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Integrating Nature-based Solutions in national policy: opportunities in West Africa

Chris Huggins, University of Ottawa



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1. Introduction

Nature-based Solutions (NbS) have emerged as a crucial set of approaches to multiple environmental and social challenges. NbS has been championed and promoted by international organizations such as IUCN, UNEP and World Bank, and regional bodies such as the European Union; and has increasingly been supported by major corporations such as Amazon, Apple, and Unilever (Seddon et al, 2021). All international scientific bodies working on climate change, conservation of biodiversity, and related issues have officially recognized NbS as effective and necessary (Seddon et al, 2021), and NbS is listed as one of the nine key tracks for action by the 2019 United Nations Climate Action Summit (Zhai et al, 2023).

Several international agreements such as the Sendai Framework for Disaster Risk Reduction, 2015-2030, the UNFCCC Paris Agreement, and decision text of UNFCCC COP 27 include NbS or related concepts. National Adaptation Plans (NAPs), developed under the UNFCCC framework, often acknowledge the importance of NbS; almost all the NAPs of the 30 nations classified as 'low income' and the 47 nations classified as 'least developed' by the World Bank include references to NbS (Seddon et al, 2020).

Many NbS projects are now underway around the world, including sub-Saharan Africa (SSA). A recent study identified a total of 297 NbS projects had been initiated in SSA between 2012 and 2023 (Collins et al, 2025). Major programs related to NbS in SSA include the Great Green Wall initiative, with a goal of restoring 100 million hectares of degraded land across eleven countries by 2030; and the African Forest Landscape Restoration initiative, which aims to restore more than 100 million hectares of degraded landscapes across 31 African countries. At the regional level, the African Development Bank's Climate and Green Growth Strategic Framework (2021) doesn't include much detail on NbS but does commit the Bank to, "undertake mitigation and adaptation efforts, utilizing nature-based solutions and ecosystem support across the whole land-use, land-use change, and forestry (LULUCF) and agriculture sectors' (AfDB, 2021: 11).

Nevertheless, while it is based on pre-existing practices, NbS remains a relatively new concept, and only rarely do global frameworks include processes to monitor how NbS is operationalized, or guidance on integrating the concept into domestic policies and laws (Scolobig et al, 2020). "Of the 104 NDCs that include nature-based adaptation actions, only 30 provide measurable (i.e., time-bound, quantitative) targets; the remainder provide broad goals, which are difficult to measure" (Seddon et al, 2020). Gupta et al. (2019) see "the lack of a clear policy framework that recognizes and prioritizes NbS within climate adaptation and restoration agendas" as a key barrier to effective implementation of NbS.

This represents a limitation to the long-term effectiveness of NbS. Where various policy instruments mention NbS but do not demonstrate coordination and use of standard terminology, this “can lead to confusion among decision-makers, fragmented governance, and, eventually, policy stalemates” (van Raalte & Ranger 2023). Researchers found that “national and local policies in SSA often incentivize building with traditional grey infrastructure... making it difficult to incorporate NBS into planning and funding frameworks” (Collins et al: 8). In West Africa, many NbS initiatives are pilot projects, initially designed and supported by donors, or programs which function in parallel to state efforts, rather than fully integrated with them.

The rainforest belt of West Africa is among the most biodiverse regions of the world (Luiselli, 2019), and supports the livelihoods of millions of people, whether through fertile land for commercial agriculture, or smaller-scale and more subsistence-oriented forms of production. However, rainforests in this region have experienced decades of encroachment and degradation. For example, since 1950, Côte d’Ivoire has lost more than 90% of its forest cover, and Ghana lost more than 65% over the same period (Kalischek et al, 2023). Guinea lost almost 28% of its forested area between 2001 and 2024 (Global Forest Watch, 2026). The region is also impacted by climate change: the African continent is experiencing more rapid increases in surface temperature than the global average and is generally less able to adapt to potential changes, relative to other regions around the world (Collins et al, 2025; Gbode et al, 2023). The impacts of climate change, which include more severe weather events, high average temperatures, and unpredictable precipitation patterns, are expected to reduce yields of cocoa, an important cash crop in the region.

In addition to heat stress directly affecting plants, prolonged droughts and heat waves contribute to soil nutrient depletion and hardening, reducing its capacity to support crops. The effects of climate change are often gendered, with women and girls facing particularly negative impacts on livelihoods, health, and other aspects of their lives. To enable households and communities to adapt to climate change, especially in rural areas where incomes are low, and to slow down deforestation and conserve biodiversity, NbS approaches can be very effective.

Governments in the region have developed important policy and legal tools to support rural livelihoods, protect biodiversity, and adapt to climate change. However, there are very few policies in the region which explicitly promote and facilitate NbS. For example, “in Nigeria, fragmented environmental laws limit the scale and coherence of NbS initiatives. A lack of a unified strategy has led to policy conflicts and overlapping mandates among institutions responsible for forestry, agriculture, and water management” (Pereira et al, 2025: 238).

There are also economic constraints to effective NbS implementation. The vast majority of financing for NbS globally comes from states (83% of total), with the private sector financing just 17% (UNEP, 2022). Multilateral initiatives active in NbS in Africa include the Alliance for Green Infrastructure in Africa (a partnership of the African Union Commission, the African Development Bank, Africa50 and other organizations), The World Bank’s NBS Invest programme, which has worked in Guinea; IUCN’s West Africa Coastal Areas Program, The African Union’s Great Green Wall Initiative, and FAO’s Forest and Landscape Restoration Mechanism, amongst others. Increasing private sector involvement could have multiple benefits, including a more rigorous focus on measurable outcomes. Existing NbS initiatives have used various financing instruments, including Payments for Ecosystem Services (PES), market-based incentives (such as subsidies or tax breaks), tradable credits, fees and taxes, grants or donations and Green Bonds (Tedeschini et al, 2024). Public-Private Partnerships and Blended Finance arrangements are both common, but there are still few small- or medium scale private sector enterprises involved.

In the cocoa sector, industry-led sustainability initiatives include agroforestry and other activities associated with NbS, but research suggests that their narrow, farmer-focused approach (rather than a landscape-based pathway) limits their effectiveness, especially such schemes typically do not involve smallholders in the co-design of projects (Addoah et al, 2025). Integrated landscape approaches have been implemented by multistakeholder coalitions, as documented by 1000 Landscapes for 1 Billion People (2026).

This technical note explores the opportunities and constraints to integrating NbS within policy frameworks in West Africa, specifically Côte d'Ivoire, Ghana and Guinea. It is in line with research from organizations such as the ODI, which recommends that development partners, “provide technical assistance in the form of capacity-building for African governments to (1) mainstream NBS in country policies, strategies and action plans, thus creating a clear agenda and business case for NBS financing and domestic and international budget allocation; (2) engage in multilateral programs and aid-funded projects supporting an enabling environment conducive to NBS investment” (Pettinotti and Quevedo, 2023).



2. Definitions and examples of NbS

Nature-based solutions are “actions to protect, sustainably manage, or restore natural ecosystems, that address societal challenges such as climate change, human health, food and water security, and disaster risk reduction effectively and adaptively, simultaneously providing human well-being and biodiversity benefits” (IUCN 2020; World Bank, 2022). While improving environmental quality (which can mitigate greenhouse gas emissions), they can also provide jobs, new sources of water, food and non-food items such as medicines or handicraft materials, and result in improved health outcomes for local communities, among other things. Because of gender differences in access to natural resources, and exposure to the impacts of climate change, it is important to take a gender-responsive approach to NBS, which, “takes into account gender-specific climate adaptation needs, vulnerabilities, participation in decision-making, and access to financial benefits from nature-based investments” (Collins, 2025, citing GIZ 2021).

Researchers argue that “it is crucial to reach a consensus on what constitutes successful and sustainable NbS” (Seddon et al, 2020: 1532). Only a small percentage of the publicly reported monitoring and evaluation of NbS projects consider all potential benefits of the activities, such as climate change mitigation, broader social outcomes, and (especially) biodiversity outcomes (Chausson et al., 2020).

Some NbS approaches

- **Ecological Engineering:** Designing and building sustainable ecosystems (like artificial wetlands) to solve environmental problems and benefit both nature and humans.
- **Ecosystem-based Adaptation (EbA):** Using nature and healthy ecosystems to help communities adapt to long-term climate change impacts.
- **Ecosystem-based Disaster Risk Reduction (Eco-DRR):** Managing and restoring ecosystems to act as natural buffers that protect people from natural disasters (like floods, landslides, and storms).

3. Brief Overview of the NbS Guinean Forests project

Nature-based climate adaptation in the Guinean forests of West Africa project (abbreviated as the NbS project) is a 3-year collaborative initiative (2023 – 2026), implemented by WUSC and Centre d’Étude et de Coopération Internationale (CECI), as a consortium. It aims to enhance the adoption of gender responsive and inclusive nature-based solutions (NbS) for climate change adaptation (CCA) among communities residing in the Guinean forest region of Côte d’Ivoire, Ghana, and Guinea, specifically in the landscapes of Wassa Amenfi and Lake Bosomtwe in Ghana; landscapes surrounding Taï National Park, and the Lôh-Djiboua region in Côte d’Ivoire; and landscapes surrounding the Kounounkan Forest Reserve and Madina Oula area in Guinea.

