning and Policy Division)	Energy statistics,	Energy production, Consumption pattern	Annual	Pdf online
	Energy outlook,			
	Energy information database		Regular updates	Online database
Forestry Commission	Forestry Inventory	Forestry production, harvesting, land use and change data, land disturbances data	Unknown	Offline
	REDD+ Registry	Forestry mitigation projects	Upcoming	
Ghana Statistical Service	Ghana Living Standard Survey	Household data	5 years	Pdf online
	Population Census	Demographic data	10 years	Pdf online
National developing planning commission	National Annual Progress Report (APR)	Annual	Annual	Hard copy
	SDGs progress report	Comprehensive SDG data	Upcoming	Unknown
Environmental Protection Agency	Annual Climate Change Report	Climate change data	Proposed	Proposed online
	Biennial update report	GHG and mitigation data	Bi-annual	Online
	National Communication	GHG, mitigation, adaptation data	4 years	Online
	Akobenn and EIA Reporting	Environmental performance data	Bi-quarterly	Online
	Adaptation communication	Climate adaptation progress	Periodically (flexible)	Pdf online
Driver Vehicle and Licensing Authority	Vehicle registration and road-worthy database	Vehicle population	Annual	
Ministry of Local Government and Rural Development	Sanitation database	Solid and liquid wastewater	Unknown	Unknown

Source: EPA, 2019

3.3 Climate M&E Results Framework

Based on the absence of a parallel GH-NDCs M&E system, there is, therefore, no Results Framework for Climate adaptation and mitigation in Ghana. Accordingly, the results framework for climate action in Ghana has been mainstreamed into the National Development Planning Commission (NDPC) systems in a bid to avoid duplications in reporting on climate change and other national development issues. Per the review thus far, the extent to which the NDPC architecture is helping the reportage on climate actions at the national to sub-national levels in Ghana is not apparent. Therefore, a Climate Results Framework has been proposed for the country, as depicted in Figure 3. The framework has mitigation and adaptation goals at the highest level, followed by sectorial adaptation/mitigation outcomes and intermediate outcomes based on programmes of action. The outputs of specific activities then follow, which need inputs to be carried out.

