

UNITED NATIONS DEVELOPMENT PROGRAMME IN GHANA

ENVIRONMENT AND CLIMATE CHANGE IN GHANA POLICY BRIEF

DECEMBER 2021

Environment and Climate Change in Ghana: Policy Brief

1. PROGRESS TOWARDS ENVIRONMENT AND CLIMATE PRIORITIES

Climate change and natural hazards

Climatic projections for Ghana include greatest rainfall variability in the forest zones, highest temperatures in the savannah zones, higher likelihood of floods with 10% of the country being highly hazardous, and droughts, particularly in the savannah regions of Ghana. Flooding due to high-intensity rainfall, land degradation and dumping of solid waste compromise the already inadequate flood management systems, in addition to farms being located in floodplains. Crop yields are already decreasing with limited water due to deforestation, low rainfall, and inadequate water harvesting. Heat stress and drought-related death are evident in northern regions, affecting people and livestock. Rainfall variability is particularly significant in the transition and forest zones. This is being detrimental to cocoa, mango, papaya, and other fruit yields.¹ With expected population growth and planned economic growth, demands on water for drinking, sanitation, hydropower, and both rain-fed and irrigated agriculture will come under increasing threat. Ghana is projected to

become water-stressed by 2025. Natural hazards can damage critical infrastructure, cause pollution, disrupt basic services and increase the incidence of vector-borne disease. Further, sea-level rise (SLR) of 2.1mm over the last 30 years², and projected SLR of 0.8m by 2100, will intensify coastal flooding and erosion (already expected to have 67% greater population exposure by 2050³). This will also contaminate soils and groundwater, and impact ecosystems, towns, and critical infrastructure, with 30% of the population occupying the coastal zone.

Marine, freshwater, and terrestrial ecosystems

Fish catches show a declining trend (1992-2016), leading to a drop in per capita consumption by 20% (2006-2016), and increasing imports as the population grows consistently over 50% since 2006. Changes in the composition of key species caught are indicative of overexploitation which threatens stocks levels and biodiversity. These species are also under pressure from land-based sources of pollution and inappropriate fishing

¹ GoG 2017; GoG 2012

² GoG 2012

³ World Bank 2020

methods such as poisoning. This is being caused by overcapacity in the open-access fisheries, climate change, and illegal, unreported, and unregulated (IUU) practices. Ocean temperatures and acidification due to climate change are altering currents, upwelling and other factors negatively, impacting fish production. Similar trends are observed in inland fisheries, though few of them are monitored. On the other hand, aquaculture has been expanding.⁴ Ghana has designated only 0.1% of its marine space as protected areas⁵. Poor agricultural practices, surface mining, desertification, climate variability and change, pollution due to the absence of waste treatment, and ineffective management, are all negatively impacting freshwater resources. The annual loss of forest cover at 2% (135,000ha) in Ghana is amongst the world's highest⁶. This is driven principally by agriculture (50%), wood harvesting (35%), population and development pressures (10%), and mining and mineral exploitation (5%)⁷. This contrasts with other reports indicating a 0.3% growth in forest cover due to afforestation, regeneration, and fewer fires⁸. High-value timber species are under heavy pressure from illegal exploitation and more than 80% of lumber is harvested illegally for the domestic market⁹. There are 282 protected areas in Ghana, with nearly 80% being in the high forest zone which also encapsulates most of the country's biodiversity¹⁰.

Low precipitation, drought, climate change and wildfires have helped to expand the transitional zone eco-region and its conversion to timber plantations. Off-reserve forests have mostly succumbed to settlements, infrastructure, urban and agricultural expansion, with risk of destruction by 2025 and thereby heightening the threat to the forest reserves¹¹.

⁴ World Bank 2020; EPA 2020

⁵ World Bank 2020

⁶ Estimates range between 98,5000-315,000ha per annum (World Bank 2020); some data indicate primary forest loss of [60% during 2017-2018](#) and [136,000ha lost in 2020](#); other reports indicate annual losses ranging between [0.6](#) and [3%](#).