The NbS project aligns with elements of the National Adaptation Plans (NAP) of the targeted countries, the Sustainable Development Goal – SDG 5 on gender equality, SDG 13 on Climate Action, the Whistler Principles to Accelerate Innovation for Development and Canada’s Feminist International Assistance Policy (FIAP). With respect to Canada’s Feminist International Assistance Policy (FIAP), the NBS project is a GE-03 initiative - meaning that gender equality is a principal outcome of the project; the project also supports the full realization of women’s and girls’ human rights; and reduces gender inequalities in access to and control over resources and benefits of development.

Key activities and achievements of the NbS Guinean Forests project

The NbS Guinean Forests project involves multiple partner organizations and activities in each country. The following is only a summary of the many achievements of the project so far, organized around the three major intermediate outcomes of the project:

1) Adaptation planning;

- The project emphasises incorporating traditional knowledge in the delivery of NbS, and has conducted landscape-level research on women's knowledge for climate adaptation and biodiversity. An estimated 661 women took part in focus group discussions and surveys to share their local knowledge on a range of issues around climate adaptation, biodiversity and natural resource management.
- In each country, high-level NBS workshops were conducted with senior-level policy makers, to build awareness on the importance of integrating NbS within climate adaptation policies. Three policy briefs were developed, providing governments with recommendations for integrating NbS within their different adaptation planning or policy platforms (IUCN, 2025; IUCN, CIFOR-ICRAF, Global Affairs Canada, & WAEMU Commission, 2025; IUCN, WUSC, CECI, République de Guinée, 2025).
- The project coordinated knowledge exchange between CSOs, women's organizations and policy makers to understand collaboration gaps impeding movement building that promotes gender transformative climate adaptation planning processes. To address these gaps, several workshops were held in each country to strengthen the capacity of participating CSOs and women's organizations.
- Tailor-made and context specific training curricula on gender mainstreaming in climate adaptation and restoration were produced for Ghana, Guinea and Côte d'Ivoire.
- In Côte d'Ivoire, CIFOR-ICRAF conducted a mapping of the different adaptation strategies existing at the landscape-level, to assess the scope of their coverage including understanding how community members, particularly women, engage with these plans. The gene-bank centres managed by CIFOR-ICRAF, which manage gene-plasm from important (and in some cases, threatened) indigenous flora are being enriched to meet the project's restoration objectives. Forest restoration took place over more than 5600 ha of land.
- In Ghana, support was provided to women's organizations to enable them to engage in policy dialogue on climate adaptation, NbS, and forest governance. A database of 51 women's organizations focused on the intersection of gender and climate vulnerability, climate adaptation and nature-based solutions was developed.
- In Ghana, NbS project partners IUCN and ABANTU worked with government stakeholders for the revision of the country's NDCs, ensuring leveraging key lessons from the project to provide guidance to certain sections of the NDC. IUCN is currently assisting the government to integrate gender-sensitive NbS approaches into the National Adaptation Plan. Further, ABANTU provided district assemblies with technical support for promoting gender responsiveness in the development of their Medium-Term Development Plans (MTDPs), to promote women's increased participation and their rights in climate interventions.
- In Guinea, CECI contributed to the review of the national adaptation strategy, focusing on integration of gender considerations, and started working with local development committees to integrate climate adaptation considerations with a gender lens in their community development plans.

2) Biodiversity conservation, forest and soil restoration;

- The project has engaged in restoration activities on over 10,747.28 hectares of key degraded habitats through planting forest trees and agroforestry in the three countries. The focus, identified by local partners, has been on indigenous trees that have biodiversity benefits and economic value.

In Guinea (Kindia and Forécariah Prefectures), participatory research revealed that local vegetable farmers experienced soil degradation due to the use of agri-chemicals, which also affected local biodiversity. Furthermore, these agri-chemicals represented a significant expense for the farmers. In response, the project established a pilot system for producing different types of organic fertiliser using combinations of local wild plants and other natural ingredients. The types of organic fertiliser were then tested on the four most important local crops in demonstration plots. Consultations indicated that women farmers are less likely to attend activities far from their communities, due to cultural mobility restrictions or high workloads, so the number and locations of demonstration plots were chosen to enhance accessibility for women. Seventy-five local people were trained, including 45 women, in making organic fertiliser, and 25 remain engaged in maintaining the demonstration plots. Initial results suggest that the organic fertilisers can reduce the financial costs of crop production for local farmers, and the demonstration plots allow for the exchange of knowledge as well as the validation of women's role in such experimental approaches.

- In the Wassa Amenfi landscape of Ghana, two tree nurseries have been established, as well as demonstration plots for reforestation activities. The nurseries are managed by teams of 25 local community members (20 women and 5 men). Forest restoration took place over more than 1600 ha of land.
- In Guinea, results already recorded include the restoration of more than 2400 hectares of forest, the installation of demonstration plots, the establishment of local nurseries, and the mobilization of women in the processes of governance and the development of local development plans (PDL).
- Biodiversity assessments have been conducted in four landscapes in partnership with the International Barcode of Life Consortium (IBOL). The assessments responded to an underlying need to understand the impact of land-use on species concentration, as well as to pilot the innovative DNA bar-coding process, which significantly reduces the time and cost of conducting taxonomic studies compared to traditional methods. This included delimitation of sample collection zones, setting up malaise traps, training of sample collectors (mainly women from the communities) and the training of junior researchers. The women were involved in community monitoring on a voluntary basis, and benefited from improved social status due to the high-profile scientific nature of the monitoring project.

3) Facilitating investment and business support in NbS.

- The project conducted a feasibility study to assess the potential for piloting a biodiversity finance initiative, based on existing voluntary standards, and operated through both market-based and non-market-based approaches. The feasibility study provided insights on the strengths and weaknesses for operationalizing such an initiative. The next phase will be the implementation of a large-scale biodiversity baseline that will be conducted in targeted landscapes in the three project countries.
- The project established the NbS Guinean Forest Challenge Grant, to enable the project to invest in innovative business ideas of micro, small and medium sized enterprises, particularly on innovations that demonstrate potential to contribute to biodiversity conservation, climate adaptation and gender equality/ women's economic empowerment through NbS.
- The Project recently completed a market assessment in the cocoa value chain in Ghana and Côte d'Ivoire and in the rice and non-timber forest products value chains in Guinea to understand the potential for stakeholders in these markets to submit applications to the NbS Guinean Forest Challenge Grant competition. The competition provides funding to enable local organizations to scale up activities which are aligned with the Project.

4.Challenges in scaling-up NbS: PESTLE analysis

In each country, there are different opportunities and obstacles to mainstreaming NbS in policy frameworks. The following PESTLE analysis examines relevant Political, Economic, Social, Technological, Legal, and Environmental factors in each country.

PESTLE Analysis: Côte d'Ivoire

Political:

In 2022 Côte d'Ivoire launched the Abidjan Legacy Program (ALP), supported by a Presidential Decree, dedicated to restoring degraded ecosystems, boosting agricultural production, and improving rural livelihoods, with a focus on supporting youth and women. It mobilizes 12 focal points from sectoral ministries. There is a convergence of support for key NbS strategies such as agroforestry from development partners and the government, as part of a 'zero deforestation agriculture' policy. Agroforestry is seen as a way to adapt to climate change, meet sustainability requirements of trade partners such as the European Union, and maintain agricultural productivity. Despite broad convergence, there are variations in definition of agroforestry and challenges in implementation (Grajales & Toukpo, 2025). Côte d'Ivoire is also a member of the African Forest Landscape Restoration Initiative, through which it has committed to restore 5 million hectares of forest in the country. It is one of the top five countries in Sub-Saharan Africa for scientific research into NbS (Koutika et al, 2022).

As in many countries, legal frameworks are not entirely coherent, and insufficient interministerial coordination is a challenge in Côte d'Ivoire. Responsibilities for the environment, forests, agriculture, land-use planning and rural development are shared between several ministries, with areas of overlap sometimes poorly defined. In particular, the government institution in charge of forests, Société de Développement des Forêts (SODEFOR), has arguably been unable to play a strong role in forest protection (Dieng & Karsenty, 2023). In the climate change space, there is weak coordination between mitigation, adaptation, and ecosystem restoration measures. Although Côte d'Ivoire has a legal framework for decentralization, local authorities have limited financial and technical leeway to integrate NbS into their local development plans.

Economic:

The European Union (EU) co-finances several large-scale forest preservation, restoration, and sustainable cocoa initiatives, as part of its Global Gateway strategy in the country. In 2025, the European Investment Bank (EIB) announced €300 million in funding for climate action, sustainable cocoa, and forest preservation/restoration, of which €150 million specifically supports Côte d'Ivoire's national forest restoration strategy under the Abidjan Legacy Program. The Forests4Future (F4F) programme conducts forest restoration with funding from the German Federal Ministry for Economic Cooperation and Development (BMZ). It receives support from the Forest Investment Program (FIP) for various activities related to forest restoration, including the development and implementation of Participatory Forests Management Plans for gazetted (legally protected) forests.

