

# Green Development Pathways and Jobs for Atewa Landscape



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# **Green Development Pathways and Jobs for Atewa Landscape**

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## KEY DATA

<b>Framework Contract</b>	<b>EuropeAid/138778/DH/SER/Multi Framework Services for the Implementation of External Aid – Lot 1 Sustainable Management of Natural Resources and Resilience</b>
<b>Specific contract number:</b>	Contract #300026856
<b>Name of project:</b>	Green development pathways and jobs for Atewa Landscape
<b>Start/end date:</b>	17 January – December, 2022
<b>Contracting Authority:</b>	Delegation of the European Union to Ghana
<b>Task Manager:</b>	Christopher Ackon
<b>Contractor:</b>	Landell Mills International

## QUALITY ASSURANCE STATEMENT

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# **PART ONE**

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## **Desk Study on Green Development Pathways**

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## ACRONYMS

BOPA	Botanical Plant Exporters Association
CEA	Country Environmental Analysis
EU	European Union
FAO	Food and Agriculture Organization
FASDEP	Food and Agricultural Sector Development Programme
GDP	Gross Domestic Product
GE	Green Economy
GIPC	Ghana Investment Promotion Centre
HIA	Hotspot Intervention Area
IGG	Inclusive and Green Growth
IIED	International Institute for Environment and Development
IMF	International Monetary Fund
IUCN -NL	International Union for Conservation of Nature – Netherlands
MRV/MVR	Measurement, Reporting and Verification
NDCs	Nationally Determined Contributions
NTFP(s)	Non-Timber Forest Product(s)
PES	Payment for Ecosystem Services
RECP	Resource Efficiency and Cleaner Production
REDD+	Reducing Emissions of Deforestation and Degradation
SDR	Special Drawing Rights
SMEs	Small and Medium-sized Enterprises
SMMEs	Small, Medium and Micro Enterprises
TEEB	The Economics of Ecosystems and Biodiversity
UNEP	United Nations Environment Programme

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## 1. INTRODUCTION

This desk report relates to the Green development pathways and jobs for the Atewa Landscape contract (hereafter ‘the project’), which is being implemented by Landell Mills International Ltd through the framework contract Services for the Implementation of External Aid (SIEA Lot 1). The objectives of the assignment are to:

- Identify a suite of green development pathways that will inure to job creation and incentivise government to commit to green economy in the Atewa Landscape.
- Identify green job creation and business opportunities for the teeming youth in the landscape based on the existing skill sets and prospects for skills enhancement, as well as financial instruments and mechanisms for the implementation of the identified opportunities.
- Elaborate and validate a Green Development Strategy and Action Plan for the sustainability of Atewa Landscape.

The purpose of the desk report is to primarily to present the findings of the desk study on green development pathways. We begin by presenting the methodological approach used and the challenges encountered. This is followed by a context section and literature review. Next, we look at the results and findings of the study, which present the eight pathways initially identified, and the three pathways chosen for further study, and the rationale behind this decision.

The desk study took place from 14 March (submission of inception report, which was then approved 15 May) to 6 June (submission of desk report), and included preparatory work in relation to all activities, and specific tasks relating to:

- Research for green development pathways.
- Objective 1 workshops in Accra and Atewa, presenting identified pathways to stakeholders.
- Writing of the desk report.

The report contains the following sections:

- Methodology and challenges.
- General context and literature review.
- Results and findings.
- Conclusions.
- Annexes, including the workshop report, list of stakeholders, successful cases of green development, stakeholder analysis, list of documents reviewed, green development ranking table, and pictures from the workshop.

## 2. METHODOLOGY AND CHALLENGES ENCOUNTERED

In approaching this study, the expert team undertook a thorough desk research to identify potential and relevant green development pathways applicable for forests by reviewing work previously done in Ghana as well as similar country case studies in West Africa and beyond. The team conducted a detailed desk review of relevant documents, including a review of relevant information from the European Union, the West Africa region and beyond, with a view towards guiding policies, institutional arrangements and existing projects.

The team also conducted initial key stakeholder consultations with diverse persons from policy, academia, community leaders and civil society organisations. The summary of our interviews with these persons have been anonymised in the annex to protect their identities due to the sensitive nature of the Atewa study. These interviews provided the team an understanding of the context, key actors, and outcomes for these pathways (number of jobs, benefits, etc.). We also drew from national findings and existing secondary data to inform the formulation of these outputs, and made sure findings are relevant and realistic for the involved stakeholders, and contributes to national or global sustainable development targets.

The team further conducted two workshops one in Atewa and one in Accra with a total of sixty-seven (67) interested and engaged stakeholders participating in the workshops (43 at the landscape level and 24 at the national level). These workshops served to further deepen our understanding of the green development pathways and views/opinions of key members of various stakeholder groups. The technical report from these workshops report is included as part of the documents annexed to this report.

We have faced two particular challenges in the conduct of the Objective 1 of this study as follows:

- Difficulties in securing engagement with relevant government stakeholders. We assume this has occurred due to the particular political sensitivities of the Atewa landscape in the current context.
- Significant delay of three months in receiving feedback and approval of the inception report, to which we attribute equally to the political sensitivity of the study subject matter.

### 3. GENERAL CONTEXT AND LITERATURE REVIEW

#### 3.1. THE ATEWA LANDSCAPE

In context of the country's efforts towards sustaining its forest resources, lies the rich and species diverse Atewa landscape, the centre of which lies the Atewa Range Forest Reserve. The Atewa Range, about 90 kilometres north of Ghana's capital, Accra, defines the Atewa landscape. According to the TEEB report (IUCN NL et al, 2016), the range comprises closed and open canopy upland evergreen forest, meadows and herbaceous habitats, cocoa and other crop plantations, small scale (often illegal) gold mining, and some built up areas. The Densu, Birim, and Ayensu rivers draw their source within the forest range. It is home to a wide variety of flora and animals and supports various communities living on the forest borders. The Atewa Range Forest Reserve is designated as a Globally Significant Biodiversity Area and is to be highly protected.

Few other forests in Ghana are as biologically significant as the Atewa Range Forest Reserve. The forest is notable for its physical elevation of over 800 meters, which contributes to its distinctive and rare Upland Forest type. The forest, which covers only 26,300 hectares, accounts for 33.5 percent of the remaining closed forest in Ghana's Eastern Region. Atewa Forest is a Key Biodiversity Area (KBA) with a diverse range of flora and animals, including 239 bird species, 69 mammals, 40 amphibians, and 14 reptiles. It safeguards at least 78 species, including 10 birds, seven mammals, and nine amphibians, from extinction. In Atewa, a total of 969 vascular plant species have been recorded<sup>1</sup>.

#### 3.2. POLICY AND STRATEGY CONTEXT

There are several relevant policies and strategies that govern the context of the work carried out under this assignment.

Ghana has 20 climate adaptation and 11 mitigation measures submitted in its Nationally Determined Conditions (NDCs). These measures are focused on resilience in agriculture, value addition-based use of forest resources, integrated water resources management and infrastructure planning, among others, through seven priority sectors to be implemented over a 10-year period (2020–2030). Areas of adaptation and mitigation are sustainable land use, including food security; climate-

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<sup>1</sup> The Economics of Atewa Forest Range Reserve (2016)

proof infrastructure; equitable social development; sustainable mass transportation; sustainable energy security; sustainable forest management; and alternative urban waste management<sup>2</sup>.

At a sectoral level, several policies and strategies developed by the government also signal a commitment to green growth. The agricultural, forestry and land use sector, which contributes about 45% of Ghana's greenhouse gas emissions, is being tackled through the Food and Agricultural Sector Development Programme (FASDEP II).

The policy contains interventions that will enhance the mainstreaming of sustainable land and environmental management practices in agricultural sector planning and implementation. The policy advocates better incentives and regulations to adopt more sustainable agricultural practices and so protect the environment.

Most relevant to this assignment is the National Green Jobs Strategy Implementation Plan (2021-2025), prepared by the Government of Ghana's Ministry of Employment and Labour Relations, with support from the International Labour Organisation. The policy aims to promote green jobs as a means of easing the transition to a more environmentally friendly economy. Agriculture, waste management and recycling, renewable energy and recycling, construction, eco/nature-based tourism are the five main sectors identified as having particular potential.

Ghana's Green Jobs Strategy aims to assist state institutions and the private sector in strategically positioning themselves to alleviate the difficulties of climate change while maximising the potential for ecologically sustainable growth. This is to be accomplished using a programming method incorporating four interconnected sub-projects:

- Green Jobs Coordination and Capacity Development Project, aimed at building the capacity of government planning and policy coordination institutions to initiate, develop, coordinate and promote the mainstreaming of green jobs in government planning at the sectoral and sub-national level;<sup>3</sup>
- Green Jobs Skills Development Project, aimed at promoting skills development

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

3 Republic of Ghana, Ministry of Employment and Labour Relations, Draft Ghana National Green Jobs Strategy (2021–2025).

for green jobs within priority sectors;

- Green Enterprise Development and Access to Markets for Green Products Project, aimed at creating an enabling environment for SMEs to expand and create opportunities for employment in green business through finance, business development, tax incentives and technology adoption; and
- Green Enterprise Finance Project, aimed at mobilising public and private sector resources to support enterprises, start-ups and existing businesses that are going green<sup>4</sup>.

The government's commitment to greening the economy is reflected in the formulation of the Green Jobs Strategy. However, the Strategy is silent on the issue of how many green jobs will be produced or expected as a result of this policy. While the Ministry of Employment and Labour Relations designed the strategy, other government agencies must be involved to ensure the strategy's successful execution and achievement of its goals. In this sense, the government needs to link the Green Jobs Strategy to current flagship efforts like Planting for Food and Jobs, the Government Decentralised Industrialisation Agenda (One District One Factory Initiative), and the enormous community irrigation project (One Village One Dam Initiative).

### 3.3. MACRO-ECONOMICS OF GHANA AND THE JOB SECTOR

In terms of Ghana's key economic sectors, based on the 2021 mid-year budget review, the agricultural sector continues to maintain its strong performance, with the highest growth rate of 4.3%. This is closely followed by the services sector at 4.0% and the industry sector at 1.3%.

Ghana's economy is projected to recover gradually over the medium term, thanks to commodity price growth and strong domestic demand. Ghana received \$1 billion equivalent in the recent IMF SDRs allocation, part of which will go to support economic recovery. Growth is expected to average 5.1 percent yearly in 2021-23. After declining by 1.7 percent in 2020, real per capita GDP is projected to return to its pre-COVID-19 level in 2021.<sup>4</sup>

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<sup>4</sup> World Bank Group, Ghana Country Environmental Analysis (Washington DC: World Bank, 2020), <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/419871588578973802/ghana-country-environmental-analysis>.

The fiscal deficit is expected to remain high as the government implements its economic support programme. It is projected to narrow to 14% of GDP in 2021 and 9.5% by 2023 – still above Ghana’s 5% ceiling.

The effect of COVID-19 on Ghanaian firms indicates that the impact has resulted in some business closures, employee layoffs and reduced business confidence. About 770,000 workers, representing 25.7% of Ghana’s total labour force, had their wages reduced and 42,000 workers were laid off during the partial lockdown<sup>5</sup>. Although economic activities have resumed since restrictions have been lifted, almost 17% of businesses that shut down have remained closed<sup>6</sup>.

An estimated 500,000 jobs have been lost in Ghana in fewer than six months, since its first case of COVID-19, of which 100,000 are in the formal sector<sup>7</sup> and 400,000 in the informal sector, illustrating the immeasurable impact of COVID-19 on Ghana’s largely informal sector.

### **3.4. EFFECTS OF CLIMATE CHANGE ON THE GHANAIAN ECONOMY**

The climate crisis continues to rapidly evolve and provide alarming statistics that threaten the sustainable growth of many countries in Sub-Saharan Africa. In 2016, among 181 countries, Ghana ranked 101 in the Notre Dame Global Adaptation Index (ND-GAIN) which measures countries vulnerability to climate change. Ghana was ranked 68th most vulnerable and 85th least ready country to combat the climate nemesis. Sea level rise, increasing temperature, frequent drought and erratic rainfall among other climate related factors continue to increase vulnerability of many sectors that are the backbone of the Ghanaian economy.

This vulnerability is more acute in the agriculture sector because of the overdependence on rainfall for almost all agricultural production. Agriculture accounts for about a third of national income, export earnings and employs almost two thirds of the workforce who are pre-dominantly smallholder farmers and confronted with massive challenges of climate change adaptation. Coastal fishing communities are equally impacted as evidenced by recent tidal waves that have inundated coastal communities along the eastern coast in particular.

Elsewhere, it is estimated that owing to the reliance on wood fuel for household use, increased drought threatens the future energy availability of about a quarter of a million people in rural Ghana with further intensified pressure on the country’s small community dam infrastructure that could potentially affect over 1.3 million

<sup>5</sup> Republic of Ghana, Statistical Service Ghana, How COVID-19 Is Affecting Firms in Ghana: Results from the Business Tracker Survey (Accra: Statistical Service Ghana, 2020), [https://ghana.un.org/sites/default/files/2020-08/UNDP\\_Ghana\\_COVID-19\\_Business %20Tracker%20Results\\_%20Brief%20Report.pdf](https://ghana.un.org/sites/default/files/2020-08/UNDP_Ghana_COVID-19_Business%20Tracker%20Results_%20Brief%20Report.pdf).

<sup>6</sup> Dave Alamisi, “COVID-19 Has Rendered 500,000 People Jobless in Ghana – TUC”, The Ghana Report, July 23, 2020, <https://www.theghanareport.com/covid-19-has-rendered-500000-people-jobless-in-ghana-tuc/>.



people, mostly women and children. The projected effects of climate risks on infrastructure such as roads is expected to widen the infrastructure deficit and limit rural households' access to markets and public services, further exacerbating their already precarious living conditions. In order to get ahead of the climate curve, it is unanimously agreed that investments in resilient green infrastructure across all sectors, as advocated by the country's intended NDCs, can lead to achieving sustainable outputs in areas such as agriculture, forestry, waste management and energy.

### 3.5. GHANA'S GREEN ECONOMY

The impact of the global triple-F crises (fuel, food and finance) between 2006 and 2009 led to a growing interest in the concept of a green economy in an attempt to 'get the economy right' to achieve sustainable development<sup>8</sup>. The United Nations Environment Programme (UNEP) defines a Green Economy (GE) as one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. It underscores low carbon emission, resource-efficient and socially inclusive economy.

At the operational level, in a GE, growth in income and employment is driven by investments that reduce carbon emissions and pollution; enhance energy and resource efficiency; prevent loss of biodiversity and ecosystem services; and reduce unemployment and poverty, especially among the poorest segments of society.

Ghana considers a green economy as being crucial to pro-poor growth and the creation of decent employment for the majority of the people; good urban management and sustainable consumption and production; low-carbon emission and effective integration of the three dimensions of sustainable development, among others. In line with the Africa Consensus Statement to Rio+20, Ghana sees IGG and<sup>5</sup> GE not as a substitute for sustainable development, but rather a way of realising it. Over the past decade Ghana has implemented many IGG programmes and policies. Clearly, this is consistent with adopting a step-wise approach to a green economy that focuses on harnessing opportunities for IGG in selected sectors of the economy.<sup>9</sup>

The private sector in Ghana comprises a few large multinational companies and a very large number of Micro, Small and Medium Enterprises (MSMEs). Almost 75% of Ghana's economy consists of MSMEs, and there is growing recognition of the important role MSMEs play in economic development. In order to achieve a top-to-bottom growth of the GE, incentives and enablers need to be identified for

those micro enterprises working at the grassroots level. Specific needs in this regard include development and implementation of cleaner technologies and innovation, mainstreaming Resource Efficiency and Cleaner Production (RECP), and financing mechanisms that promote investments in eco-innovations.

In this context, eco-inclusive entrepreneurship plays a very important role. Eco-inclusive entrepreneurship can be defined as enterprises that sell products and/or provide services that are able to manage or use environmental/natural capital sustainably and consider the ‘triple bottom line’ of their organisations. This includes consideration of the aspects of sustainability, social, and economic progress <sup>10</sup>.

Across the world, such enterprises face myriad of challenges which threaten their sustainability and scalability, subsequently threatening their ability to generate measurable impact <sup>11</sup>. The challenges these organisations face are similar to those faced by SMEs generally and may include:

- Struggle to access sizable markets;
- Struggle to attract talent
- Difficulty in obtaining appropriate finance;
- Difficulty in accessing technical or business expertise;
- Constraints faced due to poor infrastructure, compliance or policies; as well as a local mind-set that is unsupportive of entrepreneurship or that does not acknowledge the need for environmental preservation<sup>12</sup>.

Therefore, targeted support is required to ensure that eco-inclusive enterprises can access the support they need to increase their market share and impact within their local economies. In this study, we have sought to examine the green pathways for the Atewa landscape that harness the latent power of SMEs and unleash new opportunities for GE development.

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<sup>8</sup> UNEP, 2008

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9 Economic Commission for Africa (2015) “Inclusive green growth in Ghana: selected case studies “

10 Littlewood, D. and Holt, D. 2015. Social and environmental enterprises in Africa: context, convergence and characteristics. *The Business of Social and Environmental Innovation* (pp. 27 – 47). Springer International Publishing.

11 Rockefeller foundation. 2015. Accelerating impact: exploring best practices, challenges and innovations in impact enterprise acceleration. Available from: [www.rockefellerfoundation.org/](http://www.rockefellerfoundation.org/)

12 Rockefeller foundation. 2015. Accelerating impact: exploring best practices, challenges and innovations in impact enterprise acceleration. Available from: [www.rockefellerfoundation.org/](http://www.rockefellerfoundation.org/)

## 4. RESULTS AND FINDINGS

### 4.1. BROAD SPECTRUM OF GREEN DEVELOPMENT PATHWAYS

The study expert team has documented eight (8) green pathways that are of interest to stakeholders, and which appear to have initial viability. This section outlines the key findings and synthesis information from broad spectrum of online research, key documentary reviews, and our consultations with key individuals, landscape actors and national level stakeholders. The table below summarises the initial findings for the eight (8) green development pathways identified.

Table 1 Potential green pathway strategies for Atewa Forest

Green pathway	Brief description	Jobs potential	Pros	Cons
<b>Ecotourism services (medium to high-end lodges and related tourism services)</b>	Ecotourism is one of the fastest growing segments of the tourism industry focusing on wildlife conservation, environmental protection, poverty alleviation and economic development. Atewa's position as a biodiversity hotspot means that traditional economic bases like agriculture, hunting and harvesting are not compatible with protected	It has the potential to create medium to high jobs. The tourism sector is projected to create 136 and 370 million direct and indirect jobs in 2026 with ecotourism accounting for 20% and anticipated to grow at a rate of 10-30% (ILO, 2016). The ecotourism industry generated about \$1.81 billion globally and forecasted to	1. Ecotourism development could encourage cultural sensitivity in guest-host relations and acts as a catalyst for ecologically sustainable development within the Atewa landscape.  2. It can enhance wildlife conservation and the conservation of natural, cultural and built resources	1. Can potentially offset the ecological balance of the landscape.  2. May cause large carbon footprint and some environmental impacts may not be negated if activities reach its peak potential. One example is the carbonisation of the Galapagos archipelago through Ecuador's dependency on tourism leading to the degradation of key biodiversity features that positioned the Galapagos as a world-renowned

territories so change in traditional economic activities is needed to shift cultural attitudes towards ecotourism enhancement. In addition to tailored activities to the reserve encompassing its unique flora, fauna and hydrology, medium to high-end sustainable lodges and hotels has the potential to open up opportunities in the tourism sector. Since the launch of the Year of Return and Beyond the Return, foreign travel to Ghana has more than doubled with December a hotspot month for many travellers	generate \$333.8 billion by 2027 (Allied Market Research, 2021). Ecotourism contributed an estimated \$1.2 billion to Ghana's GDP in 2020 representing 5.5% amid the devastating effect of COVID on travel and tourism industry and a consensus that the sector is not fully developed (MLNR, 2022). Ecotourism strategic models being nature-based, protected area-based or community-based can set up a rippling effect on job creation and business opportunities within the entire Atewa environs. Though official numbers are not available, social media posts and online blogs clearly shows youth	and maintains the quality of life of the local area.  4. With an objective of environmental conservation, ecotourism can create sustainable economic development and balances the conflicting goals of economic development and biodiversity conservation.  5. Considering the sustainable principles and practices, it fulfils goals of biodiversity conservation, poverty reduction and business viability.  6. In ecotourism, local people realise the importance of conservation and protect the environment in active manner.  7. There are proven examples already operating elsewhere in Ghana and surrounding countries.	premium nature-based tourism destination. Additionally, there have been a market shift from high-end nature-based destination towards unsustainable tourism and therefore decreasing competitiveness across the value chain, due to increase in operation costs and the degradation of the destination attractiveness. As the Galapagos' major economic engine, tourism (in all its forms) is the main driving factor behind increasing demands for natural resources and population growth (IUCN & UNESCO, 2006), leading to an unsustainable development model, fundamentally incompatible with long-term conservation interests  3. Potential of local communities to be disadvantaged through crowding, restricted access to arable lands and water as well as increased prices of goods and services. 4. Local politics and corruption could create power dynamics and political elites may benefit more than local people.
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<p>most of which are looking to discover the cultural diversity of the country. Local and international travellers looking to have experience in bird watching and animal discovery, camping and hiking, and game fishing can have this experience in and around the reserve as an ecotourism package. In addition to these earth-friendly and sustainable lodges serving as living quarters for tourists, it can help to increase the educational value of the range through increased research and international exposure like it is done with the Tiputini</p>	<p>involvement in travel and explore across the whole country and has coincided with a surge in organised excursions to nature sites. The just launched project “Destination Ghana” by the President in London could serve as a boost for commercial ecotourism activities for those that are involved in organising excursions and field trips to nature sites.</p>		<p>5. Lack of a national ecotourism strategy in Ghana means that aggressive policies to cater for foreign exchange earnings, employment and other social benefits in the sector could be disadvantageous. Of course the Wildlife Resource Management Bill providing a new legal framework for the management of wildlife resources is currently before Parliament and could cure some of this challenge.</p>
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	Biodiversity Reserve in Ecuador which is one of the most biodiverse places on the planet. These sustainable lodges made from wood serve as homes for visiting scientists from all over the world some of which stay for months to conduct their research.			
<b>Landscape level emissions reduction programme/project promoting green economy</b>	Incentives, opportunities and investments that target key non-forest high carbon stock land uses such as agroforestry and tree-based are attractive, potentially effective and efficient options for achieving REDD+, Ghana's climate change objectives through its intended NDCs and promoting sustainable livelihoods: As one of the Ghana's Hotspot Intervention Area (HIA) under the Ghana Cocoa-Forest REDD+ program, the opportunity for nesting the landscape	This has the potential to create large number of jobs particularly for projects that addresses the multiple adaptation challenges. Agroforest agriculture can provide direct and indirect benefits to hundreds of poorest households by helping them to improve their production systems. Restoration through afforestation and	1. Strengthen the improved management of Atewa forest landscape by promoting and scaling up agroforestry systems to reduce land and water emissions.  2. Helping to increase the resilience and vulnerability of households to climate change and potential to serve as a paramount adaptation/mitigation strategy under Ghana's intended NDCs particularly in areas of agriculture and water resources	1. Land tenure, ownership and property rights in the forest and natural resource sector as highly documented could be a serious potential blockade to any carbon credit sales and royalty payment.  2. Many of the REDD+ project in Ghana has been on piloting basis leaving no track record for an attracting factor for investors. In addition, the country's MVR components is not fully developed yet.  3. Lack of clarity on green growth benefits sharing, thus either national, regional, district or local may compromise large scale investments and