⁷ Forestry Commission 2015

⁸ EPA 2020

On-reserve forests are significantly degraded, with under 20% having acceptable integrity. Conversion to monocultures is contributing to the decline in cocoa yields since mixed systems help maintain pollinators, soil fertility, shade, and water.¹²

Air pollution

Air pollution is considered the greatest environmental public health risk in Ghana. The use of solid biomass, coal and kerosene for household needs (70% of the population) is the main contributor to household air pollution¹³, emitting CO, NO₂, SO₂ and particulate matter (PM). The government plans adoption of 2 million efficient household cookstoves by 2030¹⁴, with a bilateral agreement with Switzerland to catalyse private sector investment in clean cookstoves. Ambient air pollution (AAP) is highest in urban areas due to the high population density, traffic congestion, Saharan dust and polluting industries such as e-waste burning. Exposure to PM_{2.5} levels above WHO guidelines affects the entire population, with the greatest impacts on the poor, elderly and children.

The transportation sector, particularly on-road, is another significant contributor to air pollution as well as GHG emissions, estimated at 17% of the total and 48% of the energy sector¹⁵. Among its goals, the National Transport Policy is seeking to provide transport infrastructure and services without compromising the integrity of society, environment, health, and the climate. It is also seeking to create an accessible, affordable, reliable, safe, and secure transport system for all users. Infrastructural improvement plans include facilitating the participation of the private sector in construction, rehabilitation, and management of road transport services through private-public partnerships (PPPs).¹⁶ The Energy Commission's Drive Electric Initiative (DEI) was designed to promote Electric Vehicle (EV) demand with the

⁹ Forestry Commission 2015

¹⁰ MLNR 2012

¹¹ Forestry Commission 2015

¹² World Bank 2020

¹³ World Bank 2020

¹⁴ GoG 2018a

¹⁵ EPA 2020

¹⁶ GoG 2017; World Bank 2020; Ackom et al. 2016

goal of 100 EVs and 10 public charging stations by 2020. The aim is to utilise the country's excess power capacity which is calculated to be able to power 1.5 million EVs. However, this will most likely not contribute to decarbonising the economy. Even with low residential tariffs under US\$0.10/kWh, it costs 13.5% more to own an EV. With the EV transition at an embryonic stage, maintenance skills gaps exist coupled with limited charging infrastructure and spare parts.

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Waste and chemicals management

Over 500,000 tonnes of e-waste were generated between 2010 and 2016. Besides domestic disposal, e-waste is imported, thus circumventing Basel Convention rules and reflecting weak regulatory enforcement. The extraction of metals from e-waste pollutes the air (PM_{2.5}, CFCs, dioxins, PCBs and other carcinogens), especially from burning plastic cables; the ground with remnant metals; and watercourses, groundwater and the Gulf of Guinea. The Hazardous and Electronic Waste Control and Management Act 2016 (Act 917) provides for the establishment of an Electrical and Electronic Waste Management Fund to finance modern e-waste recycling facilities, research and reporting, and education and awareness. Infrastructure is absent for safe disposal of hazardous waste.¹⁹

¹⁷ Energy Commission
<http://www.energycom.gov.gh/files/concept%20note%20Drive%20electric.pdf>; UNDP 2020

¹⁸ MOT et al. 2020; UNDP 2020; Ayetor et al. 2020; <https://cleantechnica.com/2020/07/20/ghana-pushes-for-adoption-of-evs-to-soak-up-excess-electricity-generation-capacity/>

In Ghana, an average of 14% of waste is collected²⁰, up from 5% in 2008²¹, with disparities across regions and between rural and urban. In Accra, 75% of solid waste is properly collected but still with inadequate infrastructure capacity. Plastics represent 10-14% of municipal solid waste (MSW) at 1.1 million tonnes annually, contributing in large measure to flooding from clogged drains and outbreaks of vector-borne diseases. Ghana contributes 1-3% of global marine debris, estimated at 92,000-260,000 tonnes annually, projected to surpass 350,000 by 2050. Micro and nano plastics bioaccumulate in the food web, increasing their toxicity, exacerbated by their affinity to bind with persistent organic pollutants (POPs). Absorption has impacts including impaired cognition and development, cancers, and decreased fertility. They also destroy marine life through entanglement, asphyxiation, and toxicity. Plastic-derived leachates contaminate surface and groundwater.²²