Through the Ministry of Environment and Sustainable Development and Ecological Transition (MINEDD), Côte d'Ivoire has taken significant steps towards facilitating climate-related market activities. The Ministry of Water and Forests (MINEF) has taken a lead role in facilitating biodiversity credit initiatives, such as REDD+. The government is in the process of establishing a National Carbon Committee to coordinate carbon-offset related activities. However, while the 2014 Forest Code brought reforms aimed at reducing deforestation and encouraging sustainable forest management, it did not establish clear legal frameworks for the implementation of PES or the involvement of the private sector in biodiversity offset schemes (Harmattan, 2025). Payment for Ecosystem Services tends to be challenging to maintain and scale up, and more policy support is needed.

Social:

Women and girls in Côte d'Ivoire often have less access to education, employment, resources, and opportunities than men and boys, even if the context has improved in recent years due to awareness-raising and support initiatives (IUCN et al, 2023). The majority of the population, especially women, have no access to formal education and very few women or men receive tertiary education. As in other countries, the level of knowledge of climate change impacts differs between men and women in some areas (e.g. Loh-djibouah) but not in others (e.g. Nawa region). The Gender and Climate Change Strategy in Côte d'Ivoire (SNGCC 2020-2024) aims to integrate gender equality into policies and programs to combat climate change, including promoting women's participation in reforestation and forest conservation initiatives. In addition, the National Strategy for the Preservation, Rehabilitation and Extension of Forests (SPREF) promotes the inclusion of women's organizations in reforestation and related activities. The State has also established mechanisms to strengthen the economic power of women and vulnerable people, notably through the National Agency for Economic and Social Inclusion (ANIES), and the Social Development Fund and indigence (FDSI). However, gender norms remain strong, which can relegate women to secondary decision-making roles in households and communities. Women-led organizations can experience challenges in gaining support from local communities and state agencies, due to gender norms and stereotypes (Bottaro, 2021). Only 15% of companies registered with the Centre for the Promotion of Investments in Côte d'Ivoire (CEPICI) are led by women, and most of these are small- or medium-scale, not large firms (Bottaro, 2021). Women have less access to banking services, such as credit, than men. The National Financial Inclusion Strategy (2019–2024) aimed to change this, but progress has been challenging (Bottaro, 2021).

The Cocoa & Forests Initiative (CFI) and REDD+ readiness processes have incorporated gender action plans which emphasize women's involvement in restoration, tree planting, and environmental monitoring (Harmattan, 2025). However, in the cocoa sector, women often have less access to ethical/sustainable production certification schemes and have less representation than men in farmers' organizations and agricultural extension activities (Löhr et al, 2021). Commercialization of the cocoa sector, which depends heavily on migrant labour, has led to significant tensions over land rights between immigrants and indigenous land-owners. Traditionally, migrants (from other areas of Côte d'Ivoire, or other countries) cannot own land but only have user rights to land. As migrants have invested labour and capital into farms, they have expected greater rights, leading to land conflicts. These dynamics remain sensitive, and can be influenced by tree-planting programs and other initiatives. Further, protected forests are often contested spaces with communities pushing for protected areas to be returned to customary control.

Legal:

The National Development Plan (NDP 2021–2025) does not mention NbS, but does implicitly provide opportunities, as it aims to ensure sustainable management of natural resources and biodiversity, including reforestation and the protection of protected areas; as well as sustainable agriculture and agroforestry to limit deforestation and improve the resilience of agricultural systems. Similarly, the NDC, while not explicitly mentioning NbS, incorporates several measures aligned with NbS principles, such as reforestation and restoration of degraded forests to achieve 20% national forest cover by 2030; promoting agroforestry as a sustainable solution for agricultural land management; strengthening the REDD+ program, and establishing ecological corridors to preserve biodiversity and reduce the fragmentation of natural ecosystems. The same is true for the NAP, the national climate change adaptation strategy for coastal areas, the National Policy for the Preservation, Rehabilitation and Extension of Forests (PPREF), the SPREF, the National Biological Diversity Strategy and Action Plan (SNDB 2016-2020), the National Strategy for the Conservation and Sustainable Use of Biological Diversity, the laws on forests and the environment, and the national REDD+ strategy: while not mentioning NbS, they do generally align with NbS principles.

However, gaps remain, particularly lack of specific indicators for gender mainstreaming and nature-based solutions. Legal frameworks frequently lack specific details on benefit-sharing, gender inclusivity, and the roles of local communities in managing ecosystem assets (Harmattan, 2025). Moreover, differences in uses of key terms across these many documents may introduce ambiguity into NbS planning, and there are few mechanisms for addressing disagreements amongst the many stakeholders involved in most NbS programs.

The National Adaptation Plan of Côte D'Ivoire was not gender-sensitive, but efforts have been made to integrate gender analysis into adaptation activities (MINEDD, 2018). Gender has been mainstreamed into Nationally Determined Contributions (NDCs) documents in Côte d'Ivoire in 2020.

As mentioned above, there is a lack of coherence for financial mechanisms (such as PES) in the environmental management sphere in the legal instruments that govern land, forests, water, and environmental resources.

Land tenure insecurity in Côte d'Ivoire complicates agroforestry and reforestation activities. Rural land is considered state property and while the government has invested in reforms, registration of customary land is expensive and time-consuming. Despite legal gender equity, only a small percentage of women hold a land title or a certificate. Land tenure disputes and related issues lead to, “non-compliance with forestry regulation and frauds as well as conflict between smallholders and other land users.” (Howland et al, 2025). Rights to trees have been transferred from the state to citizens in the 2019 Forest code, but these changes may not be common knowledge among local communities (Kouassi et al., 2023).

Environmental:

There is significant loss of animal habitat (natural ecosystems) due to agricultural expansion, deforestation, as well as encroachment into protected areas. Climate change, characterized by increasing temperatures, extreme weather events, droughts, and bushfires, has profound consequences on the spatial distribution of wildlife species (IUCN, 2023). Expansion of commercial agriculture in previous decades caused, “an unprecedented loss of biodiversity and ecosystem services, land degradation, and pest and disease outbreaks” (Kouassi et al, 2021). The civil war period also led to serious encroachment by farmers into protected forest areas. While these phenomena represent the kinds of challenges that NbS can respond to, there is continued enthusiasm amongst rural communities for agricultural expansion, as there are few other options. Expansion into protected forests is more likely to be done by men than by women (Gnangoh et al, 2023). One alternative livelihood option, artisanal and small-scale mining, also has negative environmental impacts. In addition, pollution resulting from excessive use of fertilizers and pesticides, leads to high levels of chemical residues in soil and water. In addition to agriculture, charcoal production is a major driver of deforestation, accounting for 36 percent of deforestation (Bottaro, 2021). As in other countries, households are adapting to climate change through a combination of well-established traditional practices and more recent technical recommendations such as irrigation (CIFOR-ICRAF, 2024). Women, like men, possess traditional knowledge regarding natural resources, particularly medicinal and food resources, and forecasting good or bad rainfall seasons through the appearance of certain species of grass, flowers and the song of certain birds (IUCN et al, 2023). However, their participation in capacity building opportunities and adaptation initiatives remains limited and constitutes a real challenge due to their high dependence on natural resources and their level of vulnerability.

PESTLE Analysis: Ghana

Political:

The Ghanaian government has generally prioritized environmental policy-making; for example, it was relatively quick to enact legislation protecting biodiversity once it ratified the Convention for Biological Diversity in 1994 (Botchway, 2021). A Collaborative Community-Based Wildlife Management policy, intended to promote and legitimize community participation in protected areas management, was introduced in 2000. More recently, the government has framed NBS and environmental management activities more generally as “development accelerators”: key means of boosting economic growth and creating employment. In 2025 it announced plans for a National Climate Change and Sustainability Hub; and it is a member of the African Forest Landscape Restoration Initiative under which it has pledged to restore 2 million hectares from 2015-2030.

However, implementation of environmental regulations has often proven challenging. In Ghana there are, “overlapping mandates between key agencies such as the Forestry Commission, Environmental Protection Agency (EPA), and Lands Commission, which lead to policy fragmentation and enforcement challenges” (Harmattan, 2025). Furthermore, policies intended to involve local communities in natural resource management are sometimes hampered by “failure to transfer adequate decision-making power and resources to local community actors and disregard for policy and implementation guidelines”, such as in the case of top-down decision by the Forestry Commission in a project in the Offinso Forest District (Walters et al, 2021).

While ecosystem approaches are widely viewed as effective environmental approaches, broader benefits of NbS interventions – such as ecosystems services and disaster prevention – are not as well known, and there is often a preference for ‘grey’ engineering solutions. “A district officer [in Volta region] stated that staff are more familiar with physical infrastructure than NbS design and evaluation, highlighting capacity gaps” (Boafo et al, 2025).

Economic:

Ghana has attracted funding for NbS from development partners such as the European Union and the UN Capital Development Fund (through the Boosting Green Employment and Enterprise Opportunities in Ghana project, and the Local Climate Adaptive Living (LoCAL) mechanism). In 2024 Ghana joined the global Biodiversity Finance Initiative (BIOFIN), and will develop the country’s first National Biodiversity Finance Plan with support from the United Nations Development Programme (UNDP). With funding from the World Bank, Global Environment Fund (GEF) and other actors, the Ghana Landscape Restoration and Small-Scale Mining Project has facilitated forest restoration and integrated landscape management in the Cocoa Forest Landscape and the Northern Savannah Ecological Zone. It has received grants and loans from the Forest Investment Program (FIP) for projects to mitigate negative impacts of agricultural expansion, address unsustainable timber harvesting; and clarify tree tenure and rights regimes. Several FIP activities implemented with the African Development Bank aim to attract private sector investment in forest conservation. Ghana’s REDD+ process has a Gender Action Plan, developed in conjunction with IUCN, the Forestry Commission and other stakeholders, which established a Gender Desk within the Forestry Commission and a conditional cash transfer program aimed primarily at women (KRISTJANSON et al, 2019).