	<p>to the national level is a necessary condition for success and scaling up REDD+ interventions. These could include specifying among other issues related to ownership rights to carbon, duties, and royalties to be paid on investments, crediting, distribution of national emission targets, benefit sharing, risk management MRV and baselines through agroforestry practices including cocoa, oil palm, rubber and citrus as well as other major staples like cassava, plantain, yam etc. Atewa's watershed systems also provide invaluable opportunity to explore the option of blue carbon credits to protect the waters and many aquatic macrophytes that contribute to carbon capture and emission reduction including landscape restoration projects.</p>	<p>reforestation can additionally provide hundreds of jobs Female workers could be massive beneficiaries of facilities including cooperatives, micro finance, and training to diversify their income</p>	<p>by improving the climate resilience of farmers in rural populations as well as helping to strengthen the technical capacity of small producers particularly in cocoa agroforests.</p> <p>3. Promoting and achieving green growth by creating awareness towards industries and iWWNvestors through SMEs, self-employment and helping to build capacity for green investment within the Atewa forest range and surrounding communities.</p>	<p>project upscaling which are needed to create massive job opportunities.</p> <p>4. Social, governance, political and technical risks as well as administrative barriers to private sector may be impede project execution and maintenance.</p> <p>5. Operational framework for emission payments is still not properly defined.</p> <p>We wish to acknowledge that the potentials in a REDD+ programme far exceeds this associated risk. In 2020 South Africa issued a green bond generating \$200 million and with potential climate investment of over \$500 billion dollars by 2030. These funds obviously is higher than the aggregate gold production in South Africa for the past decade. Source: (<a href="https://pressroom.ifc.org/all/pages/PressDetail.aspx?ID=16888">https://pressroom.ifc.org/all/pages/PressDetail.aspx?ID=16888</a>)</p>
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<b>Sustainable forest botanicals harvest for international export market.</b>	<p>Harvesting and cultivation of forest botanicals for medicinal, flavouring, and nutritional purposes remains an untapped opportunity in the forest supply chain. The Atewa range contain rich and ecologically unique forest botanicals that can be commercially exploited for pharmaceuticals and cosmetic applications. The EU and the Chinese markets are feasible destinations for many of such forest botanicals as raw materials for biotechnological and ethnopharmacological relevance. With private sector investment and upscaling of already existing micro businesses, products like voacange, griffonia, annatto seeds, colanuts among many plants, fruits and seeds that doubles as spice and medicine in the wild can be sustainably managed for business opportunities and job creation. Through the Botanical Plant Exporters Association of Ghana (BOPA) and the Ghana Investment</p>	<p>Potential for medium to large number of jobs. No formal figures are available but the proliferation of herbal medicine in the domestic market is evidence of the business opportunity. For export, in 2008, medicinal export earnings topped US\$ 15 million, 80% of which was derived from Griffonia and Voacanga exports, which accrued to over 30,000 wild collectors, 4480 tons of seeds, 500 agents and 45 exporters (Van Andel, T., et al.,2012). These numbers could be potentially high, but it is very obvious that as a value chain, the process is very disoriented. For perspective, the US dietary supplement industry netted \$42.6 billion in retail sales in 2018</p>	<ol style="list-style-type: none"> <li>1. Readily available resources for commercial harvesting.</li> <li>2. Readily available market (domestic and export).</li> <li>3. There are different kinds of forest farming that can be explored to optimise the conservation of Atewa as well as opportunities for business development including wild stewarded, wild-simulated or woods grown.</li> </ol>	<ol style="list-style-type: none"> <li>1. Overexploitation and conservation concerns especially as Atewa remains a GSBA and issues of biological diversity are real.</li> <li>2. Limited presence of local body pushing for the formalisation of forest botanicals harvesting.</li> <li>3. Private sector development challenges particularly with regulatory bodies such as FC and Ministries can be a roadblock for new business set ups especially at a commercial scale.</li> </ol>
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	Promotion Centre (GIPC), there is an already existing mediums to foster the commercialisation of forest botanicals.	with herbal products contributing \$8.84 billion to the total. For an industry that seems very informal and untapped in Ghana, the potential could be enormous.		
<b>Greenhouse agriculture production for domestic and export market (production of high-value organic vegetables/spices)</b>	With a growing demand for fresh-locally sourced herbs and vegetables, greenhouse agriculture of any size is a profitable business. Either plastic house with no electricity or plastic house with electricity as well as ventilations system, greenhouse size and type of growth medium to utilise, opportunities in the greenhouse sector could be grouped into business versus general opportunities. Business opportunities are most interesting for the private sector while the general opportunities are more the domain of the public sector but collaboration between the two are most appropriate for the nature of system available in Ghana.	Potential for small to medium number of jobs. The global commercial greenhouse market size is estimated to be worth about \$39.6 billion in 2020 and projected to reach \$50.6 billion by 2025 recording a CAGR of 11.3% in terms of value according to recent studies. Due to growing global populations and climate change, the greenhouse agriculture growth is certain paving opportunities for financial and technological investment, self-employment and helping to address domestic food security challenges. Commercial greenhouse supplies can create massive	<p>1. Production is all round the year irrespective of adverse weather and climatic conditions which provides assured production with right technology.</p> <p>2. Ability to provide optimal conditions for plants allows for optimal outputs during harvesting period and limiting any production risks.</p> <p>3. Maximisation of profit through increased</p>	<p>1. Greenhouse farming involves much planning and is meant for high range products and experienced farmers with skilled management who are willing to take business risks and export best veggies and fruits. 2. For any specific type of vegetable, fruits, herbs or potted plants, market availability could be key and may require extensive research on market dynamics and product development cost to be certain about possible success. It may also require a precise design to optimise productivity. 3. Also if proper techno-commercial</p>

<p>Crops with success in greenhouse agriculture that can be practiced include tomatoes, lettuce, peppers, cucumbers spinach, strawberries, and herbs such as basil, oregano, parsley. From a strategic business perspective, greenhouse design should mimic Ghanaian local conditions and enables indoor production systems throughout the year. Potential investors however need a consistent basis for assessing the economic viability of greenhouses in Ghana. A cost benefit analysis of an amiran type of greenhouse for tomato production shows that if the farm prize is 4.5 GHc/kg and fresh yields are 40kg/m<sup>2</sup>, the investments will start yielding after the third year if solar panels and pumps are factored in, if not then potential gains occurs in the second year. In comparison, if prices are close to those of open markets (2.5 GHc/kg), then</p>	<p>job opportunities for locals and national fiscal consolidation. Production of greenhouses can be sourced to local industry that employs Ghanaians. Cleaning, sorting and packaging activities all have the potential to provide jobs for women in greenhouses. Financial and economic benefits particularly in job creation could depend on many factors including size of greenhouse and type of vegetable, annual turnover and market opportunities that can create indirect jobs.</p>	<p>growth period compared to those practicing it seasonally. For farmers engaged in greenhouse farming, it allows them to have an edge over the competition. Additionally, they can also keep prices high and get higher profits in the off season due to a low supply against demand.</p> <p>4. Increased pest, disease and weeds control may bring about added security and stability by regulating movement and materials in and out of the greenhouse.</p>	<p>study is not done, greenhouse technology may cause more harm than profit. In India, government subsidies in greenhouse technology is contributing to more failure because of lack of proper training and marketing support besides government specifications to implement such technologies.</p> <p>4. Maintenance cost could be very significant hence may require a sizeable initial investment.</p> <p>5. At a very commercial scale, greenhouse agriculture can be space consuming and costly if land is to be procured and may significantly increase operating cost. Additionally, water and electricity could be costly.</p>
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	potential investments are financially less attractive. These sorts of analysis are required for every possible crop/vegetable/herb to be potentially considered for greenhouse agriculture.			6. Greenhouse agriculture require optimal infection and disease growth conditions as this could be devastating in terms any inhouse fungus or disease and lack of pollination could be detrimental.
<b>Alternative agroforestry tree crops promotion (avocado and coconut)</b>	Alternative agroforest crops such as avocado and coconut represent tremendous opportunities within the Atewa landscape because of the already soaring business of production and cultivation for these crops both domestically and internationally. Mixing of these crops as agroforest-based systems or in combination with forest trees, fruits and vegetables represent a feasible alternative to cocoa agroforest systems particularly if commercial quantities are explored. Diversification of agroforest farms within the Atewa landscape can help to increase job creation.	Medium to large number of jobs could be created. From farm nurseries harvesting, distribution and sales, hundreds of jobs could be created at each stage of the production life cycle for both crops including for different varieties across variable communities within the landscape. The potential for export for both products could drive job opportunities into the thousands as evidenced by the surge in production in Kenya which is top 10 in avocado production globally. In Nigeria and Uganda, avocado-based agroforest	1. Favouring climate for both avocado and coconut agroforest-based systems.  2. Due to an emphasis on smallholders and beneficial rain patterns, the crop's production is expected to be less environmentally. Water shortages and the destruction of biodiversity have been linked to its production in Latin America's top exporting countries, such Mexico and Chile. 3. Intercropping with other food	1. Supply chain currently for both avocado and coconut are unorganised.  2. Both avocado and coconut have unstable market prices and are affected by global price fluctuations.  3. Competition could be apparent if coconut or avocado are mixed with other food crops such as plantain particularly for water.  4. For light dependent intercrops, losses could be incurred when planted in areas where light

	<p>The global demand for avocado and coconut-based products has brought about their popularity within the African continent. The potential of smallholder avocado-based and coconut-based agroforest systems are seen as a solution to rural poverty in some African countries.</p>	<p>systems are being massively explored for export and job creation. Though official figures are not available, much of the avocado produced in Ghana go waste and coconut consumption has already soared domestically with its publicised health benefits driving demand.</p>	<p>and tree crops can increase and diversify farm income to farmers.</p> <p>4. Both crops have an oil by product that can be commercialised both for local and international consumption due to their demand in food, cosmetic and chemical products.</p>	<p>is insufficient.</p> <p>5. There is evidence that sections of the forest reserve have already been encroached upon and evicting these farmers have become a problem, the solutions is to profess the modified tuagya kind of arrangements but as much as possible promotions of agroforestry tree crops should be encouraged on off reserves to discourage illegal farming in the reserve.</p>
<b>Payment for Water ecosystem services</b>	<p>Payments for ecosystem services (PES) are emerging worldwide as important mechanisms to align investments in human and natural well-being. PES projects are often defined as voluntary transactions where well-defined environmental/ ecosystem services</p>	<p>Incentive-based mechanisms such as payment for water ecosystem services may include charges (such as taxes, user fees, and deposit–refund systems), subsidies, tradable permits (including markets for pollution reduction and tradable development</p>	<p>1. The ecosystem and environmental consequences are minimised in a PPE arrangement maintained. Incentives from PPE arrangement encourages participation from communities to safeguard the water since they also benefit from the PPE arrangement and this obviously protects</p>	<p>1. One of the major challenges to a successful PES model is the very high values given to ecosystem services. This is possible in most cases, because it is very difficult to isolate co-benefits and therefore, the economic value gets compounded.</p>

<p>(or land uses likely to secure those services) are bought by a minimum of one service buyer, from a minimum of one service provider, if and only if the service provider continuously secures service provision (conditionality).</p> <p>“Water-related ecosystems” means ecosystems such as forests, wetlands, grasslands and agricultural land that play vital roles in the hydrological cycle through the services they provide.</p>	<p>rights), and market friction reduction. All these have the potentials to generate jobs for the surrounding communities by ceding part of the revenues accrued from such services for creations of green jobs e.g. a buffer area of the rivers can be stocked with fish with sustainable fishing arrangements made with the communities. An entire irrigation enclave could also be established under a smart production mechanism user of the irrigation facility could pay some levies into a ‘water fund’. Other uses such as water bottling companies could pay to use the water such funds could also be deposited into a ‘water fund’ a special vehicle which should be created to manage funds from water services and undertake activities that can stimulate the creation of jobs for the surrounding communities.</p>	<p>the water and ecosystems.</p> <p>2. Ensure sustained and continuous supply of water for all.</p>	<p>2. There is also the challenge of ‘who pays for what?’.</p> <p>3. Establishing participatory monitoring and evaluation systems with service providers and buyers may be expensive.</p>
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<b>Agriculture waste to manufacturing (cocoa husk-potash – organic fertiliser and/or soaps)</b>	<p>The cocoa husk has been termed as a “black gold” but from a commercial perspective, it is nothing close to the traditional gold harvesting in Ghana despite as equally available and renewable but easily and cheaply accessible. The cocoa pod/husk when dried and converted to ash produces the inorganic elements in the husk which includes potassium, calcium, and magnesium (as well as sodium) and will be present as carbonates (<math>K_2CO_3</math>, <math>CaCO_3</math>, <math>MgCO_3</math>, <math>Na_2CO_3</math>) that can be used as caustic potash in soap and fertiliser production. It is reported that for a every ton of cocoa husk produced, ~60 kg of potassium carbonate and ~30 kg of a calcium/magnesium solid could be created.</p>	<p>Potential for large number of jobs in the fertiliser and cosmetic industry. A practical analysis by Kone et al., 2020 posited that, for a 5ha cocoa farm, it is potentially family run and old growth a case that reflects over 70% of Ghana`s cocoa estates. This means they have lower yields linked to the low use of chemical fertiliser. They further synthesised that for such a farm, there is balance loss to both the beans and the pod. For their calculation, a ratio of wet pod to dry beans was estimated at 10:1 for which 60% of the wet pod is wet husk of which 1.6% is K and 0.7% as P. The 5-ha farm generating 250 kg/ha of dry beans will produce 12.5 tons/ annum of wet pod. After ashing, the farm would have 825 kg/annum of ash. This would be split into 500 kg/annum of potassium</p>	<p>1. Raw materials are readily available and accessible, environmentally friendly and cheap and therefore providing a competitive advantage against imported and chemically enriched fertilisers and soaps.</p> <p>2. For a landscape that is confronted with massive environmental challenges especially through illegal mining and slash/burn agriculture, commercialisation of potash could serve as a viable alternative and added livelihood systems for a lot of households in the area.</p> <p>3. Economically, the benefits could be huge not just at the local scale, but national as well. The global fertiliser market amounted to about \$171 billion in 2020 and</p>	<p>1. Technical know-how particularly in fertiliser production could be challenging because of the scientific connotation of the whole process. Locals may not have these skills and training programs will have to be conducted even from the beginning of the business set up. This could delay productivity and lower output.</p> <p>2. Supply chain dynamics could be very detrimental despite availability as the husks will have to be transported from far and remote places to production sites even though it has added advantage to provide</p>
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	<p>The calcium/magnesium solid is best returned to the fields as soil nutrients and working the ash under the cocoa trees is part of an effective fertiliser program that is yet to be fully commercialised in Ghana despite its tremendous potential to replace the import of calcium-based fertilisers. Other agriculture waste materials from which, potash can be obtained, are palm fruit peduncle, plantain peels, banana leaves, maize cob, wood, and sugar beet waste and from bamboo, cola nuts, shea-nut kernel, camwood and several other woods that have saponins. While some local farmers use the cocoa husk as organic cocoa mulch on their farms, its commercial potential remains near virgin. It is fair to say that soap production from cocoa husk has gathered some momentum in recent years but massive investments are needed to make this a full industry to match the heightened demand for</p>	<p>carbonate and 325 kg/annum of calcium/magnesium solid. The farm would generate roughly 2500 \$/annum through the sale of dry beans, at a price of 2000 US\$ per ton. There would be an avoided cost of 620 \$/annum, based on a fertiliser value of 750 US\$/ton. The value of the ash is a significant improvement in the annual income of the farm. This analysis is also applicable to plantain and maize husk providing massive returns to farmers and creating thousands of jobs in Atewa range. This is a model that can be potentially scaled up to other cocoa producing areas for similar effects. In the Assin South District, soap production from cocoa potash is providing many opportunities for women and school dropouts with already hundreds of women earning a living through this venture.</p>	<p>projected to reach about \$210 billion in 2027. Similarly, organic cosmetic products fetched about \$40 billion in 2020 and projected to reach about \$55 billion in 2027. The success and continued growth of these respective industries should help to attract green investors.</p>	<p>hundreds of jobs for women who could engage in the collection process. This will increase cost of production and human resources.</p> <p>3. Initial investment may be high and can be disincentive unless there is a conscious effort from government to promote investment in the sector.</p>
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	organic cosmetic products globally. The biodegradability of the soaps also makes it environmentally friendly.			
<b>Wood residue to biomass energy - compressed charcoal briquets</b>	The production of fuel briquettes involves the collection and compaction of a combination of combustible waste that can be processed into a solid fuel product of any convenient shape that can be burned like wood or charcoal. The dependence of Ghanaian households on biomass energy particularly charcoal and firewood has been a driver of deforestation. Understanding local fuel usage, the opportunity for briquettes substitution can help to address the sustainability trilemma with additional opportunity to produce biochar fertiliser for agriculture purposes using the simple kiln technology. For the many municipal waste generated particularly in the wood sector, briquetting can provide an impulse for jobs	Potential for medium to large number of jobs. A case of Zarcool in Accra who uses coconut husk as a source of material for charcoal briquettes. With about 5-10 of such briquettes producing stations, hundreds of jobs could be created on site, and this excludes supply of raw materials and distributors of the briquettes to households which are predominantly women. Direct and indirect jobs could enter the thousands. As of 2012, in addition to job creation in Uganda, key performance indicators include household savings of 200 USD/year, women retailers' earnings of 1,825 USD/year, 1,500 farmers earning of 360 USD/year as well	<p>1. It is a clean alternative to charcoal and firewood.</p> <p>2. It has a conservation merit and fits the country's ambition for its SDGs benchmark and NDCs of the Paris Agreement because of the avoidance of greenhouse emissions.</p> <p>3. Improvement of educational opportunities for women.</p> <p>4. The briquetting technology can be produced locally cheaply and requires limited skills to operate, removing the</p>	<p>1. Competition with charcoal and firewood traders can create a conflict.</p> <p>2. Energy consumption is high in the entire process of briquetting and initial cost can be expensive. However material properties such as moisture content and particle size are very important for energy consumption as well as the type of briquette machines. Low moisture content and small particle size materials tend to be relatively sustainable and cost-effective</p>

	creation and women empowerment.	as the creation of 43 micro-franchisees earning about 1,728 USD/year.	the barriers to training required for many innovations.  5. Available resources from the wood and agriculture sector.	(Ivanova et., 2018).  3. Large spaces are required to set up briquette plants.  4. If waste is not already in desired sizes and shape, it may require heavy machines or lots of manpower to crush them which may increase cost of production.  5. Weather conditions and waterproof storage facilities can be problematic.
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IvanovaT, HavrlandB., NovotnyR., MunteanA., and HutlaP. (2018). Influence of raw material properties on energy consumption during briquetting process. BIO Web of Conferences 10, 02006, <https://doi.org/10.1051/bioconf/20181002006>

Van Andel, T., et al., Ghana's herbal market. J. Ethnopharmacol. (2012), doi:10.1016/j.jep.2012.01.028

Our findings, based on documentary review, key informant interviews and stakeholder workshops shown in Table 2, established the following green development pathways as the most feasible; ecotourism development, landscape level emission programme, sustainable botanical harvest for international market, forest and agriculture products to wood energy, agriculture waste to manufacturing, payment for water ecosystem services, green house agriculture and high value agriculture production for international market.

These green pathways were further analysed based on set of criteria which are defined in the annex. The pathways were ranked against 8 criteria using a scale of 1 to 5 possible points (1 lowest and 5 highest rating) – see the table below. The total points available were 40 and each of the pathway totals were calculated against the available

40 points. Based on this ranking and using the set of information available from our spectrum of stakeholders and analysis of the green development pathways, we have determined that the following pathways – ecotourism, sustainable botanical harvest, and landscape level emission – wereranked the highest. As a result, these three pathways will further be elaborated and analysed in the sections below.

Green pathway		Eco-tourism services	Landscape-level emissions reduction project	Sustainable forest botanicals harvest for export	Green-house agriculture production	High value agriculture commodities for export	Payments for water ecosystem services	Agriculture waste to manufacturing	Wood residue to biomass energy – compressed charcoal
Rank		1st	2nd	3rd	4th	5th	6th	7th	8th
Criteria	Job creation potential	3	2	3	3	3	2	2	2
	Compatibility to the landscape vision and national objective	4	4	3	3	3	2	2	2
	Policy environment	4	4	2	3	2	2	2	2
	Scalability	4	3	3	3	2	2	2	1
	Financial sustainability	3	3	3	2	2	2	2	2
	Stakeholder acceptance/ social consideration	4	2	3	2	2	3	2	2
	Impact on the environment	3	4	3	3	2	3	2	1
	Availability of investor partnerships	4	3	3	2	3	1	1	1
Total score		29/40	25/40	23/40	21/40	19/40	17/40	15/40	13/40

Table 2 Green pathways scored against criteria

## 4.2. PRIORITISED GREEN DEVELOPMENT PATHWAYS

### 4.2.1. Ecotourism development

#### i. Overview

Tourism is one of the world's largest and fastest-growing sectors, with over one billion tourists traveling the globe in 2012 (World Tourism Organization, UNWTO, 2013a) (UNWTO, 2012a). The majority of tourists travel from the northern to the southern hemisphere due to desired temperature and environmental variations (cf. Williams, 2009, p. 111) (Holden, 2008, p. 22-23). Furthermore, visitor flows from industrialised to developing countries account for a growing proportion of global tourism (Telfer & Sharpley, 2008, p. 21-22).

Ecotourism is a branch of tourism has become highly patronised with a lot of inferred benefits across the globe. Only a few African countries including Rwanda, Tanzania, Kenya, South Africa and Botswana have advanced ecotourism policy and enhanced infrastructure capable of attracting tourist from around the world. These countries have been making much from ecotourism. For instance, For the past seven years, "tourism has been ranked as the first foreign currency earner in Rwanda," contributing **14.9% of Rwanda's GDP in 2018**. Rwanda's tourism sector has increased jobs and significantly contributes to the overall growth of the country's economy.

Rwanda's tourism sector experienced its highest annual growth in 2019, netting more than \$498 million and attracting an estimated 1.63 million tourists. For the past seven years, "tourism has been ranked as the first foreign currency earner in Rwanda," contributing 14.9% of Rwanda's GDP in 2018. Meanwhile, Every year, ecotourism in South Africa generates \$8.4 billion and creates 5000 jobs in the local regions and In 2020, **travel and tourism contributed 4.2 billion U.S. dollars to Kenya's Gross Domestic Product (GDP)** <sup>13</sup>.

The 2012 Forest and Wildlife Policy of Ghana has placed emphasis on the non-consumptive values of the forest. The Forestry Commission has strategically identified ecotourism as a tool to facilitate ecosystem conservation and enhance socio-economic development. This ambition has culminated into the launch of the Ecotourism Book to promote ecotourism as a key tourism venture in Ghana. Whilst an estimated \$2.5 million is annually accrued from ecotourism, the Forestry Commission acknowledge that the full range of the potential benefits of ecotourism is yet to be realised, citing low investment and capacity in the sector, low diversification as well as ineffective promotion and marketing of ecotourism products and services as impeding factors for the sectors growth. The Forestry Commission has already <sup>7</sup>achieved success in ecotourism development with the Kakum National Park with

<sup>13</sup> <https://www.statista.com/statistics/1219642/contribution-of-travel-and-tourism-to-gdp-in-kenya/>

its world-famous canopy walkway and the Zaina Lodge operating at Mole National Park. The lessons learnt from these experiences should be applied to considering the potential of Atewa.

Ghana is well-known as an international tourism destination for its friendly people and safe conditions. It has a wide range of cultural diversity and scenery. However, Ghana has not been able to attract large numbers of international leisure travellers. The overall number of visiting tourists has never reached the projected 1 million mark, and only about 20% of these visitors claim to be traveling for leisure. According to some sources at the Ministry of Tourism, Arts and Culture this figure could be much higher because a tourist visa is the most convenient method to enter the nation. Ghana, like the rest of West Africa, is not seen as competitive in comparison to countries in Southern and Eastern Africa, where wildlife viewing is unparalleled and where other factors such as safety and security, value for money, geographical features and attitude of the people towards tourist incentivise tourists.

Ghana has the potential to become the best ecotourism destination in the sub-region if the Atewa range forest reserve and others are properly developed into an ecotourism hub. For decades, the ecological significance of Atewa Forest has been recognised. The forest was first set aside about a century ago to preserve the headwaters of three important rivers from erosion caused by forest removal for agriculture. The woodland is located on a hill with steep slopes cut by stony streams. Atewa Forest has been recognised for its unique flora since the 1970s, when Hall and Swaine (1976) designated it as one of only two “Upland Evergreen” forests in Ghana. However, it was a nationwide botanical fieldwork project in the early 1990s to review the preservation strategy for all of Ghana’s Forest Reserves that ushered in a new understanding of Atewa Forest’s biological significance.

The fact that over 100 globally threatened and near-threatened plants and animals can be found in this single forest – accounting for nearly 20% of Ghana’s total list of such species – and that the forest is home to 20-50% of the country’s species calls for a comprehensive ecotourism plan for the Atewa landscape and to also give adequate importance to the Atewa Forest and the landscape. Participants in the validation workshop on the pathways argued that the residual benefits on jobs both direct and indirect, the emerging hotelier sub-sector coupled with booming transport sector will create a vast tax network for government. Most participants are firm that the advantages in ecotourism in both ecological and financial terms far exceed the cumulative effects of bauxite mining.

The transformation of the landscape into a hub of green and circular socioeconomic activities in the country for sustainable jobs and well-being, as envisaged in the Kyebi Declaration led by the Okyenhene of the Akyem Abuakwa Traditional Area, requires making the Atewa Range Forest Reserve into a National Park. The National Park will be enhanced by the construction of unique and unrivalled tourism attractions in and around the forest, which will operate as a magnet for a variety of green development projects, aligned with the goals of creating a climate-smart and sustainable landscape. The Atewa National Park Tourism Feasibility Report delves into some of the novel attractions that will help the park become Ghana's most popular tourist destination.

## ii. Potential outcomes

- It would be prudent to begin developing attractions that are less ambitious and expensive while providing a distinct experience. These attractions should entice people to stay longer in the area and complement the major attraction of a cable car. The tourist's purpose and schedule are determined by sights and activities, while appealing accommodations and other components can certainly encourage an increase of the length of stay. The goal should be to turn day trippers and visitors into tourists so that spend per visitor increases.
- Observation of butterflies and birds may be considered low-hanging fruit for eco-tourists. These are the primary reasons why certain tour operators are currently offering excursions (one tour operator offers a day excursion in conjunction with Bunso Arboretum). It is not appealing to remain overnight due to a lack of excellent lodgings and eateries.
- Small-scale investments in tourist infrastructure need to be considered to increase access and enjoyment by visitors. This may include walkway steps that lead to waterfalls. It might have a platform near the waterfall with a nice view of the scenery. It would also allow for observation of the stream as a habitat for a variety of species, and the wide area created by a stream can help birds and other wildlife see one other.
- A temple near the source of the Birim river houses a local traditional priest who performs rituals for individuals seeking success. This technique is even used by gold prospectors to ensure a successful dig. Traditional beliefs, on the other hand, appear to have had little impact on resource conservation. In general, the communities regard Atewa as a resource that they take for granted, and there is little concern about its depletion. Traditional authorities have tried unsuccessfully to persuade their people to avoid illicit activities such as hunting. This advice

appears to be based only on their personal viewpoint, with no community backing. Shrines, as well as their cultural setting, could be a draw.