The plastics value chain employs over 147,000 people, with almost all of the 2-5% of recycled plastics collected by the informal sector, which receives minimal government support compared to their formal counterparts²³. The recent National Plastic Management Policy (NPMP) focuses on behaviour change, strategic planning, and collaboration, in promoting a circular economy. It asserts that a “vibrant” recycling industry could recover close to 1 million tonnes of plastics and create 5 million jobs. The NPMP plans to establish an Extended Producer Responsibility (EPR) Scheme and operationalise the environmental tax to capitalise on the Plastic Waste Recycling Fund.²⁴

Mineral extraction and recovery are among the most hazardous and polluting sectors, with a significant majority of the operations being illegal and unregulated. Mercury contamination of air, water and land is found in its highest

¹⁹ Kumi et al. 2018

²⁰ World Bank 2020

²¹ MLGRD 2009

²² World Bank 2020; MESTI 2020

²³ World Bank 2020

²⁴ MESTI 2020

concentrations in communities and ecosystems in the vicinity of galamsey sites.

The informal mining and e-waste sectors are a major source of livelihoods, youth employment and child labour. In mining, 80% are aged 15-35 and 25% of e-waste collectors are under 15²⁵. Galamsey is disrupting aquatic ecosystems by diverting or inhibiting river flows, elevating flood risk, and increasing sediment loading and heavy metal contamination in major rivers, to the extent that the water utility has had to discontinue water treatment due to the excessive pollution levels.

Energy and productivity

As Ghana's population grows by 2.3% per year²⁶, the energy sector is facing annual growth in

demand of 10-12%²⁷ and is a key driver of economic and social development. Yet, security, reliability and universal access to electricity remain a challenge. Average electricity access reached 85% in 2019, with urban populations at 100% compared to rural at 70.5%. This compares to 2010 with an average of 64.4%²⁸, though regional variations between 47.7% and 93.7% remain (2017). 2012-2016 saw a spate of power shortages (locally known as "dumsor") which wreaked havoc on the economy, industry and communities²⁹.

Total GHG emissions in 2016 were 42.15MtCO_{2e}, dominated by AFOLU³⁰ at 54%, followed by energy at 36%. This represents an overall increase of 66.3% during 1990-2016, with the largest in energy at 302.7% and waste at 210.8%.³¹ Peak demand for 2021 is projected at 3,304MW, an increase from 2020. This compares to an installed capacity of 5,288.1MW (4,842MW dependable)³².

²⁵ World Bank 2020

²⁶ EPA 2020

²⁷ GoG 2017

²⁸ Energy Commission 2020

²⁹ GoG 2019a

³⁰ Agriculture, forestry and other land uses

³¹ EPA 2020

Despite several fossil fuel reserves and a commitment to invest in renewable energy (RE), the sector is plagued by inefficiency, unstable fuel supply and poor governance. It is further constrained by debt of the state-owned utilities with over US\$2.7B in arrears, excess capacity charges of US\$620M and gas excess supply charges of US\$822M, which has repercussions for the solvency of major financial institutions and independent power producers (IPPs)³³. This is anticipated to be further heightened by the financial constraints imposed by COVID-19. Grid-connected RE installations increased from 2.5MW in 2013 to 42.6MW in 2019 but constitute less than 0.5%³⁴, with a 2030 target of 10%³⁵. Off-grid and mini-grid installations are a key strategy for achieving access for reaching the last mile, especially remote and island communities where grid access may never be viable.

2. GAPS AND CHALLENGES RELATED TO ENVIRONMENT AND CLIMATE PRIORITIES³⁶

Some of the main impediments to achieving national goals on the environment and climate change are discussed below.

Policy, legislative and regulatory frameworks and their coherence

An absence of critical strategies e.g. sustainable land use policy creates a vacuum in authority and guidance which perpetuates resource conflicts. For instance, there is a lack of national policy and strategy on e-waste, though the former is being drafted. Environmental health and occupational health policy, legislation and regulations are outdated or non-existent. Functional deficiencies exist where there is a gap between legal and institutional mandate and operational practices e.g. lax enforcement of waste management regulations, poor management of existing dumpsites, lack of comprehensive and reliable data and limited budget allocations for waste management.