Nevertheless, Ghana faces financial challenges to funding NbS, especially in rural areas with limited medium-large scale private sector activity. Some agribusiness companies, often small or medium enterprises (SMEs) are shifting to more sustainable and regenerative practices, though their investments may not necessarily be framed as NbS. The necessary legal scaffolding for Payments for Ecosystem Services (PES) schemes is not yet in place. Although the Ghana Carbon Registry (GCR) acts as a database for carbon credit activities, Ghana does not yet have legislation supporting nature credits, such as biodiversity or ecosystem service credits.

However, the Ghana Forest Plantation Strategy (2016 – 2040), promotes financial incentives for forest restoration and carbon sequestration services, and the Community Resource Management Areas (CREMAs) system represents an informal PES structure, as it empowers local communities to manage and benefit from natural resources (Harmattan, 2025).

Nevertheless, some researchers argue that CREMAs have “been characterized by a lack of meaningful local participation” (Ahmed and Gasparatos, 2020). Unresolved land tenure disputes in part, due to overlapping customary and statutory regimes, are obstacles to the formalisation of ecosystem service contracts. Policies could provide for new domestic sources of NbS funding, from taxes, public utilities, or fees for particular services, which could ensure the long-term financial sustainability of NbS projects.

Social:

Knowledge of climate change impacts varies across the country. In the Ashanti/Lake Bosomtwe region there are gender inequalities related to knowledge of climate change, but in the western region of West Amenfi, the gender gap is almost non-existent (CIFOR/ICRAF, 2024). Communities generally support initiatives associated with NbS, but don’t necessarily know much about it (Boateng et al, 2023). Linked to this, Metropolitan, Municipal and District Assemblies “lack capacity regarding climate change adaptation” (UNCDF, 2023), which limits their ability to spread awareness. A survey in Accra found that most participants (62%) preferred ‘grey’ infrastructure over NbS (27%) with 6% preferring hybrid solutions (Enu et al, 2024). This suggests that more can be done to raise awareness of the multi-dimensional benefits of NbS in Ghana. A study examining the use of NBS by cocoa farmers in Ghana found that those with a higher level of education, and those with better access to climate information, were more likely to adopt nature-based solutions (Tham-Agyekam et al, 2023). In rural areas, indigenous ecological knowledge and practices, such as the conservation of sacred forest groves, represent pre-existing cultural values that align with NbS. According to some researchers, “the foundational principles [of NbS]—community stewardship, ecological functionality, and low-cost adaptation—are already embedded in local practices, providing fertile ground for more transformative NbS mainstreaming” (Boafo et al, 2025). However, they may not always be treated seriously by external actors, who ignore or devalue indigenous knowledge (Awolorinke et al, 2025). In particular, women’s knowledge and opinions are often ignored, leading some to argue for gender quotas for youth and members of women’s groups within NbS institutions. In many rural areas, women’s participation in decision-making spaces remains extremely limited, with cultural and religious beliefs often reinforcing perceptions that leadership and public decision-making are primarily male domains. Furthermore, gender norms impose a heavy domestic labour burden on women, which may not leave them sufficient time for engagement in community decision-making (Elias et al, 2025). The number of women occupying high-level management positions in related sectors such as forestry is low (Duguma et al, 2022).

A study of a range of government actors, Traditional Authorities, NGOs and Private Sector actors in the Volta region found that, “while most respondents were familiar with environmental protection practices such as tree planting, mangrove restoration, and wetland conservation, many did not use the term “NbS” explicitly or associate these practices with climate adaptation frameworks.... such concepts were rarely integrated into District Medium-Term Development Plans or local budgeting processes.... [therefore] their institutionalization as a climate policy tool remains limited” (Boafo et al, 2025). In some cases as well, “limited community involvement in project design and monitoring” limits the effectiveness of interventions (Boafo et al, 2025). More profoundly, the overlaps between roles and responsibilities of different state agencies, and the control over land and natural resources exerted by customary leaders, makes planning challenging, and the resulting, “hybrid arrangements are further complicated by the asymmetric power relationships among state agencies, traditional authorities, and local communities” (Awolorinke et al, 2025). Due to differences in gender roles and responsibilities, some studies have found that women are less satisfied than men in the policies and governance associated with protected areas (Afriyie et al, 2022).

Technological:

There are a range of relatively affordable approaches to NbS that do not require highly specialized and expensive technologies. However, the scientific data needed to establish baselines for project design and monitoring, such as data on biodiversity and projected climate change impacts, is often missing in rural areas. While Ghana has capacity in remote sensing analysis and other technologies with application to landscape-level NbS planning, through the Centre for Remote Sensing and Geographic Information Services (CERSGIS) and other institutions, but capacity for integrating such information into local-level planning is limited.

Legal:

There are generally few legal barriers to NbS, though complex land tenure situations can pose challenges, especially for those community members who are not seen as indigenous to the area (Pereira et al, 2025: 244). Women have less control over land than men. A study on forest regeneration in northeastern Ghana found that women and youth relied on “bush farm cultivation” as they have less access to better quality land around their villages, leading the authors to conclude that women and youth, might be less likely to benefit from forest restoration activities unless land inequalities were taken into account (Kandel et al, 2021). Socio-cultural norms and practices which limit women's access to land, may also force women to encroach on protected areas to farm or collect wild foods or fuelwood (Soliku, 2021). In addition, the country's legal regime for tree ownership vests property rights in the state, rather than citizens who have trees on their land. In order to benefit from trees, citizens must register them, but the process is time-consuming.

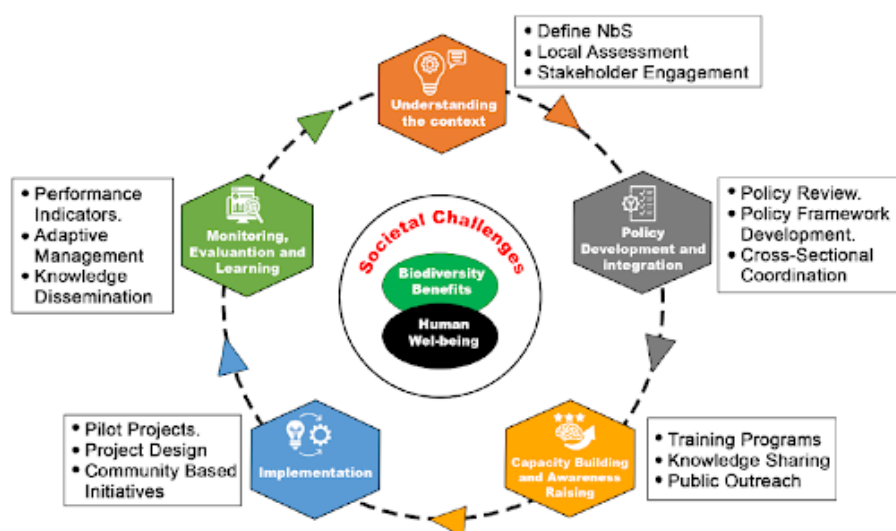
In Ghana, the Community Resource Management Area (CREMA) approach allows for decentralized and multi-actor natural resource governance, “that facilitates collective action, policy implementation, and resource management across multiple communities within a spatially defined area, enabling coordinated efforts for sustainable natural resource conservation” (Pienaaah et al, 2025). This institutional and legal framework is extremely well-suited to NbS and represents a huge opportunity, which could be maximized through knowledge exchange and coordination across different scales. In order to be more effective, CREMAs require more funding, as well as greater clarity in terms of their responsibilities, which may overlap or compete with those of District Assemblies.

Ghana has developed a gender-integrated National Adaptation Plan (NAP) that outlines the differing gender needs, priorities and actions to address them. There are several policies which are currently or will soon be under discussion and review, which provide opportunities for gender-sensitive NbS mainstreaming. These include the National Climate Adaptation Strategy, the National medium-term development policy (2026-2029), the Fisheries sector medium term development plan, the National Drought plan, the National Land Policy, the National Climate Change Policy, National Gender Policy, Co-management Policy for the fisheries sector, the National Biodiversity Strategy and Action Plan (NBSAP) and the National Climate-smart Agriculture and Food Security Action Plan. In addition to these, and sectors such as agriculture and forestry, it is important that NbS also be integrated into energy and transport sector policies, as they tend to have significant environmental impacts and provide opportunities for community involvement and local-level income generation.

Environmental:

Artisanal and small-scale gold mining is particularly widespread in Ghana, and leads to localized environmental degradation, especially siltation of rivers and water pollution. Use of mercury in gold mining causes environmental and public health impacts, not only to (mostly male) miners but also women and children living in mining areas. Despite the environmental costs, mining is lucrative, which can make communities reluctant to offer their land for restoration activities. Widespread use of artificial agricultural inputs represents a risk to biodiversity, especially in rivers and lakes. In urban and peri-urban areas, poor solid waste management also represents an environmental and public health threat. Men and women tend to use different strategies to adapt to climate change impacts on cropland, so gender-differentiated approaches to supporting adaptation should be used (IUCN, 2023).