- Components of village/rural tourism may surely be incorporated for international tourists, particularly diaspora tourists. For those unfamiliar with the area, cocoa farms, NTFP and its medicinal uses, fresh fruits like bananas straight off the tree, and even traditional village life, including clay and bamboo huts, can be considered as considerable attractions.

### iii. Risks and constraints

- Ecotourism can potentially offset the ecological balance of the landscape which many conservationists believe could potentially affect the biodiversity of the area. Evidence from elsewhere in Ghana demonstrate otherwise – the key is the threshold by which tourism carrying capacity is exceeded.
- Ecotourism may cause a large carbon footprint and some environmental impacts may not be negated if activities reach its peak potential. In cases where hotel establishment and eateries are not properly regulated, it may lead to imbalances in terms of carbon footprints.
- Potential of local communities could be disadvantaged through crowding, restricted access to arable lands and water as well as increased prices of goods and services.
- Local politics and corruption could create power dynamics and political elites may benefit more than local people.
- Lack of a national ecotourism strategy in Ghana means that aggressive policies to cater for foreign exchange earnings, employment and other social benefits in the sector could be disadvantageous.
- COVID-19 and Ebola outbreaks in recent past have shown the risk of a tourism sector overly depending on international arrivals. As such, Atewa tourism development should place emphasis on developing products attractive to domestic and sub-regional tourists before Western tourists.

### iv. Opportunities

- The Atewa woodland is home to a large number of different types of butterflies.



Atewa has the largest butterfly diversity in the country, which distinguishes it from other butterfly hotspots such as Ankasa in the Western region and Bobiri in the Ashanti region. Currently, butterflies are captured and exported from this location. Plant pollination is harmed by the unrestricted gathering of these butterflies. To protect these butterflies, the region must be protected, and the non-consumptive aspect must be enhanced.

- As a result, a butterfly viewing area in their native environment might be created and the area protected. A guided tour of the butterfly observation area would be available. This would be educational, but it would be done in a calm and informal manner, with guides explaining the life cycle and behavioural tendencies of these insects. It would also be necessary to build a butterfly laboratory where butterflies' eggs could be nourished and produced. Locals could be taught to provide interpretation services at the institution. This has a potential of creating direct and auxiliary jobs along this value chain.
- “There’s a lot to see and experience” in the hiking panorama. One cave in the Potroase area, known locally as “Obodan” or “hunters’ rock,” can also be explored, while two caverns and a massive rock on the Apedwa side offer exhilarating climbs and panoramic views of numerous settlements from the highest point on the Apedwa Forest Reserve. The Range’s rolling landscape includes hills, ravines, valleys, plateaus, and plains, providing tourists with spectacular views of the reserve and surrounding settlements.
- Mountain climbing is another activity that could add to the forest’s sense of adventure. Tourists might be able to rent mountain bikes. It is also possible to establish a bike route as an alternative to hiking trails. A boat excursion is also possible.
- The establishment of a Retreat Center in the forest with conference facilities could serve a unique purpose. This conference facility will host meetings and workshops for institutions, groups, and associations. The amenities are open to both domestic and international visitors. In recent years, conference organisers have preferred to host meetings outside of Accra since there are fewer disruptions and sessions start on time because the participants are already in residence. This has a potential of creating both direct and indirect jobs in the value chain.
- Local goods can be employed in the creation of the ecolodge, which would be a sanctuary of pure air and perfect solitude. Rustic and basic campsites, chalets,

and cottages would be built with solely local and natural materials to reflect the architecture and lifestyle of the local communities. The ecolodge's location in the forest must be strategically placed. Putting the ecolodge in the southern part of the park could allow tourists to go on more adventure tours and hike to the scenic spots. This would also benefit tourists who wish to see the forest at night.

- One of the tenets of creating ecotourism in a region is a community-based ecotourism project. Locals might supplement their income by working in an ecotourism-based business. In the Atewa woodland, springs have been discovered. This resource could be used to produce mineral water because it is a supply of clean, natural water that is free of chemicals. This would help the entire town because residents would gain jobs as a result of this effort. This water would be purchased by visitors. It would also be distributed to local and regional tourism firms, as well as to other locations. This would have helped to achieve one of ecotourism's goals. Investors must be encouraged to get involved in this industry.

#### **4.2.2. Landscape-level emission programme**

##### **i. Overview**

The woody biomass of the Atewa forest holds significant volumes of climate change-inducing carbon from the atmosphere. It has been estimated that Atewa's carbon stores is approximately equivalent to Ghana's entire national annual CO<sub>2</sub> emissions from fossil fuels (2014: Boden et al 2017). Protecting Atewa Forest from current rates of deforestation and forest degradation could result in large volumes of emissions reductions per year. Removal of the forest for mining would incur a massive carbon replacement cost for the country which has yet to be fully understood.

Incentives, opportunities, and investments that target key non-forest high carbon stock land uses such as agroforestry and tree-based are attractive, potentially effective and efficient options for achieving REDD+. Ghana's climate change objectives through its intended NDCs and promoting sustainable livelihoods match the opportunity present in the Atewa landscape. The landscape is currently identified as a priority Hotspot Intervention Area (HIA) under the Ghana Cocoa Forest REDD+ Programme (GCFRP). To date no significant HIA implementation activities have been implemented in the landscape and the benefits have returned as a result of the GCFRP.

farmers would be amenable to such a plan. The forest investment programme (FIP) which was in the upper and transitional forest regions in Ghana is a case of a larger REDD+ programme though the carbon component was fully not developed as it was nested in another programme ERPA. The ERPA has achieved some modest returns, the project though will end in two years, and we expect a final evaluation report which will guide future REDD+ projects. The broad concept would be to design a REDD+ project with significant carbon enhancement activities across a set of districts which would include the Atewa Range Forest Reserve and the surrounding cocoa and other agricultural farms. It may be feasible that Atewa's watershed systems could be incorporated in a blue carbon play, but this needs further consideration.

Of particular interest in this regard is that a REDD+ project would smoothly accommodate compatible GE projects within the landscape such as ecotourism and botanical harvest priorities outlined above.

## ii. Potential outcomes

- Success in emissions reduction initiatives will need entry points beyond a sole emissions reduction focus given that carbon and its associated finance is unlikely to be a priority concern for local stakeholders due to long sequence of implementation.
- Local farmers should be supported in shifting from unsustainable practices such as shifting cultivation and monocropping on steep slopes to carbon-rich land uses that can provide both PES for carbon and water as well as good income from land-use products.
- Private sector involvement (financing & sharing of technical expertise) in emission reductions and sustainable development schemes at the landscape level are essential. This could allow and involve innovative financial mechanism for public and private investments.
- Emissions reduction planning and implementation needs to be integrated into the wider development aspirations of stakeholders if it is to succeed.
- Landscape approaches would benefit from greater effectiveness and efficiency when synergy is sought between emission reductions and other environmental, social, and economic objectives including climate change adaptation and green economy approaches.

- Incentives targeting non-forest high carbon stock land uses such as agroforestry, tree-based systems and peatlands were found to be attractive, potentially effective and efficient options for achieving REDD+, global climate change objectives and promoting sustainable livelihoods
- Effective forest protection requires more than REDD+ payments and non-cash incentives. Support for improved forest governance, and land tenure and rights for forest dependent communities are also important for the success of a PES scheme and therefore for REDD+

### iii. Risks and constraints

- Land and forest-based activities that generate economic benefits and produce food can cause carbon loss from the landscape. If it is not properly planned, halting these activities to reduce emissions by conserving carbon stock can potentially have a negative impact on economic growth and food security.
- Many of the REDD+ efforts in Ghana have been on a piloting basis leaving no track record for an attracting factor for investors. In addition, the country's MVR components are not fully developed.
- Social, governance, political and technical risks as well as administrative barriers to private sector may impede project execution.

### iv. Opportunities

In practice, REDD+ efforts in Atewa can take two main routes. One is through national- or state-level policy changes that reduce incentives or increase deterrents for deforestation and forest degradation.

The other is through local REDD+ initiatives that tackle specific local problems, and which can be managed by local governments, charities, or private companies. The national policy approach has proven difficult so far, as it often threatens well established interests such as farming and charcoal production.

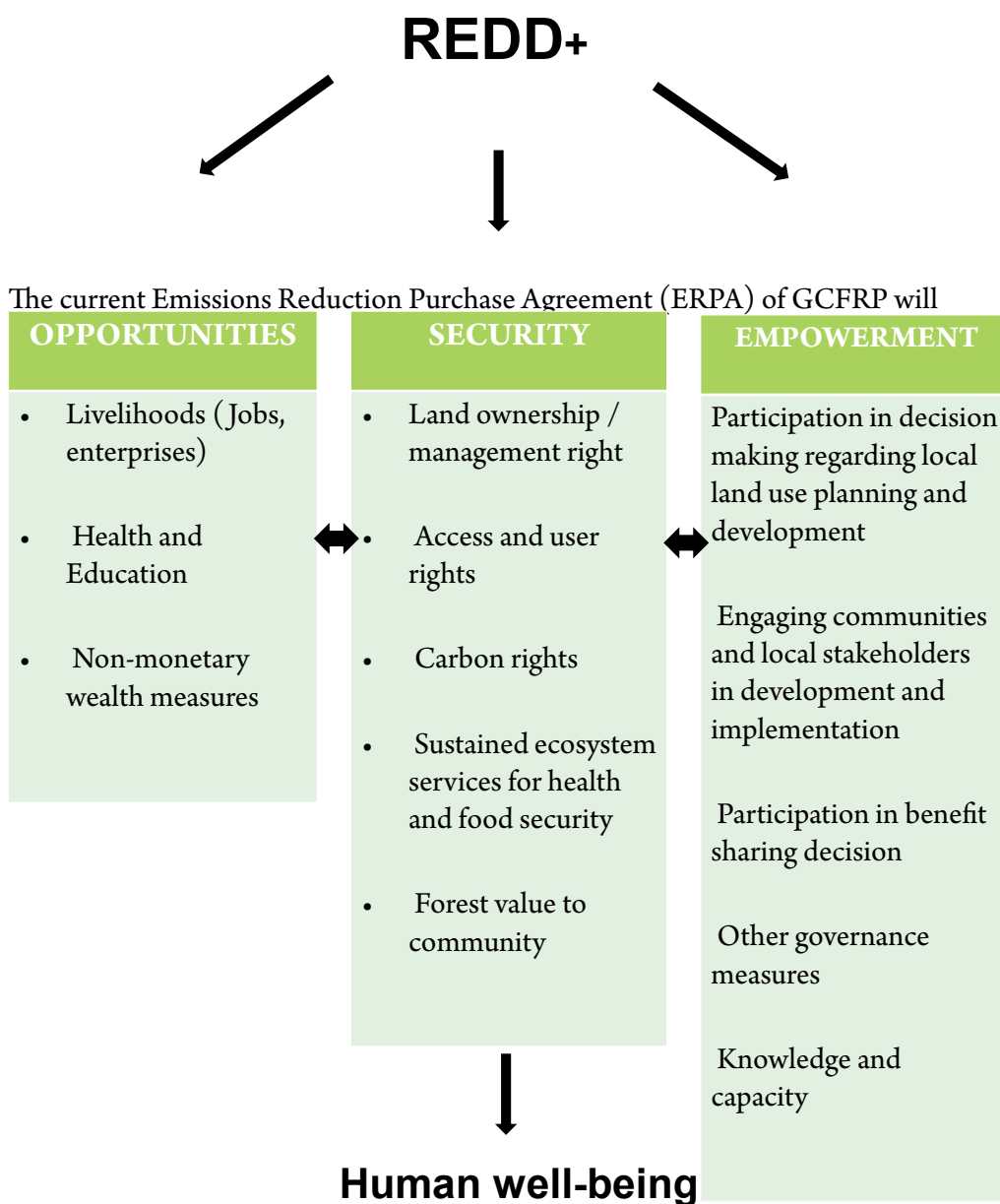
According to Asare et al. (2012), carbon corresponds to approximately one half of the biomass stored in woody vegetation. In total, it is estimated that the Atewa Range stores 9.3 million tonnes of carbon. This is huge stock of carbon when properly harnessed can generate millions of dollars in direct and indirect funds for the development of the Atewa landscape and Ghana as a whole.

The investment necessary to develop and implement a forest carbon project for the voluntary carbon market in Atewa landscape can come from a variety of sources. Such sources may include the private sector including Moringa fund, Biocarbon fund, Acumen fund, global climate fund, multilateral and bilateral climate funds, official development assistance, international foundations, environmental funds (e.g., Global Environmental Facility), international non- governmental organisations (e.g. Conservation International, World Wildlife Fund), and the host country government. REDD+ projects are increasingly profiting from multiple finance opportunities generated by a strong interest from country Parties to the UNFCCC.

Innovation will be key to overcoming any limitations that current instruments, aimed at combatting deforestation and forest degradation, might have; the focus being on suggesting development models geared towards the sustainable management of resources and that are based on land use planning, consultation and allocation frameworks that enable the project to tackle the underlying drivers (governance, regional development, land tenure), whilst investing in sectorial activities in an integrated manner.

These upfront investments in REDD+ can deliver real, meaningful benefits, such as securing stakeholders' access to resources and land, employment opportunities, empowering communities to participate in land-use decisions, and creating new "green" enterprises that can be economically sustainable on their own.

Figure 1A typical REDD+ flow chart and its economic and social contribution. Source: Abu, D.K (2022)



conclude in two years' time and this creates an opportunity to design an Atewa landscape REDD+ project that would be nested in the larger programme.

There would be many issues to resolve during the design phase but the feasibility of such a proposal is certain assuming the traditional leaders and community leaders/

Investments in three interactive and complementing components of well-being: opportunity, security, and empowerment are required for long-term improvements in human welfare. In the context of REDD+, programs can contribute to these three pathways by:

1. creating material opportunities for wealth creation and well-being, such as jobs, revenue streams, infrastructure, and improved educational conditions;
2. enhancing populations' resilience to climate change; and
3. facilitating security, including tenure of individuals and communities to security, food, and water, and to participate in decisions affecting security, livelihood security, local land use and development, and climate change adaptability; and REDD+ programmes should generate benefits in all three components to generate sustainable development benefits.

### **4.2.3. Sustainable forest botanical harvest for international market**

#### **i. Overview**

Non-timber forest products (NTFPs) are used or traded by 1.5 billion people worldwide, with the majority of NTFP use and trade taking place at local and regional levels, which are mostly unknown to academics and policymakers. Even NTFPs in international trade are difficult to quantify, and records are sparse. Between 1999 and 2011, the FAO conducted research on the value of the forestry sector, estimating that global forest product exports were \$421 billion, with NTFPs and roundwood accounting for about 5% of that total. In order to reduce regulatory barriers for small holders and common pool/property systems, forest policy must be cross-sectoral and scale sensitive.

NTFPs farming and marketing are very critical for the economic empowerment of rural poor, particularly women. Yet, the contribution of NTFPs farming to the empowerment of communities and the vulnerable remains largely undervalued. In Brazil and other countries that border the Amazon Forest, tonka beans and golden grass have been harvested sustainably providing consistent revenue and taxes to communities and government. In Savanna ecological zones in Ghana, thousands

of women have been employed and their livelihoods improved through shea nut collection and processing.

Harvesting and cultivation of forest botanicals for medicinal, flavouring and nutritional purposes remains an untapped opportunity in the forest supply chain in Ghana. The Atewa Range contains an estimated 15-25 rich and ecologically unique forest botanicals that can be commercially exploited for pharmaceuticals and cosmetic applications.

The EU and the Chinese markets are clear destinations for many of such forest botanicals as raw materials for biotechnological and ethnopharmacological relevance. With private sector investment and upscaling of already existing micro businesses, products like voacange, griffonia, kombo, annatto seeds, colanuts among many plants, fruits and seeds that double as spice and medicine in the wild can be sustainably managed for business opportunities and job creation.

Through the Botanical Plant Exporters Association of Ghana (BOPA) and the Ghana Investment Promotion Centre (GIPC), there is an already existing medium to foster the commercialisation of forest botanicals. A study into small and medium forest enterprises <sup>14</sup> identified hundreds of medicinal plants which are dotted across the high forest zones including Atewa landscape and when fully developed can bring in millions of dollars in revenue, as demonstrated in the table below <sup>15</sup>.



Table 3 Distribution of top ten natural/herbal products by Ghanaian wholesalers/retailers.

Table 1 Distribution of top ten natural/herbal products by Ghanaian wholesalers/retailers.

**Table 2.** Distribution of top ten natural/herbal products by Ghanaian wholesalers/retailers. Products are listed in order of descending rank based on total value.

Scientific name, Family	Uses	Avg. quantity distributed/sold by wholesaler/retailer (t)	Avg. price/t (GHC) <sup>a</sup>
<i>Khaya senegalensis</i> , Meliaceae	Appetizer, blood tonic, fever, malaria, stomachache, stomach ulcers, waist pains, fresh delivery, menstrual pains, headache, ulcers	1.08	2290
<i>Alstonia boonei</i> , Apocynaceae	Convulsion, ulcer, fresh delivery, measles, measles, stomach ulcer	0.34	2633
<i>Paulinia pinnata</i> , Sapindaceae	Bone diseases, fertility enhancer, fracture, rheumatism, joint diseases, waist and joint pains, stomach ulcer	0.26	1873
<i>Enantia polycarpa</i> , Annonaceae	Fever, malaria fever, stomach ulcer	0.13	4650
<i>Commiphora myrrha</i> , Burseraceae	Fresh delivery, ulcer, stomach ulcer, menstrual pains, post partum, fresh delivery	0.32	2726
<i>Pycnanthus angolensis</i> , Myristicaceae	Blood tonic, constipation, menstrual pains, unstable pregnancy, stomach ulcer	0.28	1415
<i>Terminalia ivorensis</i> , Combretaceae	Diarrhea, menstruation pains, ulcer	0.28	1890
<i>Rauvolfia vomitoria</i> , Apocynaceae	Aphrodisiac, piles, blood cleansing, stroke & kooko	0.16	1539
<i>Ricinusodendron hirsutifolius</i> , Euphorbiaceae	Elasticity of the womb, increased fertility, menstrual disorder & pains	0.05	2431
<i>Bombax buonopozense</i> , Bombacaceae	Fever, malaria fever	0.05	2000

<sup>a</sup>GHC=Ghanaian cedi, 9,240 = \$US 1.

8ii.

### Potential outcomes

- The ecological requirements of NTFPs in Atewa landscape have to be further understood, particularly in terms of the most efficient way of regeneration. Most species regenerate through seed, some species regenerate through cuttings or other vegetative parts, some other species regenerate through nursery raised seedlings. The most efficient way of regeneration has to be used to not cause any

14 Osei-Tutu, P., Nketiah, K.S., Kyereh, B. and Owusu-Ansah, M., 2012. Small and Medium Forest Enterprises in Ghana: Sourcebook on enterprise characteristics, activity centres, product markets, support institutions and service providers. IIED Small and Medium Forest Enterprise Series, (28).

15 Source: Source: Osei-Tutu, P., Nketiah, K.S., Kyereh, B. and Owusu-Ansah, M., 2012. Small and Medium Forest Enterprises in Ghana: Sourcebook on enterprise characteristics, activity centres, product markets, support institutions and service providers. IIED Small and Medium Forest Enterprise Series, (28)

further imbalance for Atewa.

- There is decreasing forest biodiversity in Atewa landscape, due to heavy biotic pressure and unsustainable harvesting which is already ongoing. It is therefore necessary to have at least one preservation plot in each harvesting series. These preservation plots may be protected areas from the point of view of harvesting. These plots may be of 5-10 ha to 50- 100 ha depending upon the availability of forest area and will of the local population. Such preservation plots may be identified both in the map and on the ground.
- Large markets exist for NTFPs and related products, both in country and internationally, even if there are not well-developed domestic entrepreneurs engaging in it. For instance, India and China remain the largest export destinations of NTFPs in Ghana <sup>16</sup>.
- There is a need to understand harvesting patterns, given such huge demand and potential exploitation; it may not support the resource in Atewa forest range for a long time. Sustained and coordinated efforts are needed to transform currently unsustainable practices of NTFP “mining” from wild sources to more ecologically sustainable, socially acceptable and economically equitable production and utilisation system.
- There are different kinds of forest farming that can be explored to optimise the conservation of Atewa as well as opportunities for business development including wild stewarded, wild-simulated or woods grown.

### iii. Risks and constraints

- Information on NTFPs in Ghana needs to be expanded to establish basic statistical information on their volumes, trade, income, and nutritional values.
- There is a limited data on the management of NTFPs. It is necessary to document whatever data is available and to initiate research on NTFPs, so that the resource can be managed scientifically. The area of research may include ecological, silvicultural, economical, production, processing, etc. The best management practices may be documented and circulated among the researchers and managers. Research should be focused on the assessment of various factors influencing NTFP management, rather than only on factors influencing their<sup>9</sup> collection and use. Up to the present, most typologies of NTFPs have been based

<sup>16</sup> <https://mofep.gov.gh/sites/default/files/reports/economic/NREG%20Report.pdf>

on their use characteristics. Such classifications should be considered as a first step in developing a typology of NTFP management

- The low representation of NTFPs in policy-making is due to the inadequate statistical information on NTFPs.
- NTFPs have not been accorded adequate attention in development planning and in nutrition improvement programmes in the country.
- The obstacles for wholesalers/retailers and exporters in Ghana include access to finance and markets, and the lack of herbal/NTFPs market information, especially relating to external markets. There is also a lack of processing capacity and technical training relating to herbal products handling. Many of the top ranked natural products from Ghana have significant potential for increased domestic and regional sales, and others for international trade once current constraints are addressed. Strengthening technical support and efforts to establish continuity and regularity of product supplies as well as quality standards are needed and both contribute positively to the success of the Ghanaian natural products business, both domestic and international. Constraints need to be addressed and regulatory issues need to be improved to strengthen the ability of the traders to participate in global opportunities more easily in the field of natural products market. The domestic (local and regional) markets also provide a strong economic base in the natural products trade and should not be overlooked as a major vehicle for economic growth and trade benefiting the source country. Additional opportunities to create value-added natural products at the community level will also provide economic benefits at the local level that may or may not be realised with the traditional trade of raw materials that are later exported.

#### iv. Opportunities

The harvesting of forest botanicals from a reserve whose conservation transcends all the benefits it can provide to locals makes this pathway a complicated one. Especially for a country where the certification for periodic harvesting is virtually non-existent, this challenge becomes even more complex.

To capitalise on the array of forest botanicals provided by the forest to create economic benefits for the locals, it would have to be accompanied with a strategic program that sets out what can be harvested, how much can be harvested, how much traffic is allowed into the forest at any specific time etc. A rigorous program that

holistically couples these economic ventures with strict conservation program is the only way to achieve any sort of sustainability for the forest. Notwithstanding, data on density and distribution as well as yield estimates of any forest botanical to fall within the program must be known.

Sustainability of the pathway in terms of job created is as important as sustainability of the forest against overharvesting and while the latter may become the priority over time, the former may have to find innovative ways to sustain those jobs when it cannot depend on the extraction of the forest or when harvesting may not be enough to sustain the carrying capacity of a developing industry. The cultivation of these botanicals is therefore as important especially for pathway sustainability.

Now, operating from the premise that these conditionalities are thoroughly navigated and the development of a holistic ecosystem-based approach is in place, the following opportunities can be harnessed.

1. Identification of experienced individuals with knowledge of the forest and landscape's ecology plus additional training from the forestry department to lead minor groups of 5-10 to harvest exportable forest botanicals that will include Griffonia, voacanga, annoto seeds, cola-nuts etc. All these forest products have massive international interest with the Botanical Plant Exporters Association of Ghana (BOPA) already providing a medium for individuals and groups engaged in the harvesting of these forest products to the Chinese, American and European markets. This can create jobs for hundreds of people.
2. Once harvesting comes to its periodic end and through a structured benefits-sharing concept, percentage of export revenue could be used for cultivation programs that will begin a value-chain cycle within the landscape. From nursery, seedling, planting, management and eventually cultivation, hundreds of jobs can be created especially for women. So, in effect, while the initial harvesting and extraction from the forest may be short-lived, it will provide evidence of success to initiate cultivation programs for these highly sought-after forest products. In the event that, harvesting from the forest is not possible, cultivation programs can be pursued which create the next opportunity (3) or help expand it.
3. Unlike the timber industry, where many SMEs abound, the forest botanical industry does not have that and to a larger degree embedded in the traditionally traded NTFPs in Ghana, making it difficult to follow the data as we do annually for exported wood products and in what volume. The opportunity of SMEs

to enter into Griffonia, Voacanga, annatto seeds, cola-nuts plantation will be opened up with marginal and degraded lands set aside for such purposes. This can create hundreds of jobs across the array of value-chain dynamics including the possibility for end-use manufacturing leading into thousands of jobs in the foreseeable future. Additionally, these may become alternative agroforestry systems if the market is opened up and people know the industry behind these forest products. Also, any regeneration program in the forest can be supplemented by seedlings from the cultivation program.