³² Energy Commission 2021

³³ GoG 2019b

³⁴ Energy Commission 2020

³⁵ GoG 2019b; goal shifted from 2020 (MESTI 2013)

³⁶ Synthesised from analysis of documents in the bibliography

The promotion of potentially contradictory pathways inhibits progress toward national targets. For example, the petroleum production industry continues to expand as part of industrialisation efforts, with plans for increasing fossil fuel generation capacity, including a scenario with more coal-fired generation³⁷, in an already over-capacitated market.

Delays in operationalising core components of law or policy which are designed for the sustainable financing of activities or monitoring of implementation e.g., Electrical and Electronic Waste Management Fund, Plastic Waste Management Fund (PWMF), micro-plastics ban, Renewable Energy Authority constrain the effective governance of the sectors.

Institutional coordination and leadership

Ministries, Departments and Agencies (MDAs), and Metropolitan, Municipal and District Assemblies (MMDAs) are not provided with sufficient human, technical, financial and technological resources to effectively scale up and execute their expected role under various plans and policies and/or are not acquainted with and take ownership of this role e.g. the Ministries for land and gender projected spending under the Climate Change Policy is 2 and 10 times higher than their respective 2015 budgets. Hence, there is limited capacity at the MMDA level to plan and manage services. Taking sanitation for example, it is difficult for the assemblies to consistently collect data, monitor operators and enforce the regulatory framework.

Also, potential internal mandate conflicts between agencies and between Ministries and their departments and agencies constrain any entity taking effective action. In addition, unclear mandates of multiple ministries have created gaps, redundancies and ineffective coordination in planning and governance.

In the waste sector, limited technical capacities in parent ministries coupled with decentralisation to District Assemblies without the attendant resourcing has further complicated matters. The Environmental Sanitation Policy was designed to address this and other sector issues including changing behaviours with growing affluence, weak/outdated legislation, unenforced regulations, and sector financing.

However, the 2010 Action Plan is limited in detailing mechanisms for implementation, resource mobilisation and institutional coordination. Inactivity or passive dissolution of key multi-sector coordination bodies due to lack of leadership, formalisation or resources leaves a void in strategic planning and decision-making. This has been seen with the Environmental and Natural Resources Advisory Council (ENRAC) and National Climate Change Committee (NCCC). Fragmented activities, e.g. due to limited coordination or comprehensive oversight of development partner financing, result in duplication of efforts, wasted resources and time, and ineffective learning. Reliance on external funding for implementation through projects can contribute to work being approached in silos and as discrete initiatives instead of the coordinated pursuit of the longer-term vision. It can be a barrier to maintaining the project's relationship within the overall strategy and connectivity to other initiatives and stakeholders, avoiding duplication, mainstreaming results into the organisation(s), and the need to ensure sustainability post-project.

Technical capacities and knowledge

The absence of open access to comprehensive data management systems facilitated by robust data collection and analysis regimes creates asymmetries of knowledge between regulators and prospective investors, as well as challenges for monitoring and enforcement, research, and development. Capacities are needed in the development of baselines, scenario modelling, MRV, REDD+ carbon accounting, GHG inventories, budget tagging and tracking climate finance, inter alia.

³⁷ EPA 2020

Effective decentralisation and resourcing

The government's decentralisation strategy will not realise the scale of its potential impact and effectiveness without the dissemination of adequate technical and financial resources and delegated authority at district levels. For instance, inadequate staff and logistical capacity to patrol the boundaries and non-enforcement of regulations contribute to violations by illegal miners and poachers within protected areas. The application of standards has been inconsistent with decentralisation.

Monitoring, enforcement, and transparency

Non-compliance with environmental regulations is widespread in various sectors. Compliance mechanisms should be supported by legal authority and resources to maintain monitoring and reporting. e.g. discontinuation of AKOBEN³⁸.