Fig.1 Process of mainstreaming Nature-Based Solutions developed by the NbS Project in Ghana



PESTLE analysis for Guinea

Political:

There is strong political will for conservation and NbS in Guinea. For example, there is strong interest from the government to transition the biodiverse Kounoukan forest reserve into a National Park. However, Guinea does not yet have a strategy or institution dedicated to NbS or similar activities. For example, “unlike Ghana or Côte d'Ivoire, Guinea lacks a fully updated National Biodiversity Strategy and Action Plan (NBSAP) aligned with the post-2020 Global Biodiversity Framework... formal legal recognition of community-conserved areas, ecosystem service markets, and biodiversity credits is lacking.” (Harmattan, 2025). The state tends to frame NbS as part of environmental stewardship, rather than as central to national development strategies. Programs related to NbS (such as those involving land and forest restoration) are mostly donor-funded, regionally coordinated, and implemented through sectoral ministries. As a member of the Mano River Union (MRU), Guinea is involved in the preservation and restoration of several transboundary ecosystems such as the Wonegizi/Ziama forest landscape shared with Liberia, and the Diecke/Nimba forest landscape shared with Liberia and Côte d'Ivoire. Guinea is also a member of the African Forest Landscape Restoration Initiative.

The country has multiple policies which facilitate climate adaptation, as well as high hopes amongst government agencies for successful adaptation (Balde, A. G. & Bousquet, H. 2024). However, there may be insufficient knowledge of specific NbS approaches and principles. The National Commission on Climate Change has a pivotal role to play in disseminating information about NbS.

At the local level, municipalities, through their Local Development Plans (LDPs) have recruited teams (e.g. for the preparation and monitoring of LDPs) which represent useful networks.

Economic:

There is very substantial funding currently available from donors (particularly through bilateral or multilateral agreements) for sustainable development and adaptation to climate change. For example, UNDP funds a five-year project (2023-2028) to increase the climate resilience and adaptive capacity of women and youth in the most vulnerable communities in Guinée forestière (Forested Guinea). As elsewhere, private sector involvement in climate adaptation activities is very minor. Mining companies fund some environmental activities as part of their corporate social responsibility or environmental, social, and governance (ESG) policies, but these are rarely envisioned as NbS. There is no legal or procedural basis for markets in biodiversity credits, or payment for ecosystem services, in legal instruments such as the Environmental Code (1999) and Forestry Code (2017) (Harmattan, 2025). Local-level conservation structures such as Village Natural Resource Management Committees do not have the necessary legal status to participate in finance mechanisms such as biodiversity credits (Harmattan, 2025). However, the government is working with the World Bank and other organizations on introducing carbon pricing schemes (IMF African Dept, 2024).

Social:

As in all three countries, perceptions of climate risks and impacts tend to vary between different sub-categories of the population: variables such as sex, age, marriage status, household size, livelihood type, and income level influence perceptions (Huggins and Bishwajit, 2025). Through Village Natural Resource Management Committees, communities are encouraged to participate in biodiversity conservation, and this is reinforced by the legal powers that local authorities have over forests and land-use planning (Harmattan, 2025). Community forest committees, which are composed of 80% women on average, also represent opportunities (IUCN, 2023). In some areas, such as the Allasoyah region, women dominate in awareness-raising campaigns to encourage tree planting, and prohibit deforestation, and regulate hunting (CIFOR-ICRAF, 2024). However, key information on the definitions, principles, aims and benefits of NbS is not yet sufficiently disseminated, and hence the concept is not yet understood by stakeholders, local actors, and the general population (Balde & Bousquet, 2024).

There is a lack of knowledge mobilization regarding achievements, limited community participation in strategic planning actions, and limited consideration of gender and social inclusion at the implementation phase. There is therefore a need to ensure greater participation of communities and vulnerable groups in forest governance, with a focus on NBS.

There are large gender disparities in almost all socioeconomic sectors in Guinea, including those related to land, forests, water, and the environment (IUCN, 2023). The Guinean constitution, land law, civil code and other laws and policies guarantee women's rights to own land, but in rural areas, customary laws and socio-cultural norms mean that in practice, land is owned and controlled by men (Diallo et al, 2021). According to some sources, women own less than 2% of the land (Harmattan, 2025) and have, in practice, only user rights to land and limited decision-making power over land-use. This represents an obstacle to successful NbS. While women are often involved in market gardening, the collection of harvested products, small commerce and small livestock farming, the profits from their labour also tend to be controlled by husbands or male relatives (IUCN, 2023). Without explicit safeguards, women may supply unpaid labour to restoration yet lack long-term claims to trees or revenues (e.g., timber, non-timber forest products, or credits for conservation of biodiversity or carbon).

Technical:

The NBS concept is generally not fully understood by technical staff at state agencies. More generally, government agencies have limited capacities to implement and monitor programs, or to effectively monitor national needs and donor information requests (Balde & Bousquet, 2024). Reliable ecological, climatic, and socio-economic data for NBS planning is not consistently available. Universities, and scientific institutions are not fully integrated into programme planning and design processes, and there are few mechanisms for systematic institutional learning from successful projects. This is not only an issue for NbS but for adaptation planning more generally, which suffers from limited cross-ministerial information sharing and weak climate indicators (IMF African Dept. 2024). Guinea faces frequent floods, in part due to climate change, but relies on outdated early-warning systems.

Legal:

In Guinea, most policies developed since 2015 include the 'triple win' (environmental, social and economic benefits) as a basic principle. The National Sustainable Development Strategy (NSDS), the Nationally Determined Contribution (NDC), and the National Environmental Policy already include key elements of NBS, particularly in terms of biodiversity, climate adaptation and social inclusion. The Stratégie et Plan d'action national pour la biodiversité includes gender-responsive objectives. Nevertheless, the legal framework has weaknesses. The Plan National d'Investissement Agricole et de Sécurité Alimentaire (PNIA-SA, 2013-2017) included support for small-scale farmers using environmentally-friendly approaches such as agroforestry and agroecology, but it is now out of date. The Politique Nationale de Développement Agricole (2017) favours use of agri-chemical inputs rather than NbS, and the Loi d'Orientation Agricole (2024), which does emphasize family farming based on traditional knowledge, doesn't systematically include NbS.

Key principles for effective NbS

IUCN has developed eight criteria for NbS, which are widely accepted by experts, and are guiding policy-makers around the world. Integrating NbS into national policy frameworks in West Africa would ensure that NbS programming aligns with these criteria.

- 1: NbS effectively address societal challenges
- 2: Design of NbS is informed by scale
- 3: NbS result in a net gain to biodiversity and ecosystem integrity
- 4: NbS are economically viable
- 5: NbS are based on inclusive, transparent and empowering governance processes
- 6: NbS equitably balance trade-offs between achievement of their primary goal(s) and the continued provision of multiple benefits
- 7: NbS are managed adaptively, based on evidence
- 8: NbS are sustainable and mainstreamed within an appropriate jurisdictional context

Some policies are outdated and in need of reform, such as the forest policy, which no longer meets international standards and does not sufficiently take into account NbS. The National Land Use Plan (1991), is also outdated. Numerous documents such as the Plan National D'adaptation aux Changements Climatiques (PNA) (2008), the Plan National d'Investissement Forestier (2019), Stratégie et Plan d'action national de conservation de la diversité biologique (2021-2030), The Stratégie Nationale sur le Changement Climatique (SNCC-2019), The Politique nationale de l'environnement en République de Guinée, (2011/ 2016), The Stratégie Nationale pour la Mise En Œuvre De La Hiérarchie D'atténuation and The Compensation Des Impacts Sur La Biodiversité Et Les Écosystèmes (2019) do not explicitly refer to NbS.

There are several opportunities to integrate Nature-Based Solutions (NbS) into sectoral public policies. In the land and spatial planning sector, the Simandou 2040 program, as well as national and agricultural land policies, provides a strategic window for anchoring NbS. In the climate and environment sector, the Third Communication to the UNFCCC, the Framework on Displacement, and the Protected Areas Code represent concrete opportunities to institutionalize NbS by promoting biocultural knowledge and facilitating access to appropriate funding. The mining sector can take advantage of the revised Mining Policy to require NbS-based ecological rehabilitation of sites according to Nature-based Solutions standards, thus strengthening sustainability in a high-impact sector. Finally, in the forestry and mangrove sectors, the overhaul of forest policy, and the National Strategy for Sustainable Development is essential to establish NbS within Guinea's conservation and restoration standards.

Environmental:

Agricultural expansion, unsustainable (mostly extensive) farming practices, charcoal production, and commercial logging are significant drivers of environmental degradation. There is a need to create a national inventory of biodiversity and priority ecosystems for NBS, integrating socio-ecological, climatic, and economic data, to guide the planning and territorial targeting of nature-based interventions. The Ministère de l'Environnement et du Développement Durable (MEDD) is well-placed to promote and ensure integration of NbS principles across sectoral policies. As in the other countries, the impacts of climate change are felt in different ways depending on the roles and responsibilities of men and women, youth and older people in the implementation of their daily activities (IUCN, 2023). For example, women and girls who are responsible for domestic needs, particularly water collection, are particularly affected by drought, which increases their workload (IUCN, 2023).