4. It is clear that traditional NTFPs harvesting may be promoted in the Atewa forest with products such as fruits, honey, mushrooms, snails, spices, tree barks, leaves, pestles etc. possibly in abundance. However, the forest status makes it difficult to see a scenario where traditional NTFPs harvesting is made a mainstay economic activity for the locals. Any arrangement of such will be short-lived business and may not ensure continued and sustainable revenue flow. Possibly a more conservative approach will be to set aside a part of the forest where biodiversity is considered low as used in the Zonation approach for fishing in Marine Protected Areas (MPAs). However, the existence of the forest provides an opportunity for business ventures that mimic the forest ecology. Economic opportunities in SMEs can be pursued in areas such as snail, mushroom and honey production. These represent feasible job creation opportunities that can be localised and commercialised producing hundreds of jobs in the process. The making of honeybee hives can serve as indirect jobs for local craftsmen. These products can be packaged and sold on the local market and if commercial quantities exist, exported, increasing the number of jobs by two to three-fold.

## 5. CONCLUSION AND SELECTED GREEN DEVELOPMENT PATHWAYS

The assemblage of all these green development pathways is evidence that development in Ghana can be sustainably pursued without the negative repercussions on our fragile environment. Understanding the interplay of development and environment is needed to create and a sustain symbiotic relationship that works for all. Stakeholders all over were very direct that Atewa landscape can become a hub of green funds and jobs if properly and strategically developed.

In conclusion, if proper financial instruments are successfully leveraged and coordinated engagement with the business sector takes place, a green and sustainable environment that delivers inclusive, long-term jobs and wellbeing for the teeming youth and supports everyone in the landscape is conceivable. Several pilots of the aforementioned activities are currently underway, but they will require full government support to achieve economies of scale that will allow the Atewa landscape to fully fulfil its green economic potential.

The next stage of this study will delve into greater detail on the three identified green pathways which have been identified as priorities by the stakeholders and supported by the evidence. We expect to provide more evidence and detail on how GE development in the Atewa landscape is possible that will maintain a green, sustainable and climate resilient solution for Atewa that respects the people's and political economy's biocultural relevance.

## ANNEXES

## ANNEX 1 Case of green development pathways from Africa and across the globe

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Green development pathway	Related case(s)	Description of case	Socio-economic/Job creation potential	Limitations/challenges
<b>Sustainable forest botanicals harvest for international export market and certification of NWFPs</b>	Collection and international trade in medicinal plants- Tonka Beans (Dipteryx odorata) <sup>17</sup> in Brazil	Collection of seeds of tonka (tonka beans) and extracts of the seed (known as Cumaru) used locally as medicine and exported as a spice (vanilla-like flavour) to both food and non-food productions, particularly tobacco. Also used as fixative in perfumes, paints and spray additives and in cleaning products, also for its antibiotic properties. Major export markets are Hong Kong and EU (which accounted for nearly half of all exports).	<ul style="list-style-type: none"> <li>About 700 tonnes of tonka bean seeds exported between 1986 to 1996 generating a gross revenue of nearly USD 3 million.</li> <li>Creating jobs for hundreds of families in the Para ' state of Brazil for women, and men alike including children involved in the wild collection.</li> </ul>	<ul style="list-style-type: none"> <li>Cost of certification and bioprospecting and its impact on price and demand by pharmaceutical companies</li> <li>The risk of these companies resorting to synthetic products over natural ones due to affordability related issues. A typical case is the Tonka seeds from Brazil plummeted demand in EU in a similar fashion</li> </ul>

<sup>17</sup> Oldfield, S. & Jenkins, M. 2012. Wild flora for improved rural livelihoods. Case studies from Brazil, China, India and Mexico. Botanic Gardens Conservation International, Richmond, U.K

Wild collection and international trade of Golden Grass ( <i>Syngonanthu nitens</i> ) for handicrafts in the Jalapão, Eastern Tocantis State, Brazil.	Used for making of jewellery and other productions.	<ul style="list-style-type: none"> <li>• Provided jobs for over 80% of local families involved in the harvesting and 6% employment in the local handicraft industry in some communities.</li> </ul>	Same as above
Local community-based cultivation of three commercially important medicinal plants in Pingwu County, Sichuan Province, China	The enactment of Forest Tenure Reform in 2008 allowing local community-based cultivation of three commercially important medicinal plants - Houpu ( <i>Magnolia officinalis</i> ), Duzhong ( <i>Eucommia ulmoides</i> ) and Huangbai ( <i>Phellodendron amurense</i> ). Giving communities access to secondary forest	<ul style="list-style-type: none"> <li>• Created substantial number of jobs for vulnerable groups such as women, elders and children by providing income for education expenditure and improved income for many households</li> </ul>	<ul style="list-style-type: none"> <li>• Risk of biodiversity loss e.g., destruction of Giant panda habitats due to locals clearing of secondary forest for the establishment of the medicinal plants</li> </ul>
Sustainable harvesting of Schisandra sphenanthera for improved livelihoods and conservation through community-based and participatory cultivation of medicinal plants in China	Plant uses include medicinal, fruit juices, soups and alcoholic beverages. Project is run by NGO WWF, who are conducting resource baseline surveys and sustainable harvesting protocols through participatory approaches. The project is allowing villagers to trade both domestically and internationally.	Same as above	Same as above



	Trade in Diospyros melanoxylon (tendu) in the rural economy in India	Leaves used for the production of traditional cigarettes (bidid) and is a major source of income. Local traditional and no statutory governance of the product guarantees its sustainability.	<ul style="list-style-type: none"> <li>Provides jobs for collectors mostly women including teenagers, small children and even men.</li> <li>Estimated to provide over 100-million-person days of employment in harvesting activities and 675 million days of person days in secondary processing.</li> <li>Accounted for around one-eighth of USD 200, which is average total annual household income of certain households.</li> </ul>	No limitations / challenges identified
<b>Ecotourism services (medium to high-end lodges and related tourism services)</b>  Notes: International and national level	Participatory and community-based approaches to foster conservation and rural economic growth in Damaraland Camp, Namibia	The Damaraland Camp, which is a luxury ecotourism enterprise since 1996 in Namibia is a joint venture partnership between the private company Wilderness Safaris and the Torra Conservancy (A community-registered trust). This	<p>Provides substantial socio-economic and environmental benefits to the community of Torra Conservancy by way of;</p> <ul style="list-style-type: none"> <li>Revenue generation - payment of lease fees (for community social projects, conservancy</li> </ul>	No limitations / challenges identified

policy frameworks recognise the potential of sustainable tourism for conservation. Agenda 2030 of UN SDGs, enjoins member states through SDG target 8.9 to “devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products” <sup>18</sup>	partnership was formed in response to the 1980s and 1990 droughts and its severe impact on rural communities coupled with wildlife conflicts (from elephants, lions, rhinos etc) and illegal activities such as poaching for ivory and meat. The 80, 000 ha area was therefore gazetted as the Torra Conservancy.		<p>management cost etc), payment for laundry services and road maintenance amounting to over USD 70, 000 per year .</p> <ul style="list-style-type: none"> <li>• in total, the community earn over USD 90, 000 annually in local currency</li> <li>• Local job creation: The camp generated employment for 30 people (75% women and 77% are indigenous of the local community)</li> <li>• Increase wildlife diversity: the population of lions, elephants, black rhinos and other wildlife have increased since the conservancy was established</li> </ul>	
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<b>Greenhouse agriculture production for domestic and export market (production of high-value organic vegetables/ spices)</b>	Greenhouse agriculture in Somalia	The introduction of greenhouse technologies has allowed all-year-round production of vegetables in Somalia, a country hard-hit by the Covid-19 pandemic, climate change and severe droughts and food shortages. This method of greenhouse agriculture has created jobs for many thousands of youths, improved food security and cut down imports of vegetables from neighbouring countries like Kenya and Ethiopia <sup>21</sup>		No limitations/challenges identified
<b>Wood residue to biomass energy - compressed charcoal briquets</b>	Production of charcoal briquettes in Thailand	In Thailand, some studies have demonstrated a successful production of charcoal briquettes (bioenergy) from wood-based residues (specifically from the Madan wood). The briquettes were found to have one of the highest calorific values of 6, 622 cal/g demonstrating its prospects as potential renewable raw material for the	<ul style="list-style-type: none"> <li>This technology will not only ensure energy security for the fringe communities in Atewa but also guarantee access to cleaner energy in line with UN SDG 7 but also provide jobs along the value chain for rural communities.</li> </ul>	No limitations/challenges identified

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18 UN Sustainable Development Knowledge Platform 2016: Sustainable Tourism. Retrieved 05.07.2016 from <https://sustainabledevelopment.un.org/topics/sustainabletourism>

19 <https://wedocs.unep.org/bitstream/handle/20.500.11822/33372/Sec-Business.pdf?sequence=1&isAllowed=y>

20 Tewes-Gradi, Christina, Mariska van Gaalen and Christian Pirzer 2014: Destination Mutual Benefit – A Guide to Inclusive Business in Tourism. Case Study Damaraland Retrieved 28.06.2016 from [https://issuu.com/rihmena/docs/inclusive\\_business\\_in\\_tourism\\_damar](https://issuu.com/rihmena/docs/inclusive_business_in_tourism_damar)

		manufacture of alternative bioenergy sources in the form of charcoal briquettes - findings of the study further shows that the briquettes are suitable for both household and restaurant cooking fuels (Kongprasert et al., 2019) <sup>22</sup>		
BrightGreen Energy, Kenya	BrightGreen Energy represent a successful production of eco-friendly briquettes for poor households in Kenya. It utilizes raw materials both wood-based (e.g. sawdust) and non-wood/ agro-based (e.g. rice husks and sugarcane husks) to produce smokeless briquettes which is currently traded on the Kenya market. The business also less capital intensive: as BrightGreen Energy started with a seed capital of Sh500,000 (approx.. 4, 314 USD) invested into machinery procurement	<ul style="list-style-type: none"> <li>• The small-sized enterprises is also a testimony of employment creation potential of green energy as it provide jobs for 10 full-time personnel</li> <li>• It has a daily fuel output of 3 tons</li> <li>• With customers spanning industries, homes, farmers and restaurants, the enterprise trade a kilo of fuel at a retail price ranging between Sh35 to</li> </ul>	No limitations/ challenges identified	

			to Sh55 i.e., Approx. 0.30 to 0.47 USD equivalent <sup>23</sup> .	
			<ul style="list-style-type: none"> <li>This innovation is contributing to reduced forests reliance for bioenergy and ultimately deforestation</li> </ul>	
	Production of fuel briquettes from industrial waste from cashew in Burkina Faso	In Burkina Faso, Sawadogo et al., (2018), demonstrate successful production of charcoal briquettes from industrial cashew wastes (shell, press cakes, nut shell liquid) <sup>24</sup> . The briquettes was found to have higher calorific value close to that of charcoal capable of serving as a replacement for traditional biomass (wood and charcoal) thereby cutting back on fossil fuel and biomass reliance by the SME sector	<ul style="list-style-type: none"> <li>whiles the details the physical-mechanical properties of cashew as potential clean energy source with potential for GHG emission reduction via fossil fuel replacement, it is silent on the socio-economic contribution of such a green innovation</li> </ul>	Issues bothering on efficiency in terms of cost and benefit analysis is also not scrutinized.

### ADDITIONAL NOTE ON ECOTOURISM PATHWAY FROM KENYA, UGANDA AND S. AFRICA – SOUTHERN AND EASTERN AFRICA.

- ♦ Sustainable ecotourism enterprises as a green growth opportunity has been established by many studies in the Southern and Eastern part of Africa.
- ♦ About half of wildlife tourism trips are booked to African countries
- ♦ Wildlife tourism growing at 10% per annum globally
- ♦ Tourism projected to create 3.8 million jobs (including 2.4 million indirect jobs) in SSA by 2023

Table 2. The contribution of the tourism sector to one of the most vibrant ecotourism destinations in Eastern and Southern Africa <sup>27</sup>

Country	Direct contribution to GDP -i.e. % of total GDP	Direct employment contribution i.e. % of total employment
Kenya	4.1	3.5 (206,500 jobs)
Uganda	4.3	3.6 (247,000 jobs)
S. Africa	3	4.5 (679,500 jobs)
Mauritius	11.3	10.9 (60,000 jobs)

Source: WTTC 2015

In terms of direct job creation potential of green development pathways, the tourism sector in other countries (based on table 2), has the potential to generate as high as approximately 11% of direct employment and a little over the same figure in the form of direct GDP contribution<sup>14</sup> in the case of Mauritius. This example of the sector from Eastern and Southern Africa, vouch for the green job creation potential of a currently

<sup>23</sup> <https://allafrica.com/stories/202104280128.html>

<sup>24</sup> Sawadogo, M., Tchini Tanoh, S., Sidibé, S., Kpai, N., & Tankoano, I. (2018). Cleaner production in Burkina Faso: Case study of fuel briquettes made from cashew industry waste. *Journal of Cleaner Production*, 195, 1047–1056. <https://doi.org/10.1016/j.jclepro.2018.05.261>

<sup>25</sup> <https://wedocs.unep.org/bitstream/handle/20.500.11822/33372/Sec-Business.pdf?sequence=1&isAllowed=y>

underdeveloped sector. It implies a fully-fledge and sustainable sector holds the potential for the national and rural economy by way of biodiversity conservation and employment creation.

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26 The World Bank 2013: Tourism in Africa : harnessing tourism for growth and improved livelihoods. Retrieved 13.06.2016 from <http://www.worldbank.org/content/dam/Worldbank/document/Africa/Report/africa-tourism-report-2013-overview.pdf>

27 WTTC. Economic Impact 2015 Kenya, Uganda, South Africa and Mauritius. Retrieved 29.06.2016 from <https://www.wttc.org/-/media/files/reports/economic%20impact%20research/countries%202015/kenya2015.pdf>; <https://www.wttc.org/-/media/files/reports/economic%20impact%20research/countries%202015/uganda2015.pdf>; <https://www.wttc.org/-/media/files/reports/economic%20impact%20research/countries%202015/southafrica2015.pdf>; <https://www.wttc.org/-/media/files/reports/economic%20impact%20research/countries%202015/mauritius2015.pdf>

## ANNEX 2 Feedback from experts and stakeholders on developed pathways

### Stakeholder 1. A Rocha

Even though A Rocha agreed that the pathways have potential,

- ▶ They were critical that the landscape be properly studied and communities' interests massively solicited because there is no uniformity in the landscape. What may constitute a good pathway for one area or community may not for another.
- ▶ They pointed out clearly and very importantly that any pathway identified contextually determines what the value chain opportunities are with emphasis giving to the small-scale value chain opportunities that will not require huge investment capital or compelled government support but instead locals can take the onus to develop them.
- ▶ They opined that, while the Ghana carbon markets remain undeveloped, A Rocha has started paying some farmers at a very local scale for trees on farm and other conservation-oriented agroforestry practices and if possible the landscape emission reduction program should seek to mimic this instead of waiting on national or any sub-national protocols for carbon marketing
- ▶ They cautioned against the development of any pathway that will compromise the sustainability and integrity of the forest and opined strongly that these pathways be accompanied by an extensive analysis of their pros and cons

### Stakeholder 2. RA

*The following questions were asked;*

1. What is the economic value of the place?
2. Has consultation with the community taken place on these pathways?
3. Amid the hope to convince government about bauxite mining in part of the forest by providing these pathways as alternatives, are these pathways looking to create benefits to locals as much as the government?



*Regarding the pathways;*

- ▶ Kwame strongly observed that ecotourism has a huge potential but bemoaned about the problems of ecotourism in Ghana including its unattractive and unplanned nature in addition to the fact that, ecotourism is treated as celebratory occasion. He cited the upsurge of economic opportunities of ecotourism in countries like Rwanda, Tanzania, Kenya as a blueprint for developing the sector but the horrible state of our tourist sites albeit the massive potential remains problematic. He further clarifies that any ecotourism service model or package in Atewa be configured to the uniqueness of the forest such as its beautiful butterflies and birds, thousands of plant species and near threatened small primates and mammals
- ▶ He also sees the landscape emission reduction program and sustainable forest botanicals as having a huge potential for creating opportunities for investments in the landscape
- ▶ He stated that there are already success stories about wood biomass to biochar and briquettes in the country and it can be scaled up to create job opportunities for the area
- ▶ Even though he sees the potential in agriculture waste to manufacturing, he worries that will require massive investment to operationalise it or setting up various groups to operate it
- ▶ Kwame warns that greenhouse farming, agriculture waste to manufacturing and alternative agroforestry crops may benefit locals and owners and may not offer much direct or indirect benefits to government.
- ▶ He stated there are also issues of certification for organic products developed for export which could be problematic for casual operators
- ▶ Landscape emission reduction program, Ecotourism services and Sustainable forest botanical harvest for export are top three with massive potential in the landscape in his opinion

### Stakeholder 3. Noe

They;

- ▶ Reckon the creation of ecotourism opportunities is massive but should devoid of any introduction, reintroduction or wilding of the Atewa forest but instead the focus should be on what is there by taking advantage of unique features such as plants, birds, ancestral medications, endemic wildlife and history of the place. They advise that the concept and approach is very important. They also reckon that sensitisation of the beauty of the forest and other activities such as mining in the area and what effect it has caused the forest can be packaged and advertised to attract people to patronise the place in addition to sustainable lodges
- ▶ Noted with concern that the creation of carbon markets in the area will be contrary to the principles of conservation and that creating big carbon markets will lead to exploitation of the area at the detriment of nature and people's health and livelihood instead. They advised that any potential carbon markets should have massive positive impacts on the landscape and reduce any existing negative impacts
- ▶ Observe that whiles the potential of forest botanicals is huge and is one that they absolutely recommend be pursued, they opined that lots of training and capacity building will be required to ensure that overharvesting does not occur
- ▶ Asked what residue is targeted for briquettes production and if it is wood residue, care must be taken to ensure that raw material harvesting do not lead to increase in logging and forest loss
- ▶ Cautioned that sales of fruits and vegetables in greenhouses are expensive and they have to be sold in bulks to make profit which means it will require huge investment
- ▶ Cautioned against the tendency for alternative agroforest crops to transition into monocultures which could have huge repercussions for landscape biodiversity conservation and sustainable production systems
- ▶ Recommended the CREMA model for community forest stewardship be practically integrated into any development strategy for the area as it has the potential to optimise forest sustainability through shared benefits.

#### **Stakeholder 4. UNDP**

Following Daniel's presentation on the eight (8) developed pathways, Kingley's feedback was consisted with a lot of our output and pathway trajectories. He did not object to any of our pathways but recommended that we strongly look into payment for water provisioning services. The following denotes his key contributions

1. Optimisation of ecotourism opportunities as he reckons remain a key strategic component for job creation in the area.
2. He stressed that the CREMA model could be integrated into any resource extraction pathway plan (forest botanicals) to maximise other ecosystem services by creating corridors and buffer zones for locals for activities such as woodlot production and harvesting
3. He strongly recommended that the water provisioning services offered by the reserve gives opportunity for payment for ecosystem services or willingness to pay to be explored. The argument of the Water Resources Commission so far not entertaining that idea (a concern raised by John in our meeting earlier) came up but Kingley opined that it is up to us to convincingly developed that as a feasible pathway model that has the potential to produce the multiple benefits of reducing the impacts on the headwaters and creating jobs
4. He climaxed his submissions by noting that ecotourism, payment for water provisioning services and landscape emission reduction program are three top pathway strategies that can be wholly developed to create green jobs in the Atewa landscape. He however cautioned that currently, the lack of detailed plans for carbon credit sales nationally and lack of developed mechanisms for MVR may inhibit any landscape emission reduction program until these foundations are developed.

#### **Stakeholder 5. TBG**

Daniel presented the Eight (8) green development pathways with an elaboration of their potentials for job creation and environmental consequences. In Evans' opening remark, 'Atewa is a reservoir of wealth' but unfortunately updated management plans of Atewa and its GSBA status have not been successful in addressing the key threats and to provide a conducive environment for sustainable development. According to him few woods in West Africa are known to be home to such a diverse range of endangered species like Atewa and that all efforts must be put in place to protect the reserve.

He sees this current assignment as key in arriving at a defined strategy and action plan for Atewa.

On the green development pathway options Evans mentioned the following:

1. Water resources and ecosystem services should be included in the pathways
2. Pathways that have direct bearing on the livelihoods of communities whose investments will not necessarily require external support should be prioritised.
3. Eco-tourism is the next phase of growth for Ghana as middle-income earners maybe looking for places to spend their money and Atewa when fully developed ticks all the box for high value eco-tourism
4. In Evans' conclusion, his priority pathways with significance for job creation will be Eco-tourism, Landscape emission program and green house farming.

### **Stakeholder 6 KNUST**

Daniel briefed him on the scope of the assignment and why we need experts like him to make inputs into work. In his opening remarks he intimated that he was part of a team tasked to remodel the Kyebi township into a UNESCO model city to which eco-tourism and development of wetlands around Kyebi was a prominent feature of the assignment. He was of the view that any modelling of development that ignores the environment within the Kyebi area is likely to fail. On our identified pathways he made these specific suggestions

1. We should evaluate the value chains of each pathway with some pros and cons based on the available resources within the landscape and beyond.
2. We should be mindful of political implications of every pathway and so, job creating must be reflected in all identified pathways.
3. We must make sure all pathways reflect both local and national interest irrespective of the influence.

He concluded that such an assignment ought to have been done long time due to its significance and that its however not too late. He believes Eco-tourism has the

potential to change the economy of Atewa if its properly harnessed.

### **Stakeholder 7. Forest Research Institute, FINLAND**

Daniel presented an overview of the assignment and progress so far. In Dr. Mensah opening remarks, these kinds of synthesis should be done for all national reserves including production forest reserves to give alternatives and livelihood options to surrounding communities.

On the pathways Dr. Mensah's indicated the following

1. Amalgamate all sustainable agriculture related pathways into one broad pathway since almost all can be nested into a single pathway
2. A critical review of access to lands and tenure matters will be necessary to understand the availability and tenure arrangements of land for such projects
3. We should probably reflect on sustainable mining approaches, that is if a green pathway can carve out of that.

He indicated that his priority pathways will be water and ecosystem services, landscape emission programme and eco-tourism.

He concluded that the raise to salvage the Atewa landscape can only succeed if we can present a suitable and an encompassing pathway that creates value for both government and the communities.

### **Stakeholder 8. CR**

A presentation of the objective of the study was done. Elvis' initial comments were centered on how mining has not yielded any significant benefits for Ghana and any communities since commercial mining started in Ghana many decades ago.

He believes that as a conservationist, we simply cannot undermine the importance of the environment especially for Atewa whose water source serves nearly 5 million people in Ghana. In relation to the pathways, he made the following suggestions

1. Government must have a master plan for ecotourism with enough resources to

develop all the tourism hubs in Ghana

2. The interplay of sustainable farming practices and its relations to our medium-term development plans must clearly be indicated with actionable areas for community participation.
3. Transitioning to green economy is a must for developing countries like Ghana. Government must show enough commitment.

He concluded with his three priority pathways as Eco-tourism, landscape emission and high value Agriculture production.

### ANNEX 3 List of documents reviewed

Weblinks are provided for each item below. A folder with all documents together is available here

- ♦ [Transformational Development Agenda for Atewa](#)

Presents a vision for Atewa Forest and its landscape that integrates the diverse economic, ecological and cultural importance of the place.

- ♦ [Atewa Forest briefing summary](#)

Summary information regarding the bauxite threat to Atewa Forest.

- ♦ [The Economics of the Atewa Forest Range](#)

The establishment of Atewa Forest as a National Park with associated buffer zone, brings greater economic value to Ghana over 30 years than alternative scenarios including business as usual and bauxite extraction. Net Present Value of the protection scenario is \$1.1bn. The values considered are limited to those with monetary market values. Contingent valuation, hedonic pricing, replacement cost and travel cost methods are not included, so this valuation can be considered as conservative. Summary for policy makers

- ♦ [The Biodiversity of Atewa Forest](#)

Atewa Forest is of global importance for biodiversity because of high levels of endemism (species found in no other place on earth), high numbers of species threatened with global extinction, a rare and distinctive flora, and an exceptional

diversity of butterflies. See additional items listed below.

- Innovative Green Finance for a Thriving Alternative Aluminium Complex

Ghana's ambition for an integrated aluminium industry can proceed successfully without any need to include Atewa. More than sufficient bauxite deposits are found elsewhere to service the deal with Sinohydro, and beyond. Atewa on the other hand presents an opportunity for more sustainable forms of revenue generation, including carbon offset finance through the REDD+ payment mechanism.

- Green Development Pathways and Jobs for Atewa Forest

Terms of Reference for an EU funded consultancy to identify green development pathways and green jobs and businesses that are viable alternatives to bauxite mining in the Atewa Forest landscape. This work is currently underway.

- Sustainable Tourism Potential Assessment

Atewa's relative proximity to the capital and second city, its compelling landscape, and the rich bird, plant and butterfly life provide a sound basis for investment in an ecotourism industry that could sustain high visitor numbers attracted by the combination of rare and special wildlife, visitor experiences such as zip lines, walkways or even a cable car, and adventure on rugged forest trails.