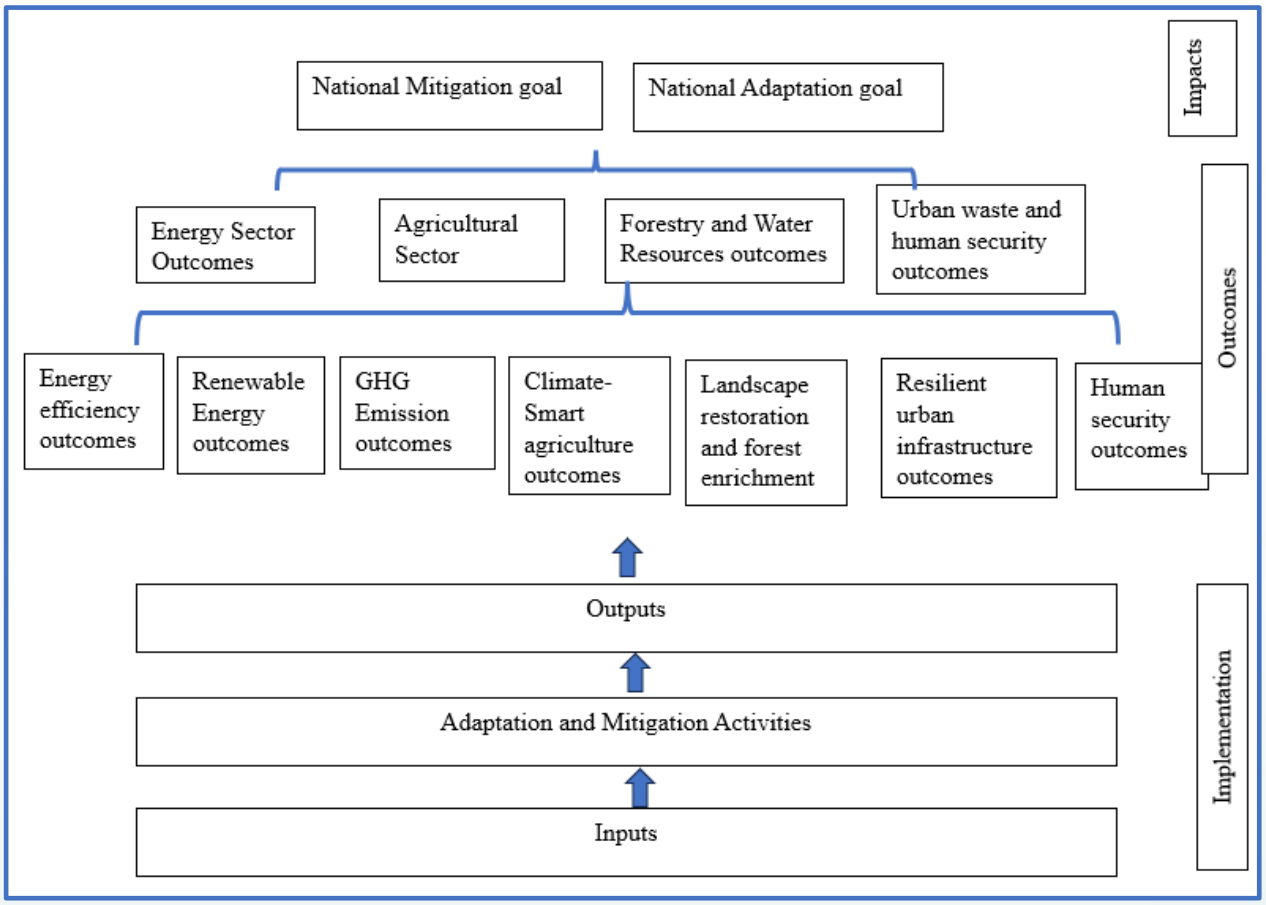

Figure 3: Ghana National Climate Results Framework

Source: Authors' Construct

3.4 Key Performance Indicators

Performance indicators are the pointers to assess progress in the achievement of set objectives and goals. Key performance indicators have been developed to track Ghana's NDCs. The indicators cover both mitigation and adaptation targets. These were carved out based on the National Climate mitigation goals, objectives, and outcomes. The indicators cover two levels of results, viz, outputs and outcomes. In all, 17 outcome indicators and 55 output indicators have been captured. Out of these, six are proposed indicators that were not initially captured. It is important to note that there were indicators for the 'Gender and Vulnerable' thematic area of the adaptation actions. The indicators cover both adaptation and mitigation NDCs. The indicators set (see Table 2) cover five adaptation strategic programme areas and four mitigation programme areas. While 31 indicators are set to measure progress on adaptation actions, 41 are set to measure achievements of the mitigation activities.

Table 2: Key Performance Indicators for Tracking Ghana's NDCs

Codes	KPIs by Sectors	Indicator Type	Baseline Year	NDC Type	Data Source	Notes
1.0	**Agriculture and food security**					
1.1	Average productivity of selected crop (Mt/Ha)	Outcome	2020	Adaptation	MOFA	
1.2	Number of districts practicing climate-smart agriculture	Output	2020	Adaptation	MOFA	
1.3	Number of farmers adopting climate-smart cropping systems	Output	2020	Adaptation	MOFA	
1.4	Percentage of Climate-smart technologies deployed	Output	2020	Adaptation	MOFA	
1.5	Number of farmers adopting climate-smart livestock and fisheries production	Output	2020	Adaptation	MOFA	
1.6	Number of districts implementing post-harvest storage and food and forest products processing systems	Output	2020	Adaptation	MOFA	
1.7	Number of post-harvest management interventions in a district	Output	2020	Adaptation	MOFA	
2.0	**Sustainable Forest Resource Management**					
2.1	Length of boundaries of wildlife protected areas and GSBA secured and maintained	Output	2020	Adaptation	FC	
2.2	Number of CREMAs established	Output	2020	Adaptation	FC	
2.3	Hectares of wildlife corridor protected	Output	2020	Adaptation	FC	
2.4	Number of visitors to eco-tourism site	Output	2020	Adaptation	FC	
2.5	Number of ecotourism sites developed within protected areas and ramsar sites	Output	2020	Adaptation	FC	

2.6	Hectares of PAs and GSBAs earmarked for avoided emissions and biodiversity/ carbon trading programmess	Output	2020	Adaptation	FC	
3.0 Resilient Infrastructure in Built Environment						
3.1	Number of deaths, missing persons, and directly affected persons attributed to disasters per 100,000 population	Outcome	2020	Adaptation	MINT, NADMO	
3.2	Number of districts with functional climatic condition surveillance systems	Output	2020	Adaptation	GHS, GMet	Ghana Meteorological Agency is key to this output
3.3	Number of policies and regulatory frameworks for green and resilient infrastructure	Output	2020	Adaptation	MWH	
3.4	Number of MMDAs with drainage master plans	Output	2020	Adaptation	MWH	
3.5	Length of coastline protected	Output	2020	Adaptation	MWH	
3.6	Number of synoptic automatic stations established	Output	2020	Adaptation	GMet	
3.7	Number of functional emergency operation centres	Output	2020	Adaptation	NADMO	
4.0 Climate change and health						
4.1	Incidence of malaria, CSM and diarrhoea in children 0-59 months	Outcome	2020	Adaptation	GHS	
4.2	Proportion of prioritised indicators for climate-sensitive conditions	Output	2020	Adaptation	GHS	
4.3	Number of districts with completeness of reporting on climate-sensitive conditions	output	2020	Adaptation	GHS	
5.0 Water resources						
5.1	Proportion of bodies of water with good ambient water quality (Water quality index)	Outcome	2020	Adaptation	MSWR WRC	
5.2	Number of basins with integrated water resource management (IWRM) plans	Output	2020	Adaptation	MSWR, WRC	
5.3	Proportion of watersheds affected by illegal mining reclaimed	Outcome	2020	Adaptation	MSWR, MNR	Proposed indicator
Gender and the vulnerable						
	Number of institutional capacity trainings conducted on integrating gender and vulnerable considerations in the implementation of NDCs	Output		Adaptation	EPA, MESTI, NDPC	Proposed indicator
	Change in productivity of staple crops by women and PWDs in tons/ha	Outcome		Adaptation	MOFA	Proposed indicator
	Number of women and PWDs trained on climate-smart farming technologies	Output		Adaptation	MOFA	Proposed indicator
	Percentage of women and PWDs affected by flooding annually	Outcome		Adaptation	NADMO	Proposed indicator