5. Conclusions and recommendations

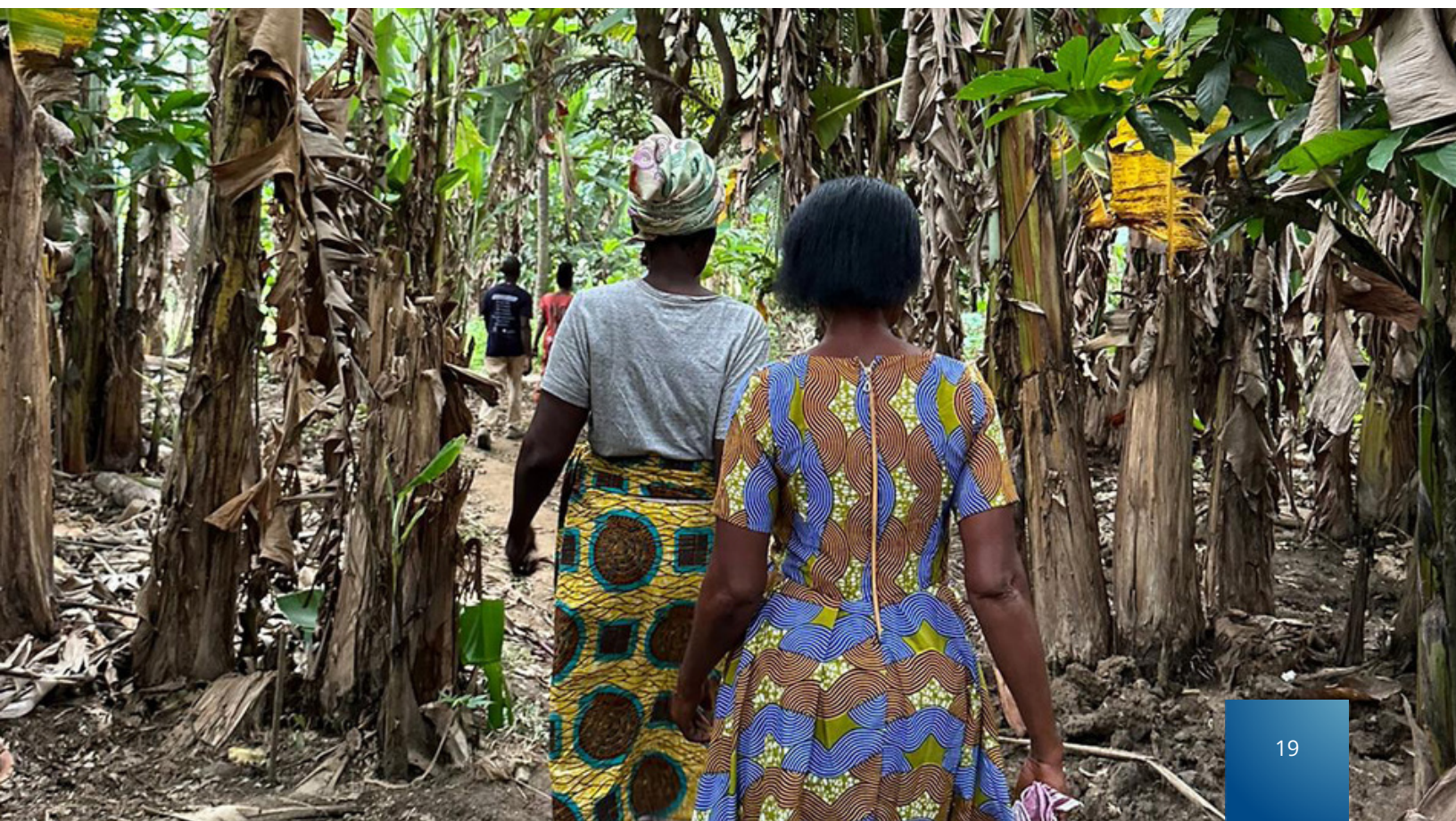
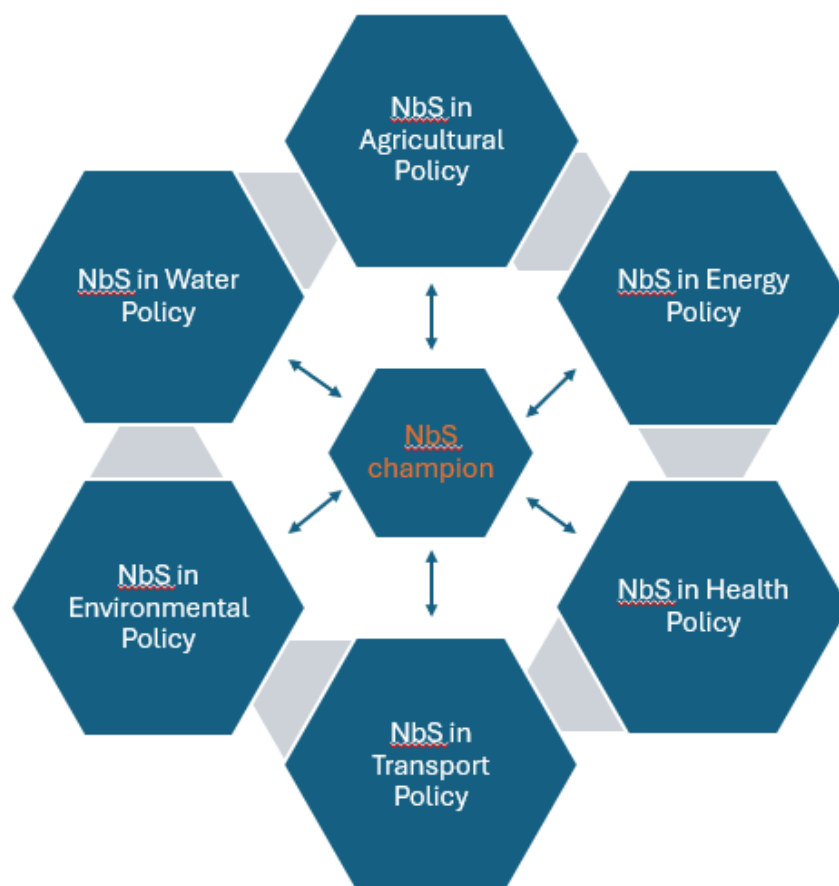
Elements of the PESTLE analyses for the three countries reflect the situation in other places. While there is general interest in NbS across sub-Saharan Africa, there is often insufficient inter-ministerial coordination and awareness needed to mainstream it into policy. There is generally a, “lack of incentives or supportive national policies to consider NbS” which leads to, “a policy preference for grey infrastructure... [and] a lack of institutional buy-in for NbS” (Collins, 2025). More in-depth discussion of NbS and exchange of experiences from the region and beyond, could ensure that West African states capitalize on the opportunities for NbS. For example, studies indicate, “several pathways by which NbS can impact income/revenue, revenue generation, and employment. Income/revenue arises from the sale of ecosystem goods or services, cost savings, subsidies or payments for ecosystem services. Direct effects on labour are linked to transitions to nature-based food production, green infrastructure implementation, and investments in ecotourism” (Chausson et al, 2024). However, it is difficult to verify both the inputs (investments) and outcomes (benefits) of large-scale projects, because “NbS cut across traditional sectors (e.g., water, agriculture, infrastructure, environmental protection), implicating many public and private sector actors. There is no standard industrial classification, and public and private funding sources are diverse, making investment and outcome tracking difficult”, leading analysis to recommend “comprehensive accounting systems that track both public and private investments in NbS” (Chausson et al, 2024).

Beyond the awareness-raising and policy integration, there is also a challenge of “limited technical capacity to design, implement, and maintain NbS projects” as well as “insufficient scientific data to inform effective project design and resources for MEL” (Collins et al, 2025). There is a need for capacity-building within governments, and greater involvement in NbS planning of specialists (e.g. in participatory governance, gender dynamics, ecology, hydrology, zoology, remote sensing, environmental economics, etc) from non-governmental organizations, the private sector and universities. Technical training and capacity-building should include all stages of the NbS lifecycle, from project design and baseline data collection to project hand-over to local stakeholders and final impact assessment. It is important to ensure that data and expertise informs each objective of the NbS project, otherwise certain aspects may be emphasized more than others. Moreover, civil society organizations will play important roles in building popular demand for climate action and NbS. Increased civil society participation in government planning discussions would strengthen and sustain the momentum generated through awareness-raising and advocacy.

While NbS can result in many significant benefits for states and for communities, gender-sensitive and conflict-sensitive approaches are vital to avoid unforeseen negative outcomes at household, community and inter-community levels. It is important that policies provide sufficient flexibility for program and projects to develop a site-specific approach, tailoring NbS strategies to the unique ecological and socio-economic conditions of each location. All stakeholders should commit themselves to enhancing the involvement and decision-making powers of local communities. There are also legal dimensions to conflict-sensitivity, due in some cases to, “the tension between NbS activities and land rights, with particular emphasis on the ramifications for local and indigenous groups” (Pereira et al, 2025: 244). Clarification and awareness raising of laws on land, tree, and other resource rights, including women’s rights, may be needed.