## **ADDITIONAL MATERIAL**

- Justification to upgrade Atewa Forest to a National Park

A Rocha Ghana and Forestry Commission September 2016

Formal submission with the Forestry Commission to support the process of National Park designation for Atewa Forest that was commencing in 2016.

- Half-earth: our planet's fight for life

New York and London: WW Norton & Company. 2016

Pullitzer Prize winning author and "father of biodiversity" E.O. Wilson included Atewa Forest in his shortlist of 38 important sites for biodiversity around the world that warrant the highest priority for protection.

- Management Plan of Atewa Forest GSBA

Forestry Commission's 2006 Management Plan for Atewa after it was designated as a Globally Significant Biodiversity Area and no longer a production forest.

- A Rapid Biological Assessment of the Atewa Forest

RAP Bulletin of Biological Assessment 47. Arlington, USA: Conservation International. 2007

The first comprehensive field surveys of biodiversity in Atewa Forest undertaken in view of proposed bauxite mining, eventually influencing the decision not to mine.

- New species of Slippery Frog from Atewa *Zootaxa*, 4995(1), 71–95. 2021
- New species of Puddle Frog from Atewa. *Zootaxa*, 4374(4), 565–578. 2018  
Recent discovery of two new species of frogs, one entirely and one almost entirely, confined to Atewa Forest. Both depend on the area under proposed bauxite concessions. Their discovery led to Atewa Forest being listed under Alliance for Zero Extinction criteria placing the site off limits to World Bank development investment.
- Butterflies of Ghana and protected areas *WDSP Report Vol. 63. Ghana and Gland: Wildlife Division - Forestry Commission and IUCN*. 2006  
Author of the West Africa subregion's authoritative handbook of butterflies, Torben Larsen, highlights Atewa Forest as the richest site for butterflies in Ghana, if not West Africa.
- Towards a Living Landscape - modelling and scenarios  
PBL Netherlands Environmental Assessment Agency 2018.  
A case study on landscape strategies to achieve the Sustainable Development Goals, comparing scenarios of “business as usual”, “taking all resources”, and “living landscape”.
- Bibliography of Atewa Forest  
A reference list of scientific papers and other reports arising from research in and around Atewa Forest, Ghana. Compiled by A Rocha International, February 2022.







**PART TWO**

Job Creation and Business  
Opportunities Study

## ACRONYMS

FAO	Food and Agriculture Organization
FMNR	Farmer managed natural regeneration
GDP	Gross Domestic Product
GTA	Ghana Tourism Authority
LERP	Landscape Emissions Reduction Program
MRV	Measurement, reporting, verification
MSMEs	Micro, Small and Medium Enterprises
NCRC	Nature Conservation Research Centre
NTFP	Non-Timber and Forest Product
NPV	Net Present Value
PES	Payment for Ecosystem Services
PPP	Public– Private Partnerships
IDC	South Africa’s Industrial Development Corporation
SME	Small and Medium Enterprises
SCP	Social Consumption and Production
SWOT	Strength, Weaknesses, Opportunities, and Threats
TFC	Kenyan Tourism Financing Corporation

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## 1. INTRODUCTION

### 1.1. CONTEXT

Ghana's Green Jobs Strategy aims to assist state institutions and the private sector in strategically positioning themselves to alleviate the difficulties of climate change while maximising the potential for ecologically sustainable growth. This will be accomplished using a programming method incorporating four interconnected sub-projects:

- ♦ Green Jobs Coordination and Capacity Development Project, aimed at building the capacity of government planning and policy coordination institutions to initiate, develop, coordinate and promote the mainstreaming of green in government planning at the sectoral and sub-national level.
- ♦ Green Jobs Skills Development Project, aimed at promoting skills development for green jobs within priority sectors.
- ♦ Green Enterprise Development and Access to Markets for Green Products Project, aimed at creating an enabling environment for Small and Medium Enterprises (SMEs) to expand and create opportunities for employment in green business through finance, business development, tax incentives and technology adoption and.
- ♦ Green Enterprise Finance Project, aimed at mobilising public and private sector resources to support enterprises, start-ups and existing businesses that are going green <sup>1</sup>.

The government's commitment to greening the economy is reflected in the formulation of the Green Jobs Strategy. However, it makes no mention of how many green jobs will be produced or expected as a result of this policy. While the Ministry of Employment and Labour Relations designed the strategy, other government agencies must be involved to ensure the strategy's successful execution and achievement of its goals. In this sense, the government should link the Green Jobs Strategy to current flagship efforts like Planting for Food and Jobs, the Government Decentralised Industrialisation Agenda (One District One Factory Initiative), and the enormous community irrigation project (One Village One Dam Initiative).

The potential for the Atewa landscape to create significant jobs and business opportunities is high. Also, the conservation potential in Atewa significantly

<sup>15</sup>outweighs any other land usage. As a traditional destination for the global tourism sector, protected areas such as Atewa provide for jobs and livelihoods. Parks and protected areas can provide significant job opportunities. The pharmaceutical business has benefited immensely from species genetic variety and preserving species in protected areas will ensure that future medications can be discovered (Convention on Biological Diversity, 2008).

A closer look at the Atewa Range Forest Reserve reveals a thick green closed canopy with three strata of pristine forest. It has tall trees serving as emergent from the closed upper story that links with the second story which protects the fragile understory. The physiology of Atewa makes the forest a critical component enhancing the environmental resilience of the surrounding area in terms of being able to withstand environmental stresses such as drought, mineral deficiencies, unfavourable temperatures, air pollution and as a significant carbon sink.

The Atewa Range has unique characteristics that create economic opportunities for tourism, recreation, mental and physical health, and aesthetic appreciation. The forest represents a source of spiritual value and cultural identity to the Akyem Abuakwa Traditional Area. This includes a number of sacred groves located within the forest and a Royal Mausoleum at the Okyehene's Palace. Although tourism potential is not part of the current supply of ecosystem services, the potential is clear and future developments can create new revenues from nature.

The diverse but critical services delivered by Atewa to the vast majority of the people justify its continued protection through a prospective national park arrangement. Further investigation into the value that the different category of stakeholders including the fringe communities place on Atewa and the services it provides could help in the development of appropriate management actions that ensures delivery of conservation outcome, distribution of social benefits and management effectiveness. This report synthesises job creation and business opportunities and is based on documentary review and the community survey which confirmed local attitudes, knowledge and preferences for selected green pathways. This survey was carried out as part of this assignment in 2022, in collaboration with Tropenbos Ghana.

The survey indicates that a significant number of people (133, 65.52%) expressed that they saw the potential in the three topmost green pathways (ecotourism, landscape level emission reduction projects and sustainable forest botanicals harvest for export)

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1 Republic of Ghana, Ministry of Employment and Labour Relations, Draft Ghana National Green Jobs Strategy (2021–2025).



as plausible pathways for job creation within the landscape. A further 53 (26.11%) agreed that job demand in the landscape can be satisfied by these pathways. Fourteen (6.9%) were unsure; and of the total 203 respondents, only three (2 completely disagree and 1 disagree) had any sort of disagreement on the potential to create jobs within the landscape. This conforms with earlier stakeholder engagement in the landscape as well as among corporates who see the potential for job creation as well when properly executed.

**Table 1** Perception of respondents on the three selected pathways on their potential for job creation

Value	Frequency	Percentage
Completely Agree	133	65.52
Agree	53	26.11
Unsure	14	6.9
Completely Disagree	2	0.99
Disagree	1	0.49

Ninety-six (47.29%) opined that these pathways had not featured in any community discussion for potential job creation. Eighty-six (42.36%) expressed that the three green development pathways have been discussed among communities for potential jobs creation, while 21 (10.34%) was not aware of any such discussion. In table 2, survey respondents have expressed in order of priority the three selected pathways for development and coincidentally, each pathway was selected at the top of the order twice. This shows how much all the three pathways reflect in terms of the interest of the community for development. Landscape level emission reduction projects appeared at the bottom of the ranking thrice (the most) and this may originate from a lack of enough understanding of the structure of benefits as the survey has shown many of the respondents to align to agriculture and cocoa farming.

**Table 2** Pathway ranking in order of potential job creation

Pathway order of priority for job creation	Frequency	Percentage
Ecotourism, Sustainable forest botanicals harvesting and cultivation for export & Landscape level Emissions program	24	24.49
Landscape Level emission program, Ecotourism & Sustainable Forest botanicals harvesting and cultivation for export	17	17.35

Landscape Level emission program, Sustainable Forest botanicals harvesting and cultivation for export & Ecotourism	8	8.16
Ecotourism, Landscape level Emissions program & Sustainable Forest botanicals harvesting and cultivation for export	18	18.37
Sustainable forest botanicals harvesting and cultivation for export, Landscape level Emissions program & Ecotourism	11	11.22
Sustainable forest botanicals harvesting and cultivation for export, Ecotourism & Landscape Level emission program	20	20.41

Based on the findings of previous phases of this assignment, and ongoing synthesis analysis, there are three pathways could potentially generate \$1.24 billion annually and over 150,000 jobs. The assumptions were drawn from working cases of ecotourism, Non-Timber and Forest Product (NTFP) production and carbon emission-related projects; the details of which are expanded on in the following sections.

Further analysis is developed in each green development pathway case. The table below summarises projected revenue, job numbers, business opportunities and government taxes.

**Table 3 Summary of green development pathway totals**

Green development pathways	Revenue	Direct jobs	Indirect jobs	Businesses	Taxes
Ecotourism project	\$1.11 billion/yr	5,500	23,100	462	154 mil/yr
NTFP/botanical sustainable harvest & processing	\$4 mill/yr	19,100	n/a	50	\$600,000/yr
Landscape emissions reductions	\$9 mill/yr	125,000	n/a	n/a	\$1.2 mil/yr

<b>Totals</b>	<b>\$1.24 billion/ yr</b>	<b>149,600</b>	<b>23,100</b>	<b>512</b>	<b>\$155.8 mil/yr</b>
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## 1.2. METHODOLOGY

Further to the green pathways validated in the previously submitted Objective 1 report, the team continued their desk study to specifically identify potential revenues, number of jobs, business opportunities and tax flows expected from each of the pathway options.

This desk study was complemented by a community survey in the Atewa Landscape area that sought to gather data and information on potential green jobs and businesses for the area, within the limits of the assignment's resources. Question topics included wants and needs of community populations and available resources, resource use and practices, awareness of ecosystem protection, employment nature or prospects, skills, and interest in alternative livelihoods. The survey utilised a mixed-methods approach: the quantitative portion of the survey consisted of an administered structured questionnaire, and the qualitative portion involved interviewing community leaders and regional officials. For this assignment, the team required ample time to ensure data collection was sufficiently representative.

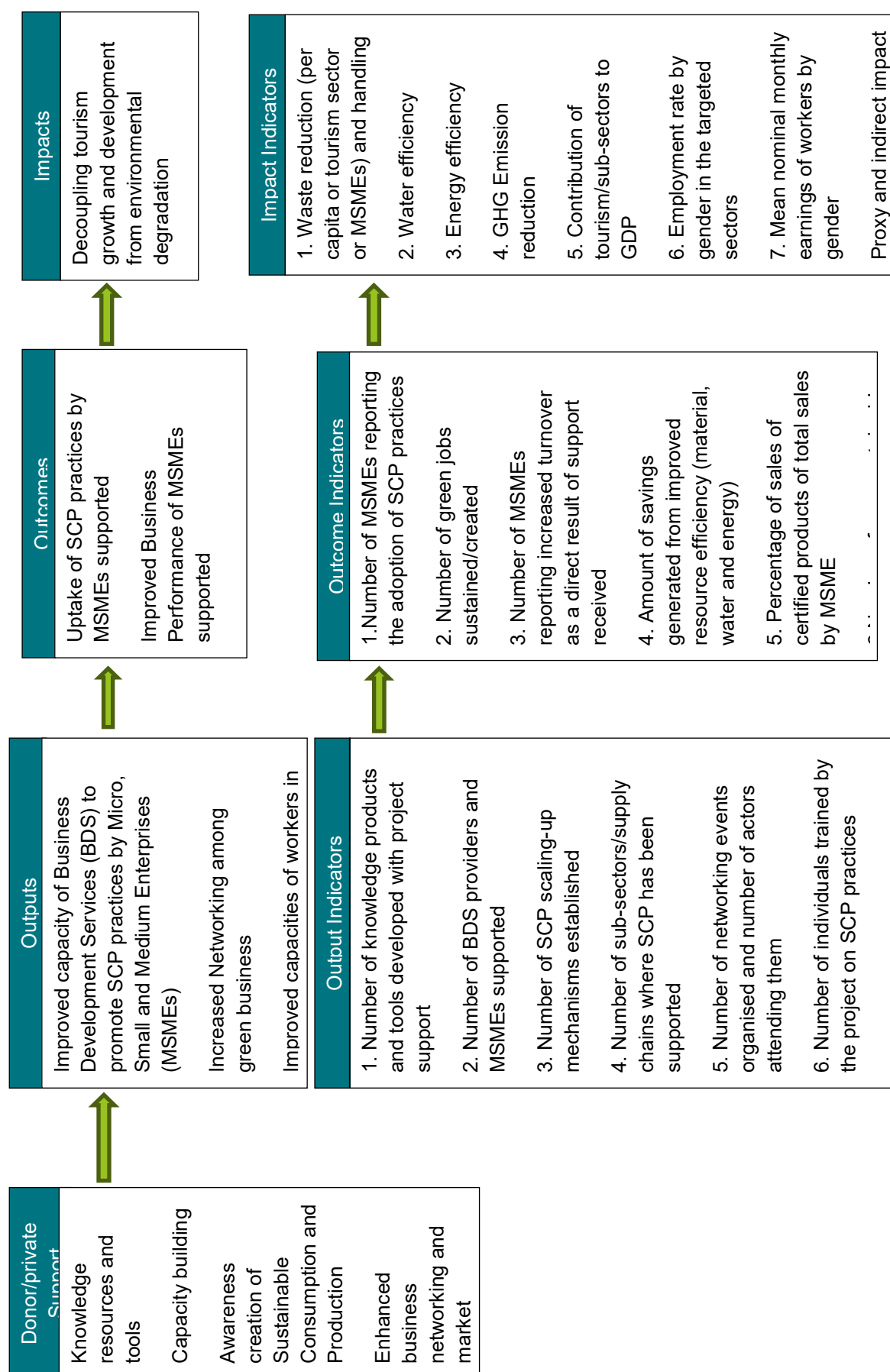
The study also included economic and social analyses and a viability study; the team defined strategic objectives, evaluated strategic scenarios, identified potential costs and available resources (human, material, financial), assessed competition, and determined the context (political, economic, geographic, legal, regulatory, physical, etc.). Examples of job numbers created through sustainable development in other natural areas and national parks in Ghana and worldwide were identified.

Together, these tools allowed the team to identify and propose viability options for each pathway, including financial, socioeconomic and well-being, equity, and ecological and biodiversity values. The pathways were presented and validated in subsequent workshop events.

## 2. SELECTED PATHWAYS

### 2.1. ECOTOURISM

The sustainable ecotourism value chain diagram (Figure 1) below captures outputs, outcomes, and impact. The impact refers to the goal that a sustainable tourism programme aims to achieve, namely, job creation, sustainable consumption, and production (SCP), tourism growth, and increase human wellbeing. The outcomes measure the effectiveness of green tourism investment which aimed at inducing a change in the application of sustainable consumption and production practices in the Atewa landscape which can only be achieved through shared vision and community participation. While impact indicators measure broad medium-to long-term change which may be due to various interventions, in the sustainable tourism sector, the context presented here, reflects an attempt to measure the contribution attributable to the project or programme.



### Green Business Development

Source: Adapted from UNDP framework on tourism 2018

### 2.1.1. Job types and business opportunities

Ghana's ecotourism resources are still yet to fully be discovered but according to the Ghana Tourist Authority, there is an abundance of wildlife diversity in the country: 222 mammal species, 128 reptiles, 38 amphibians, 721 bird species and vast number of butterfly species.<sup>20</sup> National Parks and reserves covering approximately 5% of Ghana's total land surface. The coastline offers 540 km of sandy beaches, Waterfalls (Kintampo Waterfall, Wli waterfall and Boti waterfall), Lakes (Lake Bosomtwe and Volta Lake), and animal sanctuaries, such as Wechiau Hippo Sanctuary, Paga Crocodile Pond, BuabengFiema, TafiAtome, etc <sup>2</sup>.

In addition, Ghana is noted as one of the most peaceful countries in Africa, and this fact, in addition to the numerous beautiful tourist sites, has made it an ideal destination for eco-tourism on the African continent. Whether it is having a safari experience at Mole Park in the Savanna Region, seeing nature in its pure state at Kakum National Park, visiting the numerous World Heritage categorised slave trade era castles and forts, or having an eco-adventure at the Atewa Forest Range, Ghana is naturally endowed with locations and sites that will provide tourists with a unique experience.

While Ghana still has a lot to achieve in becoming a destination of choice on the African continent, the Medium-Term Expenditure Framework of the Ministry of Tourism, Arts and Culture stated that, in 2017, the sector contributed GHS12.58bn (\$2.7bn), which translates to 6.2% of the national Gross Domestic Product (GDP), to the economy. A total of 1.3m international tourists visited the country that same year, representing a 6% increase from the 2016 figure. In terms of employment, the World Travel and Tourism Council reported that the sector supported 682,000 jobs (5.3% of total national employment) in 2017. There has also been an increase in total number of jobs (direct & indirect jobs) created by the tourism sector from 550,000 in 2017 to 602,425 in 2018. The figure for direct jobs provided by the tourism sector shot up from 135,000 in 2017 to 158,231 in 2018 <sup>3</sup>.

For decades, the ecological significance of Atewa Forest has been recognised. The forest was first set aside about a century ago to preserve the headwaters of three important rivers to ensure base flow and reduce high sediment load caused by forest removal for agriculture. The forest is located on hills with steep slopes cut by stony streams. Atewa Forest has been recognised for its unique flora since the 1970s, when Hall and Swaine (1976) designated it as one of only two "Upland Evergreen" forests in Ghana. However, it was a nationwide botanical fieldwork project in the early 1990s

<sup>1</sup>

<sup>2</sup> [https://www.icao.int/Meetings/SUSDEV-AT/Documents/Presentation\\_GHANA%20TOURISM%20POTENTIALS.pdf](https://www.icao.int/Meetings/SUSDEV-AT/Documents/Presentation_GHANA%20TOURISM%20POTENTIALS.pdf)

<sup>3</sup> There are no further studies beyond 2018. COVID-19 has had considerable impact on the tourism industry so would skew any subsequent data.

<sup>4</sup> Recent approved EIA on Kwahu Airport Development would presage air links into the neighbouring districts to Atewa

to review the protection strategy for all of Ghana's Forest Reserves, that ushered in a new understanding of Atewa Forest's biological significance.

The fact that over 100 globally threatened and near-threatened plants and animals can be found in this single forest – accounting for nearly 20% of Ghana's total list of such species – and that the forest is home to 20-50 percent of the country's species calls for a comprehensive ecotourism plan for the Atewa landscape and to also give adequate importance to the Atewa Forest and the landscape. Participants in the validation workshop on the pathways argued that the residual benefits on jobs both direct and indirect, the emerging hotelier sub-sector coupled with a rapidly evolving transport sector will create significant economic growth and tax flows for government. Most participants are firm that the advantages in ecotourism in both ecological and financial terms far exceed the cumulative effects of bauxite mining.

The team conducted an in-depth analysis of the tourism sector in Ghana with projected revenue (see table 3) , which suggests it is possible to make \$1.1billion annually with over 5,500 hotel direct jobs and 23,000 indirect jobs in the Atewa landscape if enough commitment is made as was championed through a tourism sector project in Cape Coast in the early 1990s <sup>4</sup>.

The assumption relating to eco-tourism is based on the year 2019/2020, during which Ghana made \$3.7 billion from the tourism sector <sup>5</sup>. Using the Kakum case as an example and extrapolating that Cape Coast and Kakum alone generate 30% of tourism revenue in Ghana <sup>6</sup>, we assume that these tourism areas generate \$1.11 billion. If we subject Atewa to same investment benchmark (utilising information from the Central Region Tourism Development Project in the early 1990s), then we could assume a \$1.11 billion return for Atewa in terms of ecotourism <sup>7</sup>.

The table below gives a summarised breakdown of revenue projections in numbers and potential jobs.

**Table 4 Atewa Hub ecotourism green pathway development**

Atewa potential annual tourism revenue	Job & opportunities		
	Direct jobs	Indirect jobs	Service businesses
\$1.11 billion	5,500 hotel jobs	23,100 indirect service jobs	462 service businesses

<sup>5</sup> <https://knoema.com/atlas/Ghana/topics/Tourism/Travel-and-Tourism-Total-Contribution-to-GDP/Contribution-of-travel-and-tourism-to-GDP>

<sup>6</sup> <https://visitghana.com/wp-content/uploads/2021/04/Ghana-Tourism-Report-2019-min.pdf>

### **Assumptions:**

- ♦ Atewa Landscape should replicate the basic model of the Central Region Tourism project (circa 1990).
- ♦ National tourism revenue is reported at \$3.7 billion in 2019 pre-COVID<sup>8</sup>.
- ♦ Central Region project area generates estimated 30% of national tourism revenue (\$1.11 billion).
- ♦ Central Region project area has developed 114 hotels/guest houses that provide various service levels.
- ♦ Estimate of an average of 50 jobs/hotel facility.
- ♦ Assuming similar approach and workplan, Atewa can match or exceed Central Region revenue.
- ♦ Tourism multiplier factor (World Trade Organisation) is set at 4.2.
- ♦ The Atewa Landscape project should provide loan guarantees to private sector tourism developers in exchange for certain annual support of landscape conservation.

### **Taxes:**

- ♦ There are 3,538 licensed accommodation providers in Ghana at 2020; these entities combined including restaurants contributed close to 3.9 billion Ghanaian cedis, in taxes; some 520 million U.S. dollars, to Ghana's GDP in 2020 representing excess of 14% of total tourism contribution. This implies that a 14% tax on the \$1.1 billion in specific to Atewa ecotourism development is expected to generate \$ 154,000,000.

## **2.1.2. Viability study**

### **i. Potential costs**

Investing successfully in Ghana's tourism industry requires identifying optimal locations for future growth in the first place. The Atewa forest range reserve provides an excellent scenario. Research shows that the primary determinants for investors

<sup>7</sup> Gartner, William C.; Jackson, Donald; Hutchinson, Charles; and Hyatt, Vera (1995) "An Integrated Tourism Development Project: The Central Region of Ghana," *Visions in Leisure and Business*: Vol. 14 : No. 2 , Article 3. Available at: <https://scholarworks.bgsu.edu/visions/vol14/iss2/3>

<sup>8</sup> GTA 2021



looking toward tourism market are location, infrastructure, government policy that enable a prosperous tourism sector, national and macroeconomic climate, competitiveness, and natural endowments <sup>9</sup>.

Although tourism is mostly restricted to the private sector, the most lucrative countries for investment are those in which governments have explicitly targeted tourism as a sector to enable through specific policy reform. These countries are also the most likely to facilitate improvements in transport, utilities, capital, and land availability, that will promote rapid growth in the sector. Well-informed investors can capitalise on a first-mover advantage by partnering with tourism ministries to target investment funds as they become increasingly available toward developing infrastructure around destinations with a high potential for growth, such as cultural attractions, beaches, or national parks.

See table below on the contribution of the tourism sector to the one of the most vibrant ecotourism destinations in Eastern and Southern Africa <sup>10</sup>.

**Table 5 Ecotourism destinations - Eastern and Southern Africa. Source: WTTC 2015**

Country	Direct contribution to GDP -i.e. % of total GDP	Direct employment contribution i.e. % of total employment
Kenya	4.1	3.5 (206,500 jobs)
Uganda	4.3	3.6 (247,000 jobs)
South Africa	3	4.5 (679,500 jobs)
Mauritius	11.3	10.9 (60,000 jobs)

The initial potential cost of developing the ecotourism will be largely driven by government which requires setting the appropriate policy environment, developing focused Atewa plan/project, redirecting infrastructure development, and developing district level tourist facilities for public Atewa area attractions. The Ghana case of Central Region Tourism Development project (circa 1990 onwards) should be instructive on how to proceed with such an initiative.

According to statista.com, it cost averagely \$6,000,000 to build a standard resort style hotel in Accra <sup>11</sup> ; this may be cheaper in Atewa depending on the cost of land. Already, there are some luxury hotels springing up in Atewa including Adwoa Asantewaa memorial Hotel, Sanders Gardens Hotel, etc. The policy environment is also right for a complete take off in developing the Atewa forest range as an ecotourism hub, and therefore also attract SMEs to invest in the sector.

The following may be associated costs of establishing an ecotourism hub:

- i. Costs related to preparation and institutional training: The Ghana Tourism Authority (GTA) is the main government stakeholder in all tourism related project and activities and their effectiveness in the discharge of their duties is crucial for any project development. From understanding the dynamics of the Atewa landscape, conducting feasibility assessments, and performing any related Strength, Weaknesses, Opportunities, and Threats (SWOT) analysis, they are key to the viability of such tourism projects.

Costs may include capacity assessment and training on best practices for allied agencies, such as Ghana Immigration Service, Ministry of Foreign Affairs, Ministry of Aviation, and the Forestry Commission, as well as all departments and agencies playing key roles in ecotourism policy and planning. Cost may also be accrued through the development of environmental and social safeguards and their management, which may encompass stakeholder negotiations and consultations at the local, landscape and national level.