	Number of programmes/projects targeting women/PWDs, implemented to provide safeguards against climate change impacts	Output		Adaptation	MESTI, NDPC	Proposed indicator
6.0 Sustainable energy security						
6.1	Greenhouse gas emissions	Outcome	2021	Mitigation	MESTI, EPA	
6.2	Change in Renewable Energy (RE) penetration	Outcome	2021	Mitigation	MoEn, VRA, BPA	
6.3	Share of efficient regulated appliances on the market	Outcome	2021	Mitigation	MoEn, EC	
6.4	Percentage of gas flared in the oil and gas fields	Outcome	2020	Mitigation	EPA, EC	
6.5	Number of institutional biogas facilities	Output	2020	Mitigation	MESTI, Biogas Association	
6.6	Number of efficient residential refrigerators	Output	2020	Mitigation	EC	
6.7	Number of efficient ACs in Public and Commercial buildings	Output	2020	Mitigation	EC	
6.8	Number of efficient light bulbs/lamps in homes	Output	2020	Mitigation	EC	
6.9	Number of efficient light bulbs in public and commercial buildings	Output	2020	Mitigation	EC	
6.10	Number of residential efficient air conditioners	Output	2020	Mitigation	EC	
6.11	Amount of energy intensity used in producing and distributing water	Output	2020	Mitigation	GWCL	
6.12	Total emissions savings from the use of green cooling systems	Output	2020	Mitigation	National Ozone Unit, EPA	
6.13	Change in energy demand by steel industry	Outcome	2020	Mitigation	MID, EPA, GNCPC and MOTI	
6.14	Percentage of thermal plants that run on natural gas as primary fuel	Output	2020	Mitigation	VRA, IPPs	
6.15	Total capacity of converted combined thermal plants	Output	2020	Mitigation	VRA, IPPs	
6.16	Amount of nuclear energy in electricity generation mix	Output	2020	Mitigation	MoEn	
6.17	Percentage of households adopting LPG	Outcome	2020	Mitigation	MoEn	
6.18	Number of households adopting improved biomass stoves	Output	2020	Mitigation	MoEn	
6.19	Percentage of commercial charcoal production individuals using innovative and efficient wood carbonisation kilns	Outcome	2020	Mitigation	MoEn	
6.20	Hectares of woodlots established	output	2020	Mitigation	MoEn, EC	
6.21	Number of solar lanterns distributed to households	Output	2020	Mitigation	MoEn, EC	
6.22	Total installed capacity of distributed solar PV	Output	2020	Mitigation	EC	
6.23	Number of solar mini grids established (Data includes private sector)	Output	2020	Mitigation	MoEn	
6.24	Total installed utility-scale solar electricity capacity	Output	2020	Mitigation	EC	
6.25	Total installed hydro capacity	Output	2020	Mitigation	MoEn	

6.26	Total utility scale wind power capacity	Output	2020	Mitigation	EC	
7.0 Sustainable Forest Resource Management						
7.1	Area of degraded forests restored or rehabilitated	Outcome	2020	Adaptation	MLNR, FC	
7.2	Amount of emission from the REDD+ programme	Output	2020	Adaptation	FC	
7.3	Hectares of degraded woodlands restored	Output	2020	Adaptation	FC	
7.4	Hectares of degraded forest restored	Output	2020	Adaptation	FC	
7.5	Hectares of trees planted on farmlands	Output	2020	Adaptation	FC	
7.6	Hectares of avoided forest burning	Output	2020	Adaptation	FC	
8.0 Sustainable Mass Transportation						
8.1	Length of rail lines constructed	Output	2020	Mitigation	MoRD	
8.2	Number of operational locomotives	Output	2020	Mitigation	MoTr	
8.3	Number of buses with efficient diesel engines	Output	2020	Mitigation	MoTr	
8.4	Length of non-motorised transport lanes constructed	Output	2020	Mitigation	MoTr	
8.5	Number of overaged import cars restricted	Output	2020	Mitigation	MoTr	
8.6	Number of electric vehicles in use	Output	2020	Mitigation	MoTr	
9.0 Alternative Urban Waste Management						
9.1	Proportion of solid waste properly disposed of (major towns/cities)	outcome	2020	Mitigation	MSWR, GSS	
9.2	Number of landfill sites with at least 50% methane recovery	Outcome	2020	Mitigation	MSWR	
9.3	Volume of waste to compost plants	Output	2020	Mitigation	MSWR	
9.10	Number of composting plants established	Output		Mitigation	MSWR	

Source: EPA, 2023

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