In each country, progress could best be driven by a ‘champion’: a key leader or team, who could develop and promote clear national guidelines for mainstreaming NbS into national policies. This champion should have direct access to political leadership at the highest levels but should also have strong links to non-state actors such as civil society organizations and large, medium, and small-scale enterprises. Champions should not (only) be environmental experts, as it is important that policy frameworks refer specifically to NbS, not just in the environmental sphere (e.g. policies on forests, water resources management, climate change adaptation, agriculture, etc) but in the health, finance, local administration, transport, energy and other sectors.

Fig: 2 Intersectoral integration of NbS coordinated by an NbS Champion



6. Policy Recommendations

NbS should be integrated into all relevant policy frameworks, including strategy documents, laws, regulations, and guidance notes. Terminology, definitions, objectives and other aspects of NbS policy could be adapted from the IUCN guidelines (IUCN, 2020). Specific recommendations for integration are provided below using the PESTLE framework:

Policy Recommendations for Côte d'Ivoire

Political

- Designate a high-level champion and clarify mandates.

Nominate the Abidjan Legacy Program (ALP)—anchored at the Presidency—as the cross-government convener for NbS, with an explicit mandate to integrate NbS in climate, biodiversity, agriculture, forests, and planning agendas. Add a dedicated NbS budget line and measurable targets in its multi-year plan.

- Use the National Development Plan (PND) cycle to integrate NbS.

Although the PND 2026–2030 is finalized, ministries should insert NbS language and indicators into MTEFs and sector workplans, and prepare an NbS annex for the next PND review (five-year cadence) so major public investments undergo a “nature-climate” screening.

- Institutionalize interministerial coordination.

Create a National NbS Committee under the Prime Minister’s Office, with mandated NbS focal points in MINETE/MINEDDTE (environment), MINEF (water & forests), Agriculture, Planning (MPD), Economy & Finance, and MFFE (Women, Family and Children) reporting regularly to ALP.

- Territorialize coordination.

Establish regional NbS consultation platforms attached to regional councils and municipalities to connect decentralized services, CSOs, and communities, building on lessons from sub-regional NbS projects that showed better uptake when coordination is local.

Economic

- Value nature for budgeting and investment decisions.

Task MPD (with MINETE/MINEDDTE and MINEF) to run ecosystem services valuations for priority landscapes, and mainstream results in the implementation of the national Development Plan, sector MTEFs, and project appraisals to steer capital toward bankable activities.

- Facilitate private finance with risk-sharing.

Through Economy & Finance, set up partial credit guarantees, co-investment funds, and risk-sharing instruments (blended finance) to reduce the risk for SME investment in NbS ventures. The ALP and sector ministries could facilitate applications to Green Climate Fund (GCF) and the Global Environment Facility (GEF) funding by actors involved in implementation of NDCs, SPANB, and SPREF.

- Use public demand to catalyze markets.

Enable public procurement of NbS services (e.g., watershed restoration, urban greening) by municipalities and agencies, creating predictable revenue for SMEs and cooperatives engaged in agroforestry and land restoration.

- Leverage national climate or biodiversity funds as anchors.

Where national or sub-national climate funding envelopes exist, deploy them as matching capital to attract multilaterals, climate funds, and private investors.

Social

- Elevate MFFE from advisory to strategic co-lead for NbS policy design and Monitoring. Require ex-ante gender and youth analyses (GBA+) and equitable access to green finance in NbS programs (with indicators included in national monitoring frameworks).

- Provide resources to ministry gender focal points.

Budget for stronger focal point networks across Agriculture, Environment, Water & Forests, Planning, etc., with formal terms of reference and reporting to ALP to ensure continuity and accountability.

- Institutionalize community participation. Create local consultation and co-design mechanisms (with local feedback and validation) so women's and youth associations can co-shape landscape restoration and agroecology interventions.
- Add indicators on skills development and inclusion, such as technical certifications, and supervisory roles held by women and youth alongside employment numbers to evidence empowerment and build donor confidence.

Technological

- Establish an integrated NbS data system.

Develop interoperable geospatial databases that merge climate, biodiversity, and socio-economic indicators; enable data-sharing across MINETE/MINEDDTE, MINEF, Agriculture, MPD, and research institutions (e.g., national universities, CIFOR-ICRAF).

- Blend specialist analytics with citizen science.

Pair expert-led monitoring (remote sensing, GIS, biodiversity surveys) with citizen science guidelines to improve coverage and local ownership; train technical managers, decentralized services, CSOs, and elected officials on project design, monitoring and evaluation, and standards.

- Provide "grey" infrastructure in NbS project areas.

Prioritize electricity, water, transport, internet and cellphone connectivity, climate information and early-warning systems in priority NbS locations to lower SME transaction costs and improve implementation.

Legal

- Create a formal legal identity for NbS.

Enact a national NbS framework (with definitions aligned to IUCN principles), a national NbS certification, and a public register of NbS projects to enable eligibility, traceability, and investor confidence.

- Embed NbS in existing laws and strategies.

Update forest codes, management plans, reforestation contracts, and public-private partnerships under MINEF to recognize ecosystem services; integrate NbS into environmental law and agricultural strategies (including ANADER extension tools).

- Operationalize rights and communicate with informal actors

Ensure women's and girls' rights are fully implemented across agencies; promote constructive engagement with informal institutions and livelihoods rather than criminalization.

- Enable market instruments.

Establish PES regulations, clarify land ownership and use rights, and build credible monitoring and verification systems for carbon and biodiversity credit claims; introduce SME certification schemes for ethical or environmental standards to access procurement and finance.

Environmental

- Develop national natural resources inventories and set priorities.

Assign MINETE/MINEDDTE to lead policy integration and MINEF to lead operations for biodiversity inventories, ecosystem prioritization, and landscape restoration, supported by universities and research centers. Provide multi-year funding, GIS toolkits, and build capacity in taxonomy and ecosystem valuation.

- Recognize and safeguard Indigenous & local knowledge.

Create legal recognition and benefit-sharing mechanisms for Indigenous knowledge; ensure local terminology and practices inform NbS design and monitoring.

- Align with national climate and biodiversity mechanisms and global finance.

Make NbS an explicit implementation tool in Côte d'Ivoire's NDCs, NAP, SPANB, and SPREF, and use this alignment to structure an investable national NbS portfolio for the Global Climate Fund, GEF and partners.

Policy Recommendations for Ghana

Political

- Appoint a national champion and create an NbS Desk at the National Development Planning Commission (NDPC).

Designate NDPC as the cross-government champion and set up a formal NbS Desk to coordinate mainstreaming across ministries and provide a single point of accountability.

- Institutionalize inter-ministerial coordination for NbS.

Establish an inter-ministerial NbS Task Force convened by NDPC with Ministry of Environment, Science, Technology and Innovation (MESTI), Environmental Protection Agency (EPA), Forestry Commission, MoFA, Water Resources Commission, Local Government, Finance, and Gender Ministry.

- Benefit from policy windows.

Use the District Medium-Term Development Plans (2026–2029) and capacity already provided to 13 district assemblies to mainstream NbS, and leverage the Long-Term Development Policy Framework (2018–2057) review and the NBSAP 2024–2030 to explicitly embed NbS indicators and financing opportunities.

- Regional knowledge exchange.

Participate in West Africa NbS exchanges (shared datasets, study tours, and regional workshops) so Ghana can both share its mainstreaming experience and adopt proven approaches from neighbors.

Economic

- Value ecosystems to guide public investment.

NDPC, MESTI and EPA should steer ecosystem-services valuation and CBA for priority landscapes and require “nature-climate” screening in project appraisal notes submitted by MMDAs and sectors.

- Mobilize private finance and reduce risk for SMEs.

Engage Ghana Enterprises Agency (GEA) to disseminate NbS business guidance to SMEs and embed NbS in GEA training manuals; create credit guarantees and favourable credit lines for NbS SMEs and encourage banks to lower interest rates for firms integrating NbS practices.

- Support Green finance.

Invite Bank of Ghana to reflect NbS/ESG criteria in supervisory guidance and lending guidelines; have Ministry of Finance operationalize the Ghana Green Financing Taxonomy so lenders and investors can classify and prioritize NbS assets.

- Build public demand and create subnational climate funds.

Encourage government procurement of NbS services and pilot district climate funds (with matching provisions) to attract private co-investment at the local level while building institutional capacity.

The Subnational Climate Fund (SCF) targets mid-sized infrastructure projects (USD 5- 75 million) that often struggle to attract private capital at the local level. Funded primarily by the Green Climate Fund (GCF) and implemented with IUCN, Pegasus Capital Advisors, Catalytic Finance Foundation and Gold Standard, it is a blended finance initiative which facilitates investment in subnational climate-smart infrastructure and nature-based solutions. An initial USD 150 million investment from GCF protects investors from excessive risk, while a technical assistance facility (managed by IUCN) funds community engagement, NbS awareness campaigns, local government capacity building, and project certification to demonstrate impacts. The SCF therefore builds demand for NbS projects, as well as implementing them.
<https://www.subnational.finance/>

Social

- Targeted awareness and inclusion by design.

Use MTDPs, NDCs, NBSAP, and District Annual Action Plans as the standard platforms to require gender and youth mainstreaming in NbS projects. Create communications that speak to youth, marginalized groups and women, and require their representation in NbS governance.

- Resource and empower gender focal points.