The Bank of Ghana attributes the failure of most tourism ventures, especially in the ecotourism sector, to lack of data and information systems. A competitive ecotourism project in the Atewa landscape has to benefit from improved statistical and information systems, including technical assistance to the GTA for the collection of baseline information on visitor demographics for project monitoring.

- ii. Development costs: The cost of developing specific activities may include project planning and assessment, including geographic layouts and locations for any proposed activity for the ecotourism. This may include bird watching zones and trails, observation towers, camping areas, etc. Private/public investments may be required for accommodation developments (high end ecolodges, hotels and guests house) including mapping to develop key areas (possibly away from the forest reserve and community lands). If a community-based ecotourism model is selected, additional cost may be incurred in developing a participatory framework including a benefit sharing scheme. Development costs may also stem from electricity provision, strategic building, sewerage, drainage, streetlights, toilets, solid waste management, jetties, and walkways.
- iii. Tourism enterprise development costs may stem from developing market knowledge about ecotourism activities, formalisation of activities, technology,

innovation, branding, and other skills that will be required to enhance the successful<sup>1</sup> operation of ecotourism projects. Potential costs may include capacity building for local Ecotourism SMEs operating in the landscape, or nationally to improve their business planning, formalise their businesses and be competitive.

## ii. Potential resources

The following are potential resources identified that might be able to cover associated costs of establishing an ecotourism hub:

- i. State-owned national development finance institutions, such as South Africa's Industrial Development Corporation (IDC) or the Kenyan Tourism Financing Corporation (TFC), have units dedicated to financing the tourism and hospitality sector by providing asset-based finance through instruments designed to fit the risk profile and cash-flow of tourism investment projects. These units typically also support the financing of fixed assets and capital expenditure, as long as projects have a significant developmental impact, such as job creation, empowerment, and rural development. Ghana has a Tourism Levy on all hotel and tourism facilities which realises 1% levy on all hotel/restaurant/tourism facility revenues. A portion of this fund can be channelled to support an Atewa Tourism Initiative;
- ii. Encourage pension funds (Social Security National Insurance Trust) and insurance companies, to provide finance to the tourism sector. This has been done in the past and should be examined once again;
- iii. Encourage industry-based levy schemes to contribute to tourism promotion;
- iv. Encourage protected-area managers and communal landowners to consider land concessions as a strategy for attracting private sector operators and investors;
- v. Provide incentives such as tax holidays and guarantee schemes to commercial banks to increase lending to tourism private entrepreneurs, particularly SME operators;
- vi. Consider issuing a tourism development bond to specifically develop the Atewa Initiative.
- vii. While it is still in its early stages of development, the Ghana Skills Development Fund (GSDF), a \$60 million, World Bank matching grant facility

9 The biodiversity of Atewa forest, project report 2019.

10 WTTC. Economic Impact 2015 Kenya, Uganda, South Africa and Mauritius.

11 <https://www.statista.com/statistics/756757/hotel-building-costs-in-african-cities-by-building/>

supported by the Ghana Commission for Technical and Vocational Education and Training (CTVET), may bring in enterprises in the eco-tourism sector<sup>12</sup>.

### 2.1.3. Competition assessment

Atewa Forest located in the Atewa landscape is a key ecosystem in West Africa. It is classified as a Globally Significant Biodiversity Area, sites that we know contribute significantly to global biodiversity, and as a protected forest reserve, which means all mining activities are supposed to be excluded<sup>13</sup>.

The forest contains enormous plant diversity, with at least 1,100 species. It is home to some 100 threatened or endangered species, including the White-collared Mangabey, a primate recently found in Atewa<sup>14</sup>, and one that is close to extinction in the wild. It also houses over 700 species of butterflies; the number of species represent 77% of all butterfly species found in Ghana<sup>15</sup>. All of these species are crucial to maintaining the health of the ecosystem that impacts climate far beyond its boundaries. Forests serve as the third largest carbon sink on the planet, meaning they absorb carbon from our atmosphere, and are therefore vital to mitigating global climate change.

The three river systems that run through the range also provide clean drinking water for five million Ghanaians and play a key role in sustaining local industries and agriculture. The Atewa Range has been traditionally managed for water production, nature conservation, and recreation. Even Mole and Kakum national parks, which are more famous in Ghana, are less diverse ecologically than the Atewa forest range reserve, making the latter one of the most important potential ecotourism hubs in the country.

Furthermore, Atewa's location along the most important section of road network in the country, Accra-Kumasi N6 highway, offers a massive boost to Atewa's viability as an ecotourism hub. It is easier and faster to get to Atewa from Accra because of its proximity to Accra. It is a day trip from Accra or Kumasi for domestic tourism.<sup>2</sup>

<sup>12</sup> <https://gsdf.ctvet.gov.gh/>. Landell Mills is implementing the Fund Delivery Unit for GSDF.

<sup>13</sup> The biodiversity of Atewa forest, project report 2019.

<sup>14</sup> <https://ghana.arocho.org/news/white-naped-mangabey-iucn-red-list-species-found-in-atewa-forest-ghana/>

<sup>15</sup> <https://ghana.arocho.org/news/atewa-forest-a-hotspot-for-nature-based-solutions/>

### 2.1.4. Working examples

#### Damaraland Camp, Namibia

This case typifies one of the most successful uses of participatory and community-based approaches to foster conservation and rural economic growth. The Damaraland Camp, which is a luxury ecotourism enterprise since 1996 in Namibia is a joint-venture partnership between the private company Wilderness Safaris and the Torra Conservancy (A community-registered trust).

This partnership was formed in response to the 1980s and 1990 droughts and its severe impact on rural communities coupled with wildlife conflicts (from elephants, lions, rhinos etc) and illegal activities such as poaching for ivory and meat. The 80,000-ha area was therefore gazetted as the Torra Conservancy.

The camp resort provides substantial socio-economic and environmental benefits to the community of Torra Conservancy by way of:

- Revenue generation- payment of lease fees (for community social projects, conservancy management cost etc), payment for laundry services and road maintenance amounting to over USD 70, 000 per year. In total, the community earn over USD 90, 000 annually in local currency
- Local job creation: The camp generated employment for 30 people (75% women and 77% are indigenous of the local community)
- Increased wildlife diversity: the population of lions, elephants, black rhinos and other wildlife have increased since the conservancy was established.

References:

<https://annaspenceley.wordpress.com/2015/02/06/new-case-studies-on-inclusive-and-sustainable-tourism-from-south-africa-and-namibia-spier-phinda-and-damaraland/>  
<https://www.slideshare.net/AnnaSpenceley/inclusive-business-in-tourism-damaraland-case-study>

### Kakum National Park

Kakum National Park in Ghana is an example of how sustainable investment in ecotourism can catalyse a transformation in the tourism sector. Among the many interventions was the \$5.4 million USAID project, that focused on law enforcement, capacity building and infrastructures development (including the canopy walkway build in 1994 and the visitor centre built in 1997). It also put in place a trust fund (capital needed to generate benefits: \$2 million) dedicated to the maintenance of the Kakum walkway, 2 castles of Cape Coast and to support communities' livelihood.

These investments have indeed propelled Kakum to an international tourist hub; visitor numbers to Kakum National Park have grown steadily from the early 1990s when there were less than 400 visitors/year to reach a peak visitor figure in 2013 of 166,022. From that 2013 peak, the visitor numbers have trended downward. There were noticeable impacts from the Ebola epidemic around 2014/15 (-19.1%), then a second noticeable decline in 2017 (-18.9%) which is not explained, and then in the COVID-19 pandemic of 2020 (-598%) as shown in figure 1b. Prior to COVID, it looked like Kakum was likely to stabilise around 150,000 annual visitors. Figures for 2022 suggest that the visitor numbers are bouncing back strongly post Covid and will surpass the 100,000 level by 2023.

Figure 2 Trend indicating visitor fluctuations to the Kakum National Park between 2010 and 2020

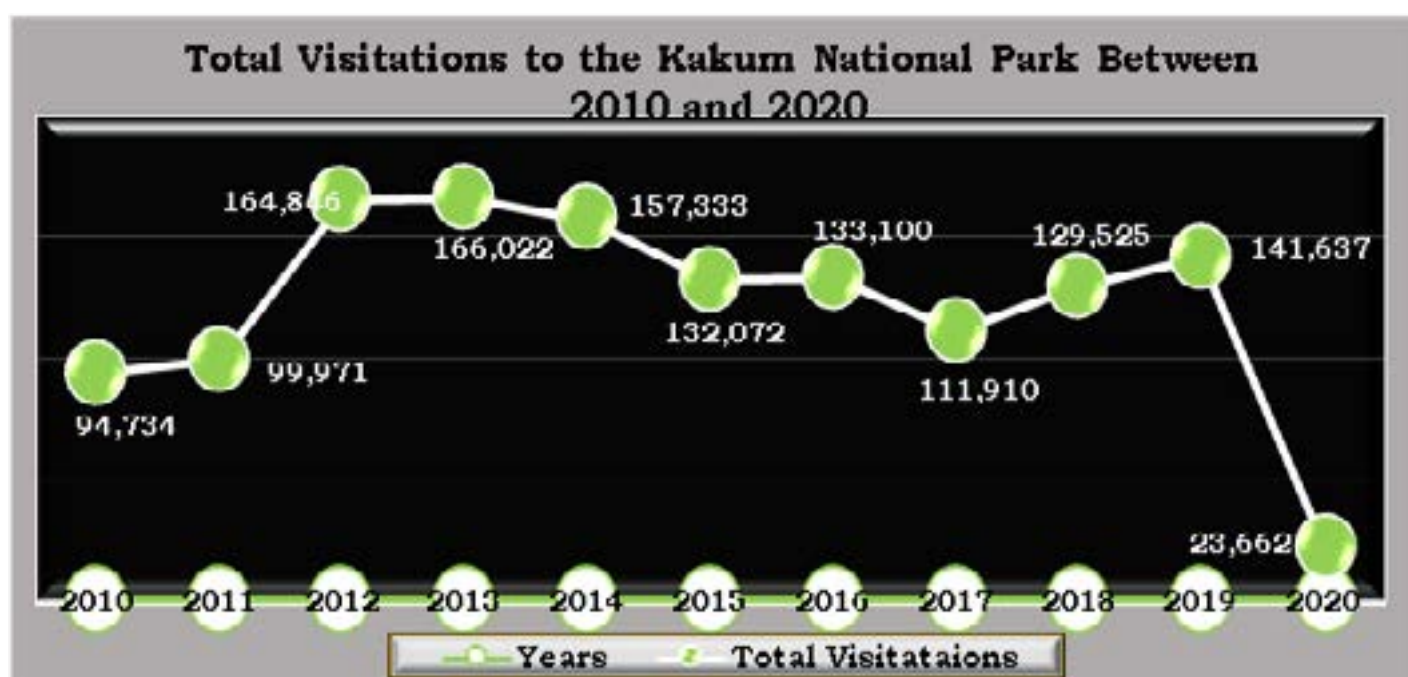
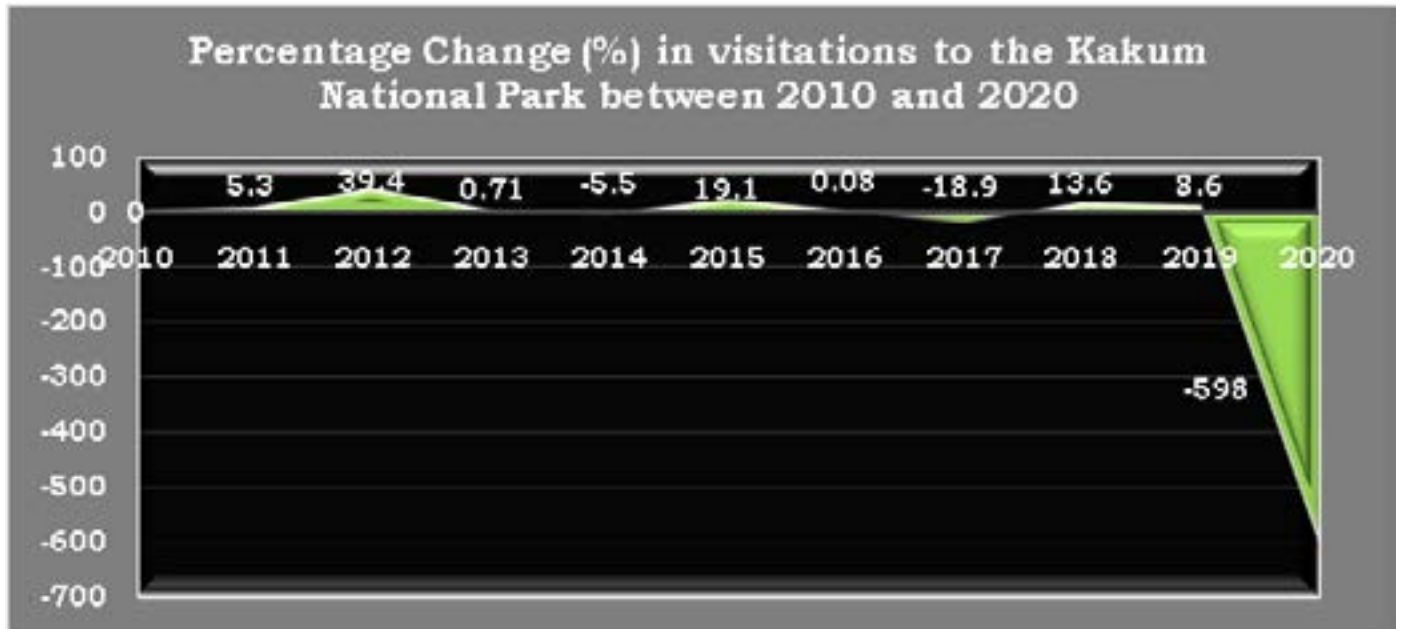


Figure 3 Stacked area chart showing the magnitude of percentage change in visitations to the Kakum National Park between 2010 and 2020



### Zaina Lodge

Zaina Lodge has had significant impact: economically, ecologically, socially, and reputationally.

Economic impact in the park and surrounding area

- Largest eco-tourism employer in the West Gonja District and Savanna Region;
- Injected \$3.2 million in local district economy during construction phase (2013-16);
- Injected \$2.1 million in local district spending since opening (2016-19);
- Paid taxes to government (Value added tax/Import Duty/GTA/PAYE/GRA) of \$1,100,000; • Increased visitors coming to the park and increased gate receipts to WD;



- Concession fixed and variable fees to national park of \$400,000 (2012-2019);
- Increased guests staying over at alternate budget hotel in park as result of the price differential between the two accommodation options in the park. Zaina has raised the profile of the park and for many guests who have not been able to afford Zaina prices; budget hotel has been the fall-back option.

#### Ecological impact in the immediate environs of the lodge concession

- Dramatically increased perennial water supply for wildlife through two new waterholes in southeast quadrant of park. Previously peak dry season water supply was a serious problem for wildlife resulting in over concentration of wildlife numbers in limited radius of limited water sources. The lodge waterholes have resulted in wider spread of wildlife numbers and increased fecundity due to greater access to water and fodder;
- Improved sanctuary for wildlife in 5 km radius of lodge concession due to increase in human and vehicle presence. Observed stress levels on wildlife are reduced and this is easily observed in reduced skittishness and flight reflex. It is also linked to increased wildlife numbers around the lodge site;
- Species are occurring around the lodge which were rarely seen prior to lodge development with particular reference roan antelope, buffalo, hyena, leopard;
- Improvement in tourist behaviour in the area of lodge as result of better guiding and control of lodge tourists.

#### Social impact in the communities and district as a result of the construction and operation of the lodge including:

- 110 construction positions were largely filled by local hires from the communities of the southern boundary of the park;
- 73 staff are employed in permanent jobs of which 55% are hired in the communities, district and northern region; where are the others from if not the



region? (40 jobs to local/region people)

- Support to local companies and producers in materials for construction of the lodge;
- Support to local companies and farmers for inputs to lodge operations;
- Job creation in local community tourism operations as result visits by lodge guests.

#### Reputation

Zaina Lodge has raised the profile and reputation of the key stakeholders in the tourism product of the park and the Northern Ghana. In particular, Zaina has increased the profile of Mole National Park and the Wildlife Division throughout the country and internationally as Zaina marketing, and word of mouth of Zaina guests, have shared their positive experiences in the park.

#### References:

Snyman, S., Sumba, D., Vorhies, F., Gitari, E., Enders, C., Ahenkan, A., Pambo, A.F.K., & Bengone, N. (2021). State of the Wildlife Economy in Africa. African Leadership University, School of Wildlife Conservation, Kigali, Rwanda.

## 2.2. SUSTAINABLE FOREST BOTANICAL HARVEST FOR INTERNATIONAL MARKET

### 2.2.1. Job types and business opportunities

Non-timber forest products (NTFPs) are used or traded by 1.5 billion people worldwide, with the majority of NTFP use and trade taking place at local and regional levels, which are mostly unknown to academics and policymakers. Even NTFPs in international trade are difficult to quantify, and records are sparse. Between 1999 and 2011, the Food and Agriculture Organization (FAO) conducted research on the value of the forestry sector, estimating that global forest product exports were \$421 billion, with NTFPs and roundwood accounting for about 5% of that total. To reduce regulatory barriers for small holders and common pool/property systems, forest policy must be cross-sectoral and scale sensitive.

NTFPs farming and marketing are very critical for the economic empowerment of rural poor, particularly women. Yet, the contribution of NTFPs farming to the empowerment of communities and the vulnerable remains largely undervalued. In Brazil and other countries that borders the amazon forest 'tonka beans and golden grass has been harvested sustainably providing consistent revenue and taxes to communities and government. In savanna ecological zones in Ghana thousands of women have been employed and their livelihoods improved through shea collection and processing <sup>17</sup>.

Harvesting and cultivation of forest botanicals for medicinal, flavouring and nutritional purposes remains an untapped opportunity in the forest supply chain in Ghana. The Atewa range contain rich and ecologically unique forest botanicals that can be commercially exploited for pharmaceuticals, food, flavouring and cosmetic applications. The EU and USA are large end user markets but the majority of raw products are shipped to China and India for processing for biotechnological and ethnopharmacological relevance (also due to regulatory conditions). The West African sub-regional markets are important for certain of the NTFP products such as cola and bush mango. With private sector investment and upscaling of already existing micro businesses, products like voacanga, griffonia, annatto seeds, colanuts among many plants, fruits and seeds that doubles as spice and medicine in the wild can be sustainably managed for business opportunities and job creation.

Through the Botanical Plant Exporters Association of Ghana (BOPA) and the Ghana Investment Promotion Centre (GIPC), there are existing avenues to foster the commercialisation of forest botanicals. A study into small and medium forest enterprises identified hundreds of medicinal plants which are dotted across the high forest zones including Atewa landscape and when fully developed can bring in millions of dollars in revenue, as demonstrated in table 6.

Table 6 Distribution of top ten natural/herbal products by Ghanaian wholesalers/retailers

16

Scientific name, Family	Uses	Average quantity distributed/sold by wholesaler/retailer (t)	Average price/t (GHC) <sup>z</sup>
<i>Khya senegalensis</i> , Meliaceae	Appetizer, blood tonic, fever, malaria, stomach ache, stomach ulcers, waist pains, fresh delivery, menstrual pains, headache, ulcers	1.08	2290

16 [https://link.springer.com/referenceworkentry/10.1007/978-3-642-54601-3\\_209](https://link.springer.com/referenceworkentry/10.1007/978-3-642-54601-3_209)

17 Oldfield, S. & Jenkins, M. 2012. Wild flora for improved rural livelihoods. Case studies from Brazil, China, India and Mexico. Botanic Gardens Conservation International, Richmond, U.K

<i>Alstoniaboonei</i> , Apocynaceae	Convulsion, ulcer, fresh delivery, measles, stomach ulcer	0.34	2633
<i>Paullinia pinnata</i> , Sapindaceae	Bone diseases, fertility enhancer, fracture, rheumatism, joint diseases, waist and joint pains, stomach ulcer	0.26	1873
<i>EnantiaPolycarpa</i> , Annonaceae	Fever, malaria fever, stomach ulcer	0.13	4650
<i>Commiphoramyrrrha</i> , Burseraceae	Fresh delivery, ulcer, stomach ulcer, menstrual pains, post- partum	0.32	2726
<i>Pycnanthusangolensis</i> , Myristicaceaea	Blood tonic, constipation, menstrual pains, unstable pregnancy, stomach ulcer	0.28	1415
<i>Terminalia ivorensis</i> , Combretaceaea	Diarrhoea, menstrual pains, ulcer	0.28	1890
<i>Rauvolfia vomitoria</i> , Apocynaceaea	Aphrodisiac, piles, blood cleansing, stroke and kooko	0.16	1539
<i>Ricinodendronheudelotii</i> , Euphorbiaceaea	Elasticity of the womb, increased fertility, menstrual disorder and pains	0.05	2431
<i>Bombax buonopozense</i> , Bombacaceae	Fever, malaria fever	0.05	2000

Products are listed in order of descending rank based on total value. Source: Osei-Tutu, P., Nketiah, K.S., Kyereh, B. and Owusu-Ansah, M., 2012. Small and Medium Forest Enterprises in Ghana: Sourcebook on enterprise characteristics, activity centres, product markets, support institutions and service providers.

The value chain of NTFPs in Ghana is significant but the data to measure its contribution to incomes of farmers (specifically presence, abundance, true national scope, relevant market actors, destination linkages) does not exist. While cocoa and other farming activities are important in the Atewa landscape, farmers have a great

variety of occupations and income-earning strategies to supplement income from traditional farming activities. Farmers engage in the collection and production of NTFPs such as honey production/beekeeping, grass-cutter rearing, mushrooms, snails, medicinal plants to supplement their incomes. The field survey conducted on farmers of these products indicated that most of the respondents were active in beekeeping followed by grass-cutter, snail rearing, mushroom and medicinal plants, respectively, to supplement their income. Overall, 67% of respondents indicated they were in NTFP farming beyond the conventionally farming.

Falconer<sup>19</sup> noted that there is a strong market for NTFPs, especially in urban centres and there are no signs of any decline. Marketing of NTFPs in Ghana involves a great number of people selling a wide array of products, including mushroom, snails, bushmeat, honey, leaves, medicinal plants, food wrapping leaves and chewing sticks, etc. The key players in NTFPs market consist of various levels of local collectors, village traders, road-head traders and large traders in the districts. Most NTFPs traders rely on district and urban markets while others bypass markets altogether and sell their products directly to local restaurants and consumers in the district capitals. The international trade has grown but remains small.

The team's synthesis analysis indicates that conservatively Atewa landscape holds greater NTFPs than most reserves in Ghana; our initial analysis is based on some workable examples from the Wechiau NTFP project where a modest investment resulted into excess of 1600 seasonal jobs and excess of \$1.35million with 50 permanent jobs. Against the benchmark of Wechiau project using the same benchmark for Atewa with 48 communities and 5 possible commodities, Atewa could be generating \$4million annually with excess of 19,000 seasonal jobs and 3,800 permanent jobs with about 50 businesses. See below detail analysis.<sup>17</sup>

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18 Tropenbos Ghana community survey on Atewa landscape 2022.

19 Falconer, J. 1994. Non-Timber Forest Products in Southern Ghana: A Summary Report. ODA Forestry Series No. 2. Natural Resources Institute, Chatham, pp. 1-235

Table 7 Sustainable forest botanicals green pathway development

Botanical volumes	Project-ed price	Revenue to communities	Communities involved	Seasonal jobs	Full time jobs	New businesses
2,000 tonnes  (400 tonnes x 5 NTFP commodities)	\$2.00/kg	\$4 million/yr	48 communities minimum  (Possibly much higher)	19,200 seasonal jobs  (3,840 jobs/commodity)  (80 jobs x 48 communities for 1 commodity)	100 jobs  (50 jobs per processing centre x 2 large commodity companies)	50 new businesses

**Assumptions:**

- ♦ Atewa Landscape can replicate the basic model of Wechiau Sustainable Shea Harvest project.
- ♦ Wechiau has 20 communities and focus on only shea nuts.
- ♦ Atewa should consider development of at least 5 forest botanicals/NTFPs.
- ♦ Wechiau harvest average 450 tonnes shea nuts from 20 communities.
- ♦ Wechiau produces 45 tonnes value added shea butter processed in landscape.
- ♦ Wechiau delivers 1,600 seasonal jobs (80/community for 5 months) and 40 full time processing jobs.
- ♦ Atewa has 48 target communities for botanical harvesting.
- ♦ Atewa Landscape project should provide loan guarantees to private sector commodity companies in exchange for certain annual support of landscape conservation.

## 2.2.2. Viability study

### i. Potential costs

The potential cost of NTFPs is relative and depends on the exact products. While enough internal and international markets exist for products like honey and some medicinal products, not much can be said about the cost of establishing those supply chains. In relative terms the cost of establishing a single beehive can be between \$30-\$100, especially for the Langstroth hive<sup>20</sup>. In terms of harvesting of medicinal herbs and others, the wild ones are often collected in the forest for free, while the cost of establishing a farm for those which can be cultivated vary from community to community, based on the cost of the land and other factors.