Lack of transparent procurement practices and sector-level coordination have in large measure contributed to the financial instability of the energy sector. The government has an opportunity to be a driver of sustainable procurement practices by leading the market with a substantive demand. Example: phasing out its fleet with electric vehicles and facilitating investment in the charging network.

Resource efficiencies

Waste recovery is a large resource that is undercapitalised, with only 14% collected. Organic material, plastics, textiles, and paper, glass and metal products are some of the materials that can be segregated and effectively recycled or transformed into new marketable products.

Benefits sharing

Perverse and tenuous land and tree tenure arrangements disincentivise farmers and

communities from tending naturally growing trees. These also inhibit their participating in forest conservation because they receive none of the revenues and their own assets. For instance, crops may be destroyed when the trees are removed.

The government owns all rights and revenues, and the sharing of benefits is highly unequal.³⁹ Complex land tenure arrangements add to the unattractiveness of the investment climate. Government has been replanting 10,000-15,000 ha/year, but private sector participation has been minimal because of associated costs and off-reserve land tenure challenges, inter alia.⁴⁰

Between traders and miners, government or traditional authorities and communities, polluters and impacted communities, the people who are most dependent on the resource or suffer the most negatively from its exploitation receive inadequate compensation. Example is the 4% of REDD+ payments for communities.

Citizen engagement and awareness

There is no universal practice of community consultation, co-creation and co-governance of interventions, which jeopardises the relevance and appropriateness of local-level interventions. There seems to be a lack of trust of public officials as over 70% of people never engage traditional, assembly or parliamentary leaders to express concerns.

Ineffective community engagement hampers open dialogue and partnerships, and a clear understanding of needs to articulate appropriate solutions. Community-based or supported management systems (e.g. Community Resource Management Area (CREMA)) need to be built in conjunction with community members and appropriately empowered and resourced to govern.

³⁸ The AKOBEN program was an environmental performance rating and disclosure initiative of the Environmental Protection Agency (EPA), Government of Ghana. Under the AKOBEN initiative, the environmental performance of mining and manufacturing operations was assessed using a

five-color rating scheme. The five colors were GOLD, BLUE, GREEN, ORANGE and RED, indicating environmental performance ranging from excellent to poor.

³⁹ World Bank 2020

⁴⁰ *ibid*

In many areas, lack of public awareness of the deep and intertwined multifaceted impacts of unsustainable practices, a perceived lack of options, or a real lack of material capacities to use alternatives contribute to the perpetuation of environmentally degrading behaviours. This can be seen in the dumping of solid waste in streets and drainage channels to be washed away by rains and triggering floods such as in June 2015.

Sustainable financing

High levels of debt servicing and inefficiency divert fiscal resources away from investment in environmental and social services. For example, the energy sector is highly indebted, with an excess capacity of over 40%, which incurs capacity charges annually in excess of US\$620M. Also 30% of electricity is unaccounted for through technical and commercial losses⁴¹; but government targeted an increase in installed generation capacity to 5,000MW by 2020. Data across sectors are lacking for building the investment climate by allowing potential investors to have a comprehensive understanding of the local environment. Several other factors combine to create the current financing landscape for impact investment. These include:

- Graduation to a Low-to-Middle-Income Country (LMIC), reducing Official Development Assistance (ODA) access.
- Credit and market risk related to unfamiliarity with green finance, currency volatility.
- Private sector potential in rapidly expanding industries e.g. mobile money, waste management.
- Limited domestic investor engagement and underutilisation of financing potential.
- Diaspora strategic leverage as a potential investment driver.

Creating an inclusive green finance sector requires the removal of a number of these real and perceived risks affecting investor confidence.

⁴¹ GoG 2019b; GoG 2018

⁴² MESTI et al 2021

3. LEAVE NO ONE BEHIND

Due to agricultural decline and increasing levels of inequalities, many young people migrate from rural to urban centres and are often found mining e-waste. They are also heavily engaged in illegal small-scale mining (galamsey), and abandoned school for the anticipated income, hindering future socioeconomic opportunities.

However, both these occupations represent constant exposure to highly toxic contaminants in the air, water and soil including mercury, copper, lead, arsenic, and cadmium. This prolonged exposure and inability to afford requisite health care have a deleterious impact on their quality of life and life expectancy.