Provide budgeted support for gender focal persons embedded in sector ministries (Forestry, Agriculture, Environment, Water, etc.) to sustain engagement and ensure that gender analysis informs NbS program cycles.

- Leverage community institutions.

Formalize consultation with CREMAs in policy discussions and integrate them into NbS implementation (co-design, monitoring, benefit-sharing), recognizing their role in community-based natural resource management.

- Measure quality of jobs and skills.

Add outcome indicators on skills acquisition, certifications, etc (particularly for women and youth) to complement data on job creation in NbS projects. For example, Rwanda's Fund for the Environment and Climate Change (FONERWA) has integrated strong gender-disaggregated indicators on skills gained (e.g. technical or entrepreneurial), training hours delivered, as well as certification or accreditation for skills acquired.

- Youth policy opportunities.

Work with the National Youth Authority to integrate NbS into the youth policy framework during the mid-term review (2027) including skills programs.

Technological

- Integrated data systems and shared access.

Mandate MESTI/EPA (with NDPC) to host interoperable NbS geospatial and data platforms that merge climate, biodiversity, and socio-economic data; ensure secure open access to sector agencies, MMDAs and universities for planning and evaluation.

- Document and Protect Indigenous and local knowledge.

Create a dedicated national database of indigenous and local ecological knowledge (approved by customary leaders) that is used by ministries and shared with universities for curricula and practitioner training.

- Citizen science and practitioner training.

Pair specialist monitoring (e.g. GIS, remote sensing, and biodiversity surveys) with citizen science guidelines; train technical managers, local officials, CSOs and decentralized services in NbS design, implementation, monitoring and evaluation aligned to international standards.

- Provide enabling grey infrastructure.

Align investments in electricity, water, transport, connectivity, climate information and early-warning systems with priority NbS hubs to reduce SME costs and improve implementation.

Legal

- Recognize NbS in law and planning instruments.

Update sectoral laws, regulations and planning guidelines to acknowledge NbS and enable cross-jurisdictional coordination (e.g., across MMDA boundaries).

- Operationalize women's and girls' rights in NbS delivery.

Ensure all state agencies fully enforce existing rights frameworks in NbS policy and activities, including procurement, land access, training, and benefits.

- Establish a legal identity and market access for NbS projects.

Create formal legal recognition for NbS projects and institutions to unlock PES and biodiversity credit mechanisms and enhance engagement with private finance.

- Work pragmatically with informal institutions.

Promote constructive interaction between formal law and customary institutions that manage natural resources, avoiding approaches that criminalize informal livelihoods important for NbS uptake.

- Certify sustainable SMEs.

Enable streamlined certification pathways (e.g. ethical, organic, sustainable) for SMEs so they can access green procurement and finance.

- Finance-regulatory alignment.

Have MoF embed the Ghana Green Financing Taxonomy in public finance guidance and sector MTEFs; invite Bank of Ghana to reflect NbS in bank risk guidance and eligibility rules for green lending.

Environmental

- Lead roles for inventory and prioritization.

Assign MESTI (policy lead) and EPA (technical lead) to coordinate national biodiversity inventories, ecosystem prioritization, and integration of local knowledge; provide stable multi-year funding and university partnerships for taxonomy, ecosystem valuation, and monitoring.

- Integrate knowledge into planning and teaching.

Ensure the indigenous/local knowledge database is accessible to ministries and academia and used to guide planning and professional education in biodiversity conservation.

- Leverage global mechanisms.

Use NDCs, NAPs, and the NBSAP (2024–2030) to attract international climate-biodiversity funds (e.g., GCF/GEF) and technical partnerships, tying proposals to forest landscape restoration, community resilience, food security, and inclusive job creation.



Policy Recommendations for Guinea

Political

- Appoint a high-level national champion and formalize cross-government coordination.

Establish a permanent inter-ministerial committee on climate and NbS to sit under the Presidency and formally designate NbS focal points in each sectoral ministry (environment, agriculture/livestock, mines, planning/territorial administration, gender). Give the committee a mandate for policy alignment, joint planning, and performance reporting.

- Name clear institutional leads and their roles.

Confirm MEDD as policy lead on climate, biodiversity, and NDC implementation; the Ministry of Agriculture and Livestock as lead for climate-smart agriculture, agroforestry; and the Ministry for the Promotion of Women, Children & Vulnerable Persons to co-lead gender and inclusion. The Ministry of Territorial Administration and Decentralization (MATD) should integrate NbS into Local Development Plans (PDL), the Ministry of Mines and Geology should require ecological restoration in extractives industries; and the National Meteorological Agency should provide climate data and planning support.

- Exploit policy windows to integrate NbS.

Make NbS an explicit cross-cutting mechanism in current frameworks and updates: NDC, NAP, SPANB/NBSAP, PNDES, Vision 2040, and the upcoming Long-Term Low Emission Development Strategy (LT-LEDS), with clear indicators and budget lines.

- Institutionalize regional & South–South knowledge exchange.

Use regional workshops, exchange visits and shared data repositories to accelerate learning and standardization, while showcasing Guinea’s pilots to neighbors (and learning from theirs).

Economic

- Start with valuation to guide allocation of funding and investment.

MEDD, Ministry of Agriculture and Livestock and planning authorities should coordinate ecosystem-services valuation and cost-benefit analyses for priority landscapes; and use the results to prioritize investments in the PNDES implementation and sector programs.

- Unlock blended finance and climate funds.

Build a national climate-finance access platform that prepares bankable NbS proposals and channels resources from GEF, GCF, REDD+, and Article 6 (carbon markets). Adopt clear monitoring systems and safeguards to reduce investor risk and improve eligibility.

- Reduce risk for SMEs and attract private capital.

Introduce tax incentives and subsidies, public–private partnerships, and green-lending products (including partial guarantees) to pull SMEs into restoration, agroforestry, watershed protection, and nature-positive value chains; integrate SMEs into national climate strategies so they qualify for preferential instruments.

- Use public procurement to create demand.

Encourage municipalities and agencies to buy NbS services (e.g., urban greening, erosion control, mangrove restoration), creating predictable revenue for local SMEs and cooperatives.

Social

- Mainstream gender & inclusion across all NbS instruments.

Require a gender-sensitive approach in PDL and sector programs, with active participation of women, youth and vulnerable groups from design through implementation; provide resources to gender focal points and strengthen the Ministry for the Promotion of Women, Children and Vulnerable Persons as a strategic partner, not only an advisory actor.

- Work with local and customary institutions.

Establish multi-stakeholder local consultation frameworks, formally recognize community organizations, and co-design projects with communities; decentralize natural resource management, and support community forestry and local restoration initiatives.

- Measure empowerment and inclusion: Add indicators for skills acquisition, certifications etc. to demonstrate how NbS is building local capacity and income.
- Build awareness at multiple levels.

Run NbS awareness and training for policy-makers, communities, and especially youth and marginalized groups—linking communication to concrete participation and benefit-sharing mechanisms.

Technological

- Create an integrated environmental information system.

Establish a national, interoperable data platform (GIS, remote sensing, socio-economic indicators) managed by MEDD with the National Meteorological Agency, universities, and local authorities; create open data protocols and national monitoring and reporting standards.

- Scale citizen science alongside expert monitoring, evaluation and learning.

Pair specialist monitoring with citizen-science guidelines to improve coverage and ownership; train technical managers, local officials, CSOs, and decentralized services in NbS design, implementation, and monitoring and evaluation aligned to international standards.

- Align enabling infrastructure with NbS hubs.

Co-locate investments in electricity, water, transport, connectivity, climate information and early-warning systems with priority NbS geographies to reduce delivery costs and improve private participation.

Legal

- Create a national legal framework for NbS.

Define what counts as NbS in Guinea, establish standards and a national NbS registry, and harmonize sectoral laws (environment, forestry, agriculture, mining, land-use) to enable intersectoral coordination.

- Enable market mechanisms.

Develop PES regulations, clarify land and usage rights for communities, and build robust monitoring systems so projects can access carbon markets (Paris Agreement Articles 6.2 & 6.4) and biodiversity credits, with gender-responsive benefit-sharing.

- Institutionalize constructive engagement with informal actors.

Recognize and partner with informal and community institutions critical to rural livelihoods and ecosystem stewardship, avoiding narrow enforcement approaches that criminalize practices. Instead informal activities could be transitioned into formal NbS pathways.

- Facilitate certification for nature-positive SMEs.

Create streamlined certification for ethical, organic, and/or sustainable products so SMEs can qualify for procurement and green finance.

Environmental

- Create inventories, priorities, and plans at national and territorial scales.

Assign MEDD to coordinate national biodiversity inventories, ecosystem prioritization, and integration of indigenous and local knowledge; resource universities and local authorities; fund multi-year monitoring and roll out a national monitoring and verification framework.

- Embed indigenous and local knowledge in design.

In conjunction with legal experts, customary leaders, UNESCO and others, build and maintain a shared national database of traditional ecological knowledge to guide planning and curricula; ensure clear intellectual property rights, respectful access protocols and equitable benefit-sharing.

- Leverage global agreements and finance.

Use alignment with NDC, NAP, SPANB/NBSAP, PNDES, Vision 2040, and LT-LEDS to attract funding from GCF/GEF/REDD+ and Article 6 cooperation, emphasizing the synergies between mitigation and adaptation, and inclusive green jobs.

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