The potential cost of development of NTFPs may include the following:

- i. Cost of biodiversity and NTFP assessment: There cannot be a sustainable forest botanical harvest if the ecosystem profile is not well determined. Rapid assessment of the forest may allow for management tools such as zoning to be used to protect biodiversity and determine the type, abundance, and sustainable offtake of target NTFPs.
- ii. Cost attributed to the development of market information, business contacts, financial capability, access to credit. This may help to develop economic profiles for targeted NTFP.
- iii. Costs relating to infrastructure may originate from developing and improving technical knowledge/skills of institutions and stakeholders that will play a critical role in the project implementation (e.g. training, equipment). Some of the factors that have influenced the viability of NTFP in forest dependent communities have included issues relating to seasonality, transportation and storage facilities. Direct assistance (whether from public, private or sector organisations) can support community/producer and processor organisations and increase their access to markets. Further cost may be incurred for tailored advisory services that can help to build organisational and management capacity.

### ii. Potential resources

The following are potential resources identified:

- i. Rattan which is commonly found in the Atewa landscape has the potential of generating income for rural forest fringe communities in Ghana. Forest fringe

<sup>20</sup> D.K Abu 2022

communities could collect and sell rattan to weavers as well as making products from rattan for sale.

- ii. The use of raphia palm for making alcoholic beverages has a potential for income generation. Although it was not found as an important activity in the Atewa landscape, it could be an income generating activity if enough raphia palms are available.
- iii. Species like *Alstonia boonei* were more prevalent in cocoa farms, indicating its probable suitability as a shade crop for cocoa, and its importance for medicinal and other uses.
- iv. Various NTFPs are found or can be cultivated in farms within the Atewa landscape. If linked with commodity trading, companies that would secure market access can be developed to optimise the conservation of Atewa as well as local jobs and income.
- v. Large markets exist for NTFPs and related products both in country and internationally, but market linkages need to be developed further.
- vi. Several donors funded projects exist to anchor NTFP farming in Ghana, and this can also be nested in Ghana's REDD+ programme.

### 2.2.3. Competition Assessment

NTFPs can be harvested with relatively little impact on the forest environment<sup>21</sup>. The importance of NTFPs goes beyond meeting basic needs. NTFPs are also rapidly growing at the international market. A FAO study suggests that at least 150 NTFPs make up the majority of the international trade<sup>22 23</sup>, including medicinal plants, mushrooms, snails, essential oils, tannin extracts, gums, nuts, rattans and bamboo. The total value in world trade in NTFP is estimated at approximately US\$ 11 billion<sup>24</sup>, and the market has grown by nearly 20% annually over the last several years prior to 1999<sup>25</sup>. Future development of NTFPs in Atewa offers a potential for increasing income, expanding opportunities, and diversifying enterprises in rural areas. The potentials and the competitive advantage of Atewa, in terms of the ability to generate revenue and the needed jobs in the NTFP value chain, is therefore largely based on the fact that multiple NTFPs with international market demand can be sourced from the landscape and the Atewa's location provides a competitive advantage in delivering such products to the Tema port or airport for shipment abroad. Based on other relevant cases, NTFPs could be harnessed to create over 19,200 seasonal and permanent jobs in the landscape. Such jobs would be biased towards women resulting in a noticeable gender

dividend.

In today's global market, effective management of the entire supply chain of NTFPs has become a key factor for their successful commercialisation just like in the case of the Atewa landscape. The NTFPs supply chain typically comprises a range of actors involved in the production of the products at the farm level to the final consumer. It is a network of producers, gatherers, collectors, retailers, distributors, transporters, suppliers, and sellers that participate in the delivery and sale of the products to the final consumer at the local, regional, national and international level. Improving the supply chain of NTFPs has become very important in the efforts of most developing countries, like Ghana, trying to enhance the economic empowerment of the rural poor.

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21 FAO, 2008; Myers 1988; Neumann & Hirsch, 2000

22 FAO 1995

23 Shiva & Verma, 2002

24 Ndoye & Ruiz Perez, 1998

25 Hammet, 1999



## 2.2.4. Working examples

### **Non-Timber Forest Products Extraction in the Amazon and Cerrado biomes, Brazil**

NTFP is an economic mainstay for the people of Amazon and Cerrado in Brazil. Biodiversity and sociocultural dynamics have therefore perpetuated for years. It is estimated that there are over 644,000 families of agro-extractivists, 204 indigenous tribes of over 605,000 families that has created a rich cultural heritage creating a rich cultural. There is an estimate 35 NTFP in the Cerrado biome and more in the Amazon with Brazil nut and rubber extraction very popular in both landscapes.

Through international development partners such as the World Bank, FAO and EU, funding has been provided to encourage the development of management plans for NTFP to help conserve native vegetation and ensures that traditional and community livelihood that emanate from NTFP are sustained. The implementation of the project has been supported by the Government of Brazil through ecological policies as well as CSOs, traditional leaders and indigenous communities and many international conservation agencies. The overarching goal is to ensure sustainable use of the forest reserves in the Amazon and Cerrado biomes. Using a bottom-up participatory approach that starts with community welfare, livelihood and economic benefits, programs such as Payment for Ecosystem Services (PES) has been incorporated into the landscape program that target agriculture to promote multiple incomes to the communities. In parallel, additional programs addressing market failures of NTFP, sustainable harvesting techniques and community development have been developed by CSOs, NGOs and Government to continue to refocus NTFP extraction as resources dwindle.

#### References:

Wunder, S. et al. (2014). Forests, Livelihoods, and Conservation: Broadening the Empirical Base, World Development (2014), <http://dx.doi.org/10.1016/j.worlddev.2014.03.007>

### Wechiau Shea project

Wechiau Sanctuary, Nature Conservation Research Centre (NCRC) and partners have been operating a successful shea nut botanical business since 2008 which has realised significant impact locally and beyond.

#### Economic impact in the communities

- Organic shea nut purchases of 3,200 tonnes (2009-2019);
- Market value of sales for local women and families \$1,350,000 (2009-2019);
- Value of premiums paid to women \$202,000 (2009-2019);
- Value of premiums paid to conservation fund \$52,000 (2009-2019);
- Value of premiums paid above market price \$254,000 (2009-2019);
- 30 full time jobs and 1,600 seasonal jobs created;
- High value sustainability story which appeals to international market and brings extra value to the product;
- Financial stability for community conservation board through trust fund operation.

#### Ecological impacts in sanctuary

- Direct connection achieved between protection of natural habitat in the landscape and economic returns to local families;
- Massive increase in hippo numbers and stable bird populations based on surveys;
- Improved condition of riverine habitat based on remote sensing results.

### Social impact in the communities

- 1,600 women are registered/trained organic wild harvest collectors of sheanuts;
- 30 women are employed in the shea butter processing facility at site;
- Wild harvest organic and Fair for Life premiums used for social projects in communities;
- Significant empowerment of women in the communities resulting in increased voice.



Picture 2 Women shea pickers in Wechiau; courtesy NCRC

### Key successes and challenges

Wechiau shea program has proven that sustainable wild harvest of botanicals can be successfully operated in a conservation landscape resulting in multiple impacts as outlined above. The partnership of the communities, civil society and private sector has been key to the success.

The program has created a tangible direct connection for local communities between conserving the natural habitat and their own economic condition.

A large number of jobs have been created and significant premiums result for both women and the conservation area. Further the local level processing of shea nuts into shea butter has resulted in significant value addition and extra economic impact at the conservation area.

The shea program has faced challenges due to the location's distance from the coast/ports/economic centres. The levels of education posed early challenges which have largely been overcome with time. Finding appropriate private sector partners willing to invest in the longterm landscape sustainability story was an early challenge which has been addressed successfully.

### **Lessons learned**

In order to expand botanicals for conservation, we need to address key issues:

Origination of charismatic botanical for conservation stories: identifying botanical commodity successes in appropriate conservation landscapes is not simple and requires botanical, commodity trading, marketing, logistic understanding.

Responsible commodity buying companies: it can be a challenge to find a responsible commodity buying company interested in engaging in sourcing botanicals from conservation landscapes. There is an investment opportunity in this space which has not been adequately addressed across Africa.

Revolving finance: Buying commodities requires revolving working capital fund that allows up-front purchase of the botanicals from source, processing, transporting to clients prior to receiving payment. Many smaller commodity companies interested in the botanicals space lack this type of revolving capital to finance purchases at volume required to engage larger end user companies.

Building landscape level consortium: the process of identifying botanicals with international/regional market potential and building the appropriate consortium for the given landscape can be challenge. Such consortia usually require community groups, civil society and private sector companies to be successful. Yet getting these different types of groups to work together can be difficult.

### **References:**

Snyman, S., Sumba, D., Vorhies, F., Gitari, E., Enders, C., Ahenkan, A., Pambo, A.F.K., & Bengone, N. (2021). State of the Wildlife Economy in Africa. African Leadership University, School of Wildlife Conservation, Kigali, Rwanda.

### **NTFP implementation in the Yaya Coffee Forest Biosphere Reserve (YCFBR), Ethiopia**

YCFBR is an important forest priority area in Ethiopia and one of the few remnant habitats for wild coffee (*Coffea arabica*), hence important for conservation of the genetic diversity of coffee. It covers an estimated area of about 167,000 ha. The forest is also important for the livelihoods of local households. It is a source of income and a safeguard during extreme weather events. The forest is a major source of Non-Timber Forest Products (NTFPs). Coffee contributes around 70% of households' income in the area. Over 150,000 people live in the transition areas, deriving their livelihoods from managed forests in the buffer zone and different agricultural practices in the transition area. In 2010, UNESCO listed YCFBR in the World Network of Biosphere Reserves (WNBR).

The NTFP implementation project funded and supported by the Austrian Development Agency with a total amount of € 490,000.00 had the overall aim of to make significant contribution to realisation of Ethiopia's sustainable development strategies (poverty reduction, biodiversity conservation, Climate Resilient Green Economy) with two overarching objectives that included i) strengthening the Yaya Coffee Forest Biosphere Reserve (YCFBR) management structures and, ii) improving the livelihoods of the local population through sustainable management of natural resources. Beneficiaries of the project included local farmers, cooperative unions, youth, women, beekeepers, government agencies and staff members active in YCFBR management. The benefit provided by the project included technical training, logistic and material support, follow-up and monitoring of implementation. The project provided technical support for 30 coffee cooperatives,

12 beekeepers cooperatives, six spices cooperatives and six women and youth groups (all in all 3500 members) benefited from the project.

#### **References:**

Abebe D. Beyene et al "Contribution of non-timber forest products to the livelihood of farmers in coffee growing areas: evidence from Yaya Coffee Forest Biosphere Reserve" Pages 1633-1654 <https://doi.org/10.1080/09640568.2019.1679615>

## 2.3. LANDSCAPE LEVEL EMISSION PROGRAMME

### 2.3.1. Job types and business opportunities

The woody vegetation of the Atewa forest sequesters millions of tonnes of climate change-inducing carbon from the atmosphere. Protecting the Atewa landscape from current rates of forest degradation could result in significant avoided emissions. Removal of the forest for mining would incur a massive carbon gas emission. This microclimate contributes suitable conditions for cocoa production<sup>26</sup>.

Incentives, opportunities and investments that target key non-forest high carbon stock land uses such as agroforestry tree crops are attractive, potentially effective and efficient options for achieving REDD+, Ghana's climate change objectives through its intended NDCs and promoting sustainable livelihoods: As one of the Ghana's Hotspot Intervention Area (HIA) under the Ghana Cocoa-Forest REDD+ program, the opportunity for nesting an enhanced Atewa landscape project within/alongside the jurisdictional programme will be crucial condition for success and scaling up REDD+ interventions.

Specifically, the benefit structure at the Atewa level should be realigned to more strongly prioritise farmer/community incentives for behaviour change than currently outlined in GCFRP. In this regard an Atewa emissions reduction project would seek to enhance clarity on carbon benefit sharing, risk management, baseline, and Measurement, reporting, verification (MRV) through agroforestry practices including cocoa, oil palm, rubber and citrus. It is important that the Atewa carbon project goes beyond the GCFRP ERPA scope to incorporate carbon enhancement, restoration, and also explore if blue carbon credits are possible.

An analysis of the policy and institutional environment and stakeholders feedback show that some critical challenges hinder further private sector engagement in scale and scope in the REDD+ mechanism. In addition, clarifying land tenure and carbon ownership with respect to the rights of indigenous and forest-dependent communities, while also remaining attractive from the government and the private sector's perspectives.

There are seven (7) Administrative Districts that constitutes the Atewa landscape with a potential area of approximately 2.7 million ha. In this assessment, we limited the scope to a project area of 400,000 ha with conservative carbon potentials of 600,000 tonnes CO<sub>2</sub>e/year; given a minimum price for carbon of \$15 that translates into \$9 million annually. If every 3 ha creates one job which is conservative, we could create

<sup>26</sup> <https://cbmjournals.biomedcentral.com/articles/10.1186/1750-0680-7-9>

approximately 125,000 jobs. See summarised below:

**Table 8 Landscape emission reduction green pathway development**

Avoided emissions	Estimated annual revenue	30-year revenue (2022 \$)	Potential jobs/beneficiaries
600,000 tonnes CO <sub>2</sub> e	\$9 million/yr	\$270 million	125,000

**Assumptions:**

- 400,000 ha (7 districts around Atewa).
- 1.5 tonnes CO<sub>2</sub>e avoided emissions or enhancement/yr/ha.
- Initial carbon price \$15/VER.
- Term of carbon project set at 30 years.
- 1 job realised for every 3 ha. Funds generated from carbons could be used to implement activities of sustainable livelihoods for communities that includes mushroom farming, snail farming, organic cocoa and vegetables.

## **2.3.2. Viability study**

### **i. Potential costs**

Forest Trends analysed 136 forest carbon offset projects in the period 2011-2014 and encountered carbon prices ranging from US\$1/tCO<sub>2</sub> to over US\$100/tCO<sub>2</sub>. However, the average REDD offset selling price went from US\$7.8 /tCO<sub>2</sub> in 2012 to US\$4.9/tCO<sub>2</sub> in 2013 (Goldstein and Gonzalez, 2014). In this study, we use a carbon price of US\$15/tCO<sub>2</sub> as a representative estimate of existing trading schemes and the REDD offset selling prices.

Based on historical land use change patterns, current region-specific economic conditions and carbon stocks, project-specific opportunity costs ranged between US\$ 7-20 per tonnes deforestation and forest degradation drivers such as agriculture, fuel wood production, unsustainable timber extraction and pasture

expansion<sup>27</sup>. Recently the market price of carbon has moved into ranges that allow carbon to become a competitive land use option in select cases.

The cost of a REDD+ carbon project comprises five different elements – opportunity costs, development costs, implementation costs, transaction costs and institutional costs. Initial cost estimation adopted a top-down approach which underestimated the overall cost of REDD+ projects. A bottom-up approach allows for an exhaustion of all probable costs including transaction and institutional cost which have been missing in the former.

### *Opportunity costs*

Opportunity costs include the foregone economic benefits of the alternative land use particularly ones existing before implementation and drove livelihood sustenance (unsustainable agriculture, NTFPs harvesting, charcoal and fuelwood, mining). REDD+ opportunity costs estimate the difference in net benefits from maintaining or enhancing forest cover and the net benefits from converting these forests into alternative purposes (e.g. agroforestry, tree planting and afforestation etc.). Thus opportunity cost analysis demonstrates the viability of a carbon option in a target landscape as opposed to other land use options.

Opportunity costs can be presented on a per hectare basis, or per ton of CO<sub>2</sub> equivalents of emissions avoided through new programs in the Atewa landscape. Analysis of opportunity costs is geared towards monetising profits from these land uses, based on the calculation of the Net Present Value (NPV) using a discounted cash flow analysis to define costs and benefits for identified land uses for a specified period of time. Comparing the NPVs (\$/ha) of various land uses indicates the most profitable land uses (e.g. profits from forest, agriculture, pasture).

According to Asare et al. (2012), carbon corresponds to approximately one half of the biomass stored in woody vegetation. Following this conversion rule, we estimate carbon content as half of the above ground biomass (i.e. conversion factor of 0.5). The average carbon content in the Atewa Range is thus calculated between 109 and 130 tonnes per hectare, depending on the land cover type). By using the absolute error map of the Biomass Map of Ghana (Asare et al., 2012), an average error of 32.7 tonnes of carbon per hectare is calculated for the Atewa Range giving a total Carbon of 9.33 million tonnes

<sup>27</sup> <https://cbmjournals.biomedcentral.com/articles/10.1186/1750-0680-7-9>



The difference between the higher NPV and the lower NPV is the opportunity cost, indicating the foregone monetised value the land user has to incur when opting for the land use with the lower NPV. In order to accurately estimate all these costs requires a rapid understanding of the existing drivers of deforestation and forest degradation in each proposed pilot activity. This must be then subjected to a detailed assessment. Additionally, opportunity costs estimation is imperative to develop interventions that offsets the pressures on deforestation and avoid adverse social consequences.

By characterising each land use type by a “typical” average carbon stock (tCO<sub>2</sub>/ha) and a distinct NPV (\$/ha), opportunity cost estimates per ha and per tCO<sub>2</sub> can be computed. Opportunity costs may also include social-cultural and indirect costs. Social-cultural costs may arise from preventing the conversion of forests to other land uses and may significantly alter the way of life of local dwellers and bring about social and cultural costs that are not easily measured in economic terms.

These costs can be minimised if alternative livelihoods are viable and readily accessible with the implementation of a REDD+ program. Indirect off-site costs arise because of changes in existing economic activities, from agriculture, charcoal, fuelwood, NTFPs harvesting and mining to new activities under a Landscape Emissions Reduction Program (LERP) may affect downstream actors of associated product supply chains and potentially affect revenue through taxes at the district level. Similar to opportunity costs, these indirect costs are not total, but need to be estimated on a difference basis (that is, with vs. without). Such indirect costs associated to REDD+ can be estimated by using multipliers or multi-market economic models.

#### *Development and implementation costs*

All the costs and necessary investments required to implement a carbon project are classified as development and implementation costs. These are generally up-front investments required for the project to get underway and generate emission reductions credits. For a carbon project in the Atewa landscape, these costs would include feasibility, FPIC, design, implementation of activities.

The details of implementation activities are determined during the design phase. The actual implementation costs are driven by the respective drivers of deforestation and forest degradation in the project area, leakage prevention and overall project management. Other costs related to capacity-building activities, governmental and

indigenous community consultations and regulatory negotiations that are necessary for project success are also included.

#### *Transaction costs*

Every carbon project has transaction costs by verifiers, certifiers, and lawyers. These costs include legal fees, carbon standard use fees, project validation audit fees, emissions verification audit fees, regulatory body fees, carbon registry fees and sales commissions. Such activities and associated costs are necessary to the transparency and credibility of carbon projects. These fees are incurred at various stages of the project process with some costs occurring only once, typically at the beginning of the project, while others are periodical costs each crediting cycle. In the main, these costs need to be planned and pre-financed.

#### ii. Potential resources

- i. Near-term project-based REDD+ activities can provide early abatement together with critical experience and capacity to develop and deliver national-level goals and strategies.
- ii. Clarity of ownership of planted trees and benefit sharing provides a simple platform upon which to pursue initial REDD+ efforts.
- iii. Current policy of decentralising aspects of natural resource management to the district level represents an opportunity to expand the scope of District Environment and Sanitation Committees and to develop by-laws that can help guide REDD+ activities and financial mechanisms at the local level.
- iv. Potential to use CREMAs to devolve management rights for naturally regenerated trees would provide an ideal mechanism to circumvent the complexities and disincentives of the existing tree tenure framework.
- v. Increasing availability of REDD+ finance globally, coupled with the increasing amount of REDD+ funding coming to Ghana, has substantially increased awareness and discussion nationally and within key sectors about ecosystem services, climate change, agricultural productivity, and livelihoods. Activity based financial instruments such as green bonds, social bonds and loans can be used to raise money to finance or refinance projects or activities in Atewa landscape.

vi. Potential to package Atewa HIA landscape as a nested REDD+ project within the GCFRP with a bespoke set of clients and stakeholders would be of extremely high interest to international investor/offtakers of ER credits over a 30-year time frame. Such a project could be harnessed to leverage finance to ecotourism and NTFP initiatives in the landscape with secure long-term finance.

### 2.3.3. Competition assessment

Adaptation approaches under REDD+ projects that include ecosystem-based adaptation will often be more cost-effective than other adaptation efforts and can provide significant additional social, economic and environmental benefits. For example, the restoration of mangrove systems can not only provide shoreline protection from storm surges, but it can also increase fishery opportunities and carbon sequestration. As such, ecosystem-based adaptation can achieve multiple benefits for many sectors through a single investment making the Atewa Range Forest Reserve an ideal hub for a REDD+ programme.

Ecosystem-based adaptation options are often more accessible to the rural poor than actions based on infrastructure and engineering. The poor are often the most directly dependent on ecosystem services and thus benefit from adaptation strategies that maintain those services. Ecosystem-based adaptation can be consistent with community-based approaches to adaptation, can effectively build on local knowledge and needs, and can provide particular consideration to the most vulnerable groups of people, especially women, and to the most vulnerable ecosystems.

Globally, REDD+ have had the issue of isolated projects instead of enacting these projects to the broader country level. Even these geographically isolated projects offer massive potential to slow deforestation and forest degradation compared to competing and alternative developments like mining and potential timber harvesting. The track record is clear, logging, both legal and illegal has driven most traditional species to the brink of extinction and forced Ghana to be a high deforestation country.

Additionally, compared to all competing land uses, a landscape emission program allows multiple use for the land. Example, cocoa farms will not be destroyed but rather a REDD+ offers the opportunity for multiple income by leaving and planting more trees in the farm. This is similar for all other food staples. Mining and timber harvesting rather contribute to farm destruction. The most intriguing component of REDD+ and competing land uses stems from what is termed as the “one percent problem”. This problem originates from the assumption that competing land uses such as logging and mining offer massive financial return. This may be true, but it is worth

noting that the vast majority of these profits typically end up in the hands of just a few people and in the coffers of international companies that owns these concessions – they are also only short-term profits.

#### 2.3.4. Working examples

##### Green Resources Plantation development in Africa

Green Resources AS is a plantation, carbon off-set, forest products and renewable energy company that has invested about US\$55million in Africa, mainly Mozambique, Sudan, Tanzania and Uganda. The company now has 14000ha of plantation and has a planting target of more than 200 000ha. In 2009 the company signed a framework agreement with the Mozambique government to establish 125000ha of energy/pulp plantation and received title for 179000ha of land in southern Sudan. In Uganda, the company has established a pole treatment plant to supply transmission poles to the Lake Victoria region. Green Resources has integrated carbon sequestration into some of its plantation and natural forests management programmes. The company has carbon offset projects in Mozambique, Tanzania, Sudan and Uganda. The projects have potential to generate 20million tonnes of carbon offsets by the year 2020. Green Resources' Mapanda/Uchindile forest project was certified under the Voluntary Carbon Standard (VCS) in July 2009. The company received the first payment of \$0.8 million in 2010. 10% of this was passed on to communities for community development activities.

References:

<https://www.africaoutlookmag.com/company-profiles/1327-green-resources>

### **The Makira Forest Protected Area, Madagascar**

This is a REDD+ project aimed at the creation of new protected area. This project was initiated in 2005 and has improved significantly the state of the protected area. The project is expected to issue an annual carbon credit of 1,267,231 tCO<sub>2</sub> e.g. between 2005 and 2034.

The funds from carbon sales, generated through the avoided deforestation of the Makira Forest, was used to finance the long-term conservation of the forests, improve community land stewardship and governance, and support sustainable livelihood practices leading to improved household welfare.

The project's main objective is to protect biodiversity, enhance social development and contribute to national climate adaptation. Economic activities developed for the project that continues to be important in community livelihood sustenance include agriculture, conservation agriculture, ecotourism, micro-credits.

The drivers of deforestation are illegal logging, local livelihoods, mining, slash and burn agriculture. Through the project's implementation and a benefit-sharing scheme deemed as equitable, communities in the project's area have enjoyed benefits that includes financial benefits from carbon revenues either directly through direct payments to communities / households and/or employment opportunities to monitor the community forest. The project has for the most been funded locally by the government with added support from credit sales and NGOs.

References:

<https://www.climateimpact.com/global-projects/makira-redd-madagascar/>

# The LDN Fund

## 2.3.5. The Land Degradation Neutrality Fund (LDNF)

UN-led fund providing patient and concessional capital to projects actively addressing SDG 15.3, which has the goal to reverse land degradation.