Poverty is highest among food crop farmers and the informal sector where women are concentrated. Farmers are particularly sensitive to climatic changes with rain-fed systems. They also face limited ability to acquire assets due to weak property and inheritance rights and discrimination in access to physical capital and financial services. The burden of unpaid care work further reduces their economic productivity. Unequal access to information, resources and decision-making processes, and reduced mobility further hinder farmers' social capital and autonomy. Failure of infrastructure systems due to climate change impacts and environmental shocks and the resulting loss of services usually disproportionately affects women and girls⁴².

There is limited access to modern energy services especially for rural women and girls who spend long and exhausting hours performing basic subsistence tasks, including the time-consuming and physically demanding task of collecting biomass fuels. 90% of the Ghanaian economy is informal, of which 54.9% are female and 45.1% male⁴³. They are mostly in agriculture, forestry, and fishing at 38%, thus severely impacted by resource degradation or overexploitation, pollution, and climate change. The informality means the likelihood of access to social protection and safety nets is very low.

⁴³ GoG 2019a

To address the climate and COVID-19 crises, inequalities and exclusion gaps, youth and women need to be meaningfully engaged at the planning, implementation and monitoring stages of climate and environment-related interventions. All stakeholders must support youth and women capacity development, youth-led climate initiatives and create enabling environments for youth and women empowerment.

4. ACTIONS FOR ENVIRONMENT AND CLIMATE PRIORITIES

This section highlights a few areas for UNDP's consideration in future programming.

Climate and green finance

Ghana has committed to reducing its GHG emissions and climate adaptation in several priority sectors under its Nationally Determined Contribution (NDC), including mass transit, infrastructure, land use and food production, energy, and forest and water resources management. Ghana requires between US\$ 9.3 and US\$15.5 billion of investment to implement the 47 nationally determined contribution measures from 2020 to 2030. Over US\$ 5.4 is expected from international sources⁴⁴.

The financing gap between sustainability and business as usual, including the deficit to meet conditional NDC targets, requires that a business case be made to connect private enterprise, social entrepreneurship, innovation, and research. A threshold of expertise needs to be met to effectively craft innovative financial solutions and bankable projects, aggregate and scale projects to attract institutional investors. Traditionally, low carbon development was perceived by the banking sector as a high-risk portfolio⁴⁵; however, this perception is gradually changing. The capacity of institutional investors in Ghana can also be

leveraged to incubate domestic green institutional investors by building their capacity to identify potential green assets while improving the transparency of holdings. A general dearth of consistent, high-quality environmental data prevails, which limits the ability to assess potential risk and mitigation measures for green investment. Investors also need data to evaluate their business case through project reviews, customer demand projections, financial flow analysis, etc. Specifically, in carbon accounting, these issues compromise accuracy, reliability, and transparency for measurement, reporting and verification (MRV).⁴⁶

With the recent conclusion of the United Nations Framework Convention on Climate Change's (UNFCCC) COP26 with agreed rules for carbon markets, the application of Article 6 can stimulate private sector investment and technological leapfrogging in Ghana. It could also dilute the accelerating of mitigation ambition if structured poorly because offsetting emissions advances carbon neutrality rather than reduction unless the selling country has very high abatement targets. For Ghana, entering the carbon markets has a few major implications:

- The actual emissions reductions accounted in-country will need to increase to commensurate with the volume of credits traded (i.e. corresponding adjustments). This is to help to achieve the NDC targets with consideration of the financing and capacities needs.
- With an active oil and gas sector, existing overcapacity and inefficiencies in power generation, and planned increases in fossil fuel generation, the BAU trajectory means the quantity of emissions reductions needed may be actually increasing.⁴⁷ Offsetting these expanding emissions through reforestation or afforestation may encounter challenges of competing land and water use demands.