### Strategy

• Launched by the United Nations to address land degradation neutrality (SDG 15.3), the LDNF invests in businesses, funds and financial institutions that are able to produce positive financial returns and contribute towards (i) land degradation neutrality, (ii) climate change mitigation and adaptation, (iii) improved livelihoods, and (iv) improved biodiversity

• The Fund aims to be allocated: 60% in sustainable agriculture, 30% in sustainable forestry, and 10% in other sustainable land management projects. The geographic scope is global, but at least 80% has to be invested in developing countries

• The LDNF offers patient and concessional capital to blended finance structures where the fund usually takes a junior position to senior investors

• The LDNF is a blended 2-tranche fund: the senior investors (70% of the capital structure) target commercial returns, while junior investors (the remaining 30%) will receive concessional returns

• The LDNF has a TA facility managed by IDH, that supports (i) project preparedness,

(ii) post-investment value creation, (iii) impact monitoring and (iv) knowledge management

### Profile

<b>Fund manager</b>	Mirova
<b>Return</b>	Market returns
<b>Fund vintage &amp; term</b>	2016 (closed-end fund, 15 years)
<b>HQ</b>	Paris, France
<b>Size</b>	\$100M (\$300M target)
<b>Regions</b>	Global (100% developing countries)
<b>Sectors</b>	Sustainable agriculture, sustainable forestry and other sustainable land management projects
<b>Investee</b>	Funds, financial institutions, cooperatives, agribusinesses
<b>Ticket size</b>	\$10M-20M
<b>Instrument</b>	Equity and debt
<b>Investors</b>	AFD, European Investment Bank, Fondation de France, Natixis IM, Garance, Government of Luxembourg, BNP Paribas

- The LDNF took an equity stake in the **URAPI Sustainable Land Use** fund alongside the Canadian Government to increase access to finance for smallholder farmer cooperatives in Latin America
- Through a local implementer, the URAPI fund is able to verify that the funds are being used to promote sustainable land use practices that restore and conserve the Western Amazon rainforest



### 2.3.6. The &GreenFund

A fund investing in large scale agricultural operations and financial intermediaries following strict forest conservation and peatland restoration practices in commodity value chains in tropical forest areas



#### Strategy

- &Green invests in large scale plantations, farming businesses and financial institutions managing agriculture portfolios, service and input providers and supply chain companies sourcing from land users, all of which must employ forest and/or peatland protection strategies and participate in commodity value chains
- Designed as a Co Investment mechanism to provide junior and/or long term capital (loans or guarantees of 5-15 years or more), the fund leverages capital from private
- The impact goals of the fund are to protect or restore 5Mha of tropical forest, benefit 500K small farmers, and catalyse \$ 2B of private capital
- The fund monitors all projects through (i) satellite monitoring of the landscape area and (ii) independent on-the-ground verification of the environmental and social performance
- The fund has setup a \$1M TAF facility
- It is set up as a never green term structure reinvesting recycled funds
- The fund was originally created between IDH and the Norwegian Climate & Forestry Initiative

#### Profile

<b>Fund manager</b>	SAIL Ventures
<b>Return</b>	Low positive returns
<b>Fund vintage &amp; term</b>	2017 (evergreen)
<b>HQ</b>	The Hague, The Netherlands
<b>Size</b>	\$127M (\$400M target)
<b>Regions</b>	Tropical forest regions
<b>Sectors</b>	Agribusinesses
<b>Investee</b>	Companies in tropical forest regions with progressive forestland/ or peat protection strategies involved in commodity production
<b>Ticket size</b>	\$5M-30M
<b>Instrument</b>	Debt and guarantees
<b>Investors</b>	Norwegian Climate & Forestry Initiative, Unilever and GEF

#### Investee example



- In 2020, the &Green Fund invested \$ 10M in an 8-year loan to **Agropecuaria Roncador Ltda**, a livestock and farming operation in the Brazilian Amazon rainforest, alongside a BRL 150M (~\$ 28M) loan of a Brazilian commercial bank
- The fund's financing aims to be a proof-of-concept of a sustainable farming system that integrates crops and cattle at scale, and that will restore and conserve 71K ha of degraded pastures



### 3. CONCLUSION

In conclusion, the study confirms that the Atewa Landscape has unique characteristics that create economic opportunities that can be harnessed to create significant revenues, jobs and new businesses. The diverse but critical services delivered by Atewa to the vast majority of the people justify its continued protection through a prospective national park arrangement. Further investigation into the value that the different category of stakeholders including the fringe communities place on Atewa and the services it provides could help in the development of appropriate management actions that ensures delivery of conservation outcome, distribution of social benefits and management effectiveness

This report synthesises revenue, job creation and business opportunities based upon documentary review, key informant interviews, consultative meetings and community survey which confirmed attitudes, knowledge and preferences for selected three green development pathways – ecotourism, emissions reduction project and NTFP sustainable harvest project.

The study findings suggest that the three selected pathways could generate \$1.24 billion annually and result in over 150,000 jobs, 500 new business opportunities and \$150 million in taxes to government annually. This report lays the foundation upon which the team will move to prepare the road map and action plan under Objective 3 of this assignment.



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## **PART THREE**

# Incentives and Financial Mechanism

## ACRONYMS

AfDB	African Development Bank
BC	Barry Callebaut
BioCF	BioCarbon Fund
BMUM	Federal Ministry of Environment, Nature Conservation, Nuclear Wsafety and Consumer protection
BOPA	Botanical Plant Exporters Association of Ghana
CFI	Cocoa and Forest Initiative
CHED	Cocoa Health Extension Division
CO <sub>2</sub>	Carbon Dioxide
COCOBOD	Cocoa Board
CSO	Civil Society Organisation
CTF	Clean Technology Fund
DFID	Department for International Development
EIB	European Investment Bank
ERPA	Emission Reductions Payment Agreement
ER-PIN	Emission Reduction Programme Idea Note
ESG	Environmental, Social, and Governance
EU	European Union
FAO	Food and Agriculture Organization
FC	Forestry Commission
FCPF	Forest Carbon Partnership Facility
FIP	Forest Investment Program
FMO	Dutch Entrepreneurial Development Bank
FoRIG	Forestry Research Institute of Ghana

FSD	Forest Services Division
GAIN	Global Alliance for Improved Nutrition
GCFRP	Ghana Cocoa Forest REDD+ Program
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GEF	Global Environmental Facility
GES	Ghana Education Service
GIPC	Ghana Investment Promotion Centre
GPRSP	Ghana Poverty Reduction Strategy Paper
IDC	Industrial Development Corporation
IDH	Sustainable Trade Initiative
IITA	International Institute of Tropical Agriculture
KCC	Kenya Cooperative Creameries
KKFU	KuapaKokoo Cooperative Cocoa farmers
MLNR	Ministry of Lands and Natural Resources
MMDA	Metropolitan, Municipal, District Assembly
MoFA	Ministry of Food and Agriculture
MSMEs	Micro, Small, and Medium Enterprises
NCRC	Nature Conservation Research Centre
NDP	National Development Programme
NGOs	Non-Governmental Organisation
NORAD	Norwegian Agency for Development Cooperation
NTFPs	Non-Timber Forest Products
NYEP	National Youth Employment Program
P4F	Partnerships for Forests
PAN-UK	Pesticide Action Network-UK

PDA	Participatory Development Associate
PPCR -	Pilot Program for Climate Resilience
RA	Rainforest Alliance
REDD+	Reducing Emissions from Deforestation and Degradation (+)
RMSC	Resource Management Support Centre
SCF	Strategic Climate Fund
SDG	Sustainable Development Goal
SFM	Sustainable Forest Management
SMEs	Small and Medium Enterprises
SSA	Sub-Saharan Africa
SSNIT	Social Security and National Insurance Trust
SWOT	Strength, Weaknesses, Opportunities, Threats
TA	Traditional Authority
TFC	Tourism Financing Corporation
UG	University of Ghana
UNDP	United Nations Development Program
USAID	United State Agency for International Development
WCF	World Cocoa Foundation

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## 1. INTRODUCTION

The conservation of biodiversity and ecosystem services constitutes local, regional, and global public goods, and as such requires a combination of regulation, market-based incentives (taxes and subsidies), and public investments in infrastructure and conservation. This applies to terrestrial biodiversity and ecosystems (forests, savannahs, wetlands, freshwater ecosystems) as well as marine and coastal biodiversity and ecosystems. In particular, global public goods such as the world's oceans, the Arctic and Antarctic, or major terrestrial biomes require targeted public-private policy frameworks and investments.

For investors, banks, and businesses all across the world, sustainable finance is a hot topic. It is a catch-all phrase for a variety of financial products that includes green bonds and loans, social loans and bonds, and other products linked to sustainability, which refer to the inclusion of environmental, social, and governance (ESG) considerations in the terms and conditions of the financial product. Investors are attempting to reduce their exposure to ESG risks by integrating ESG principles across their existing asset portfolios.

Africa is at a crucial point in its development. In order to achieve national development objectives that are consistent with the Sustainable Development Goals (SDGs) and the African Union's Agenda 2063, it should accelerate economic growth in a way that is both fiscally and environmentally sustainable. According to the United Nations, it will cost around \$1.3 trillion per year in Africa to accomplish the SDGs by 2030. Population growth, which is anticipated to reach 43% between 2015 and 2030, might cause that to rise to \$19.5 trillion. The average estimate for African countries' potential to fulfil the SDGs by 2030 is 53% of what is required, especially for the objectives to end extreme poverty, hunger, and inequality; address climate change; and develop resilient infrastructure.

As the economic cost of climate change-related impacts grow, countries are exploring new adaptation and resilience measures, opening new opportunities for investment. For instance, the investment opportunity to address climate change in emerging market cities is estimated at \$29 trillion by 2030 (IFC Analysis 2018). The key sectors of such an investment opportunity include green buildings, electric vehicles, public transport infrastructure, climate-smart water, renewable energy, and municipal solid waste management. The global market for green bonds emerged in 2007, with the issuance of a €600 million AAA investment-grade green bond from the European Investment Bank (EIB). The market began to flourish in 2013 with the all-time record of one hour from issuance to sale for International Finance Corporation's \$1

1 GEF. (n.d.). Blended Finance. Retrieved December 8, 2021, from <https://www.thegef.org/what-we-do/topics/blended-finance>

billion green bond.

Financing sustainable tourism, REDD+, and forest botanicals requires critical appraisal of the economic valuation of the existing opportunity and the related opportunity cost. Across the world, the private sector has been a lead in financing critical investments in the aforementioned sectors. Blended finance is recently being used to effectively mix public, private, and donor capital to increase investment in sustainable projects including the aforementioned sectors. Since 2015, blended finance transactions have averaged approximately \$9 billion per year, and they are primarily directed toward low-income countries. Ultimately, blended finance is meant to serve as a tool to help developing countries move toward the long-term goals of developing strong domestic capital markets that can attract international investment and move away from reliance on public capital contributions.

This report synthesises the relevant financing mechanisms and incentives for the three selected green pathways by proposing a set of investment portfolios and instruments that can elicit the required investment to support these pathways. As per the Objective 1 and Objective 2.1 reports, the selected green pathways are: ecotourism, non-timber forest products (NTFPs), and landscape-level emission programmes.



## 2. METHODOLOGY

The team expanded its research to identify financial and incentive mechanisms to ensure sustainable forest livelihoods and enhance ecosystem services and wellbeing. The team built on the findings of previous objectives delivered under this assignment and examined mechanisms for developing green pathways that promote economic diversification and growth, social inclusiveness, and sustainable management of natural resources.

The team also undertook a participatory consultation exercise with select experts in the industry to examine the findings of their research in order to discuss existing and new finance mechanisms, new ideas, and innovations to incentivise ecosystem protection and sustainable forest management. Within the available resources, the team met with key stakeholders to undertake a SWOT analysis. Other methods for this participatory evaluation approach included a community survey and in-depth interviews, focus groups, and direct observation, which were covered in previous reports.

### 3. GENERAL CONTEXT AND BEST PRACTICE/ LITERATURE REVIEW

The process of expanding money flows from the public, private, and non-profit sectors to sustainable projects, known as “green finance,” was born out of the need to attract corporate investment for climate goals. Green bonds, which are directly tied to sustainable development initiatives, have historically served as the main financing tools for green finance projects. In 2021, the green bond market had a value of \$1.2 trillion, however it still represents less than 1% of the whole bond market. Initiatives involving blended finance present an opportunity to expand this market and give LDCs another way to raise money for climate-change mitigation<sup>2</sup>.

There are many blended finance funds operating now fighting climate change on a worldwide scale. One illustration is the Global Fund for Coral Reefs, a cooperation in blended finance between governments, development organisations, investment funds, and private donors. The fund started allocating capital in 2022 and has already raised over \$3 billion. It will make investments in a variety of companies and individuals that work with coral reefs, such as ecotourism, fishing, clean energy, and waste management. These investment efforts can decrease the effects of natural catastrophes, protect infrastructure from flooding, and help to alleviate the effects of climate change. They can also help to conserve important food sources. Another illustration is the Mobilising Finance for Forests Fund, a blended finance investment vehicle that brings together the Dutch development bank FMO, the British government, and the investment firm &Green. The fund’s primary investments are in initiatives to protect and restore tropical forests as well as improve the sustainability of commercial agriculture ventures. Five million hectares of tropical forest have already been conserved or restored thanks to the fund’s mobilisation of more than £150 million to date<sup>3</sup>. This fund is currently considering investments in Ghana. In order to invest in reducing the effects of climate change and protecting vital ecosystems, other funds of a similar nature are using public-private partnerships. These types of initiatives demonstrate how blended financing vehicles can help raise money for important global concerns that have an impact on both sustainability and the economy. Although tourism and carbon investments like other sectors have garnered a relatively low percentage of capital flows to date, there are appealing industries to target for investments in blended financing due to its ability to create sustainable growth.

The following applies to each of the three identified green pathways – ecotourism, NFTPs and landscape emission programmes:<sup>21</sup>

21 United Nations. (2021c, March 5). UNCDF Finances Landmark Investment in the BUILD

## Green development pathway

<b>Ecotourism</b>	<ul style="list-style-type: none"> <li>♦ Prior to the pandemic, tourism in LDCs was responsible for over \$21 billion in exports but got less than 1% of ODA funding. A number of LDCs are collaborating with development organisations to expand their tourism industries in an effort to make up for this deficiency. They are also providing thorough investment guidelines and more comprehensible regulatory rules for investors. For instance, the World Tourism Organisation is supporting eco-tourism activities in the Solomon Islands, where the sector contributed over 10% of the country's GDP before the epidemic and is creating websites for SMEs operating in the tourism sector, and training for hospitality workers<sup>4</sup>.</li> <li>♦ The tourism sector is primarily dominated by government sponsored designated sites.</li> <li>♦ The funding landscape for eco-tourism development is still largely dependent on governments, but blended finance approaches have proven to be a successful pathway for eco-tourism development. For instance, South Africa's Industrial Development Corporation (IDC) or the Kenyan Tourism Financing Corporation (TFC), have units dedicated to financing the eco-tourism and hospitality sector by providing asset-based finance through instruments designed to fit the risk profile and cash flow of tourism investment projects. These units typically also support the financing of fixed assets and capital expenditure, as long as projects have a significant developmental impact, such as job creation, empowerment, and rural development.</li> </ul>
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2 Fund. United Nations Capital Development Fund. <https://www.uncdf.org/article/6555/uncdf-finances-landmark-investment-in-the-build-fund>

4 <https://www.fmo.nl/news-detail/d2eab867-d59d-4161-bb9b-7d81703188b9/uk-and-dutch-development-bank-fmo-partner-to-mobilise-finance-for-forests>

4 IFC. (2021). Solomon Islands Tourism: Investor Guide (pp. 8–12). International Finance Corporation, World Bank Group. [https://www.ifc.org/wps/wcm/connect/662722ea-ad33-4a34-b2d8-66dfedf1c8ab/IFC\\_SI+Tourism\\_Investor+Guide\\_ONLINE.pdf?MOD=AJPERES&CVID=nPE-L6i](https://www.ifc.org/wps/wcm/connect/662722ea-ad33-4a34-b2d8-66dfedf1c8ab/IFC_SI+Tourism_Investor+Guide_ONLINE.pdf?MOD=AJPERES&CVID=nPE-L6i)

<b>NFTPs</b>	<ul style="list-style-type: none"> <li>• The NTFP market is largely private sector driven with less funding from government except in fewer cases where they are being led by NGOs.</li> <li>• In the case of financing NTFPs, India and Brazil are seasoned countries that invest heavily in sustainable forest botanical harvest. Through the India Climate Investment funds, several NTFPs have been developed across India. Brazil is also promoting</li> </ul>
	<p>numerous forest botanicals from the Amazon including nuts, berries, beans, and golden grass, which have become a very important source of foreign currency for the country.</p>
<b>Landscape emission programmes</b>	<ul style="list-style-type: none"> <li>• The landscape emission programmes are dominated by donor driven funds with seemingly well-defined layouts based on the countries' nationally determined contributions (NDCs) and the countries' REDD+ programmes. This scenario has shifted dramatically over the past 18 months with significant private money entering this space.</li> </ul>

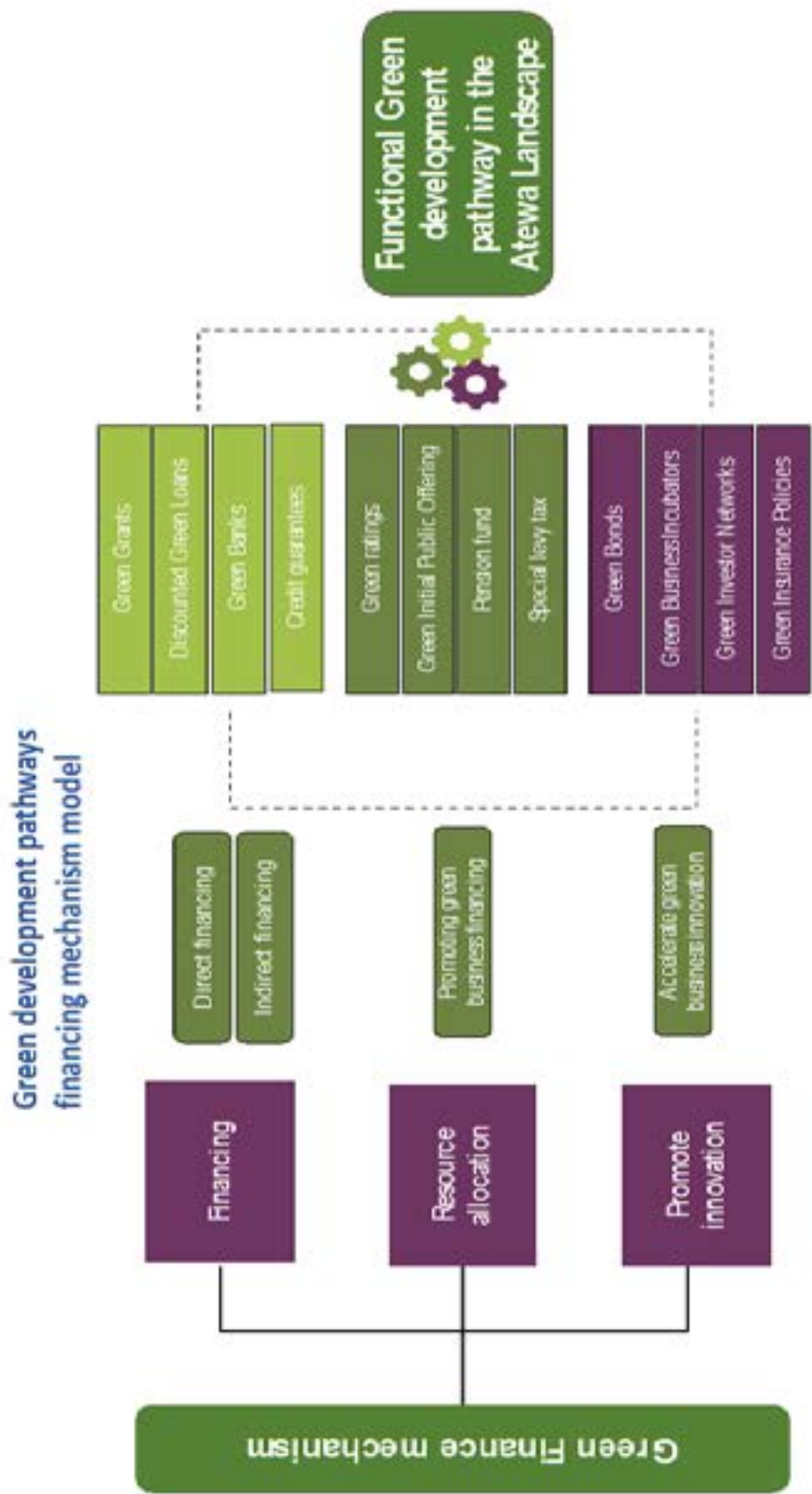
The interesting dynamic is that enough private funds including AGDEVCO, Acumen Fund, Root Capital, Lundin Foundation still exist globally to galvanise the three identified sectors towards a sustained growth. In many of the Southern and Eastern Africa countries including Rwanda, Tanzania, South Africa, and Botswana, a dedicated fund has been set to anchor both the tourism sector and sustainable development focused projects. This has created significant jobs and secured tax revenues for governments.

## **4. RESULTS AND FINDINGS**

### **4.1. OVERALL MODEL**

Our analysis from the community survey conducted in collaboration with Tropenbos Ghana, indicates that 65.5% of people finance their businesses by themselves, 10.3% are able to access bank loans, 7% finance their businesses through partnerships, and the rest through the government or another source. While this figure is not surprising, it opens for a more progressive model in financing the landscape in the three identified green pathways.

This model (see Figure 1) is proposed based on the concept of blended finance and the funding landscape for sustainable forest management projects and peculiarities of the Atewa landscape. The model explains funding focus and some instruments/ tools that can be leveraged for financing the three identified pathways for the Atewa landscape.



## **4.2. GREEN DEVELOPMENT PATHWAY1: ECOTOURISM, SUSTAINABLE TOURISM FINANCING**

Generally, tourism is a government-led but private sector-driven industry. The public sector's role is to provide infrastructure to support tourism, and to formulate tourism policies that create an environment conducive for private sector involvement. Historically in Ghana, the government's role extended beyond provision of infrastructure and policy coordination to include the funding of tourism investments. This was the dominant model in many African countries immediately after independence. However, it has proved entirely unsustainable across almost all countries, and has been replaced by a model based on private investment and management which has proven successful in delivering results.

Various public sector entities remain the main source of funding for the management of national tourist attractions such as conservation areas, heritage sites, and museums in most African countries. Government appropriations for these purposes are generally very strictly defined, which has led to many national parks organisations to offer concession agreements to private investors that create, manage, and operate revenue-generating tourism activities for job creation and parks community development.

Developing the Atewa landscape specifically to support sustainable tourism will require initial significant involvement of government, particularly in establishing the conditions necessary for the private sector to thrive, as well as in coordinating and disseminating policy initiatives at the national and sub-national levels. In our community survey, it was noted that 50.26% of the fringed communities believe that the Atewa Range Forest Reserve should be given complete protection devoid of any disturbances, while 47% of the communities advocated for sustainable and proper management of the resources in Atewa to maximise the benefits for the communities. All this goes to emphasise the urgent call to freeze any mining and declare the Atewa Range Forest Reserve as a National Park. Once government makes those key policy changes that will provide the required environment to open investment and funding for successful implementation of sustainable ecotourism in the landscape.

There are several financial instruments and mechanisms for financing sustainable tourism, but they are widely categorised in two: public finance/instruments and private instruments/finance.

## Finance instruments for sustainable tourism development

### i. Public instruments

- Direct: includes creating or investing in companies that bring in processes or services that reduce negative environmental impacts while increasing productivity.
- Indirect: includes subsidised loans or grants, market-based loans (targeting green lending, alternative loan structures, property-linked efficiency loans), (partial) credit guarantees, insurance for green assets.

### ii. Private instruments

- Market: includes debt finance (loans, green bonds, mini bonds), equity and hybrid instruments (mezzanine finance, crowdfunding) and fintech innovations in the finance sector that reduce transaction and borrowing costs (blockchain, learning algorithms, smart contracts).
- Impact investment: includes blended finance, positive impact finance, microfinance, and rewards-based crowdfunding.

## i. Potentials

- i. State-owned national development finance institutions, such as South Africa's Industrial Development Corporation (IDC) or the Kenyan Tourism Financing Corporation (TFC), have units dedicated to financing the tourism and hospitality sector by providing asset-based finance through instruments designed to fit the risk profile and cash-flow of tourism investment projects. These units typically also support the financing of fixed assets and capital expenditure as long as projects have a significant developmental impact, such as job creation, empowerment and rural development. Ghana could establish a dedicated fund through a set of incentive-based instruments for such purpose.
- ii. Encourage pension funds (SSNIT) and insurance companies, to provide finance to the tourism sector. SSNIT has previously invested in the hotel sector with mixed results.
- iii. Encourage industry-based levy schemes to contribute to tourism promotion.



- iv. Encourage protected-area managers and communal landowners to consider concessions of land as a strategy for attracting private sector operators and investors. Eg AgDevco, Acumen Fund and Root Capital.
- v. Provide incentives and guarantee schemes to commercial banks to increase lending to tourism entrepreneurs, particularly SME operators, e.g. Agriculture Development Bank, Stanbic bank, Republic Bank etc.
- vi. Protect impact investors and borrowers against currency conversion risks to capital.
- vii. Consider issuing a tourism development bond targeting development of the Atewa Hub.
- viii. Tourism projects can be nested in emission reduction/REDD+ programme/projects.

## ii. Risks, constraints, challenges

Financing the transition to sustainable tourism is a significant challenge. At the enterprise level, MSMEs face challenges in accessing finance to upscale and implement innovative technologies<sup>5</sup>. Consequently, developing green financing mechanisms for sustainable tourism products and services will be crucial. At the government level, there is a need to finance the protection and management of natural and cultural resources as well as invest in relevant infrastructure such as connectivity<sup>6</sup>. There is a need to leverage and support private sector participation in financing and investment in sustainable tourism.

Sustainable tourism is multi-sector, multi-stakeholder, and requires effective policy coordination across different levels of government to enhance local development by supporting community participation. Government must therefore address seasonal variations; and external factors that