⁴⁴https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Ghana%20First/Ghana's%20Updated%20Nationally%20Determined%20Contribution%20to%20the%20UNFCCC_2021.pdf

⁴⁵ Ackom et al. 2016; UNDP 2020

⁴⁶ Ackom et al. 2016

⁴⁷ Indeed the IEA (2021b) asserts that a net-zero emissions global economy by 2050 requires no new oil and gas fields are approved for development, and no new coal mines or mine extensions beyond 2021

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- The mechanism demands a strong MRV system, high levels of transparency and integrity, and associated capacities to determine baselines and additionality, especially since there is no external verifying body to certify the quantity and quality of GHG reductions with the ITMO pathway.
- Existence of robust social and environmental safeguards, including mandatory inclusive and participatory consultative processes, and an effective independent redress mechanism for grievances concerning projects implemented, must be in place.

SMEs constitute the vast majority of the private sector, and 70% of GDP⁴⁸, and generally have low collateral value and lack of credit history. Consequently, innovative financing through microfinance and rural banks may present more viable opportunities to unlock green financing for this group. Individual financial assets and deposits

UNDP would continue to support the strengthening of Ghana's enabling environment to leverage public and private green finance, including exploring the potential for green bonds, debt swaps, blended finance solutions and public-private partnerships (PPPs). It will also support capacity strengthening.

UNDP would also continue to support Ghana to enter carbon markets through targeted technical assistance that will enhance Ghana's readiness in participating in cooperative approaches. The enactment of domestic legislations that govern the engagement in carbon markets, will be of vital importance.

Furthermore, by supporting the set-up of institutional processes for implementation of projects utilizing carbon finance, national entities should be supported to operationalize article 6 of the Paris agreement project implementation.

could also be an avenue to mobilise resources to help offset challenges associated with a relatively small institutional investment pool. The potential of the waste management sector has been compared to that of the mobile money sector in Ghana and Kenya⁴⁹.

Green economic recovery

The ability to contextualise and drive fiscal recovery within a green economic framework can act as a catalyst to support the decoupling of growth and GHG emissions in decarbonising the economy and tackle the expanding inequalities being exacerbated by the pandemic. The transition to sustainable and circular patterns of consumption and production requires deep changes in habits, behaviours, business processes and models and institutional systems to realise the medium to long-term benefits which may require high investment, research, and development in the short term to transform existing structures. Nature-based solutions are a mechanism whereby ecosystem services can be used to reduce deleterious impacts of human activities and/or such services are restored through rehabilitation of the ecosystem itself. In India, revegetation has been used to rehabilitate dumps of zinc mine tailings and overburden to stabilise the soil and reduce pollution; soil structure and fertility. Microbial populations and nutrient cycling were cited as important considerations for restoring ecosystem function⁵⁰. In French Guiana, early results have shown positive signs in reducing mercury mobility and toxicity after revegetating gold mine sites, adding influences of organic matter, restoring microbial activity and mineral content of the soil⁵¹. Nature Based Solutions (NBS) can also support green commodities and organic production systems, for example, for which certification can attract higher market prices.

Blue and circular economy

A whole of society approach is also needed to tackle chemicals and waste management. Galamsey being very informal, sensitive, and highly furtive in nature, a country support platform similar to the Waste Recovery [Platform](#) (WRP) may facilitate formalisation and education

⁴⁸ Cooke 2021

⁴⁹ GoG and UNDP 2019

⁵⁰ Pandey et al. 2005

⁵¹ Couic et al. 2021

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within the sector. This can help reduce mercury pollution and other malpractices, while improving working conditions and economic efficiency. Ghana's National Plastic Action Partnership (NPAP) intends to help scale up and accelerate partnerships to tackle plastic waste and pollution.⁵²

There is a possible opportunity to partner strategically with the Ellen MacArthur Foundation within the context of the New Plastics Economy to drive innovation through private sector leadership of large multinational corporations (MNCs) in Ghana to support circular economy in local SMEs.

The combined network, capacities and leadership of all stakeholders in the waste value chain can be used to promote innovation and technology transfer for SMEs to join and accelerate the plastics circular economy in Ghana with a similar goal of zero plastics waste.

UNDP would continue to strategically build on its work and existing positioning in the Waste Recovery Platform. Intervention in this arena requires careful consideration of space in relation to other actors. It is also important to leverage the work of other stakeholders.



⁵² <https://globalplasticaction.org/countries/ghana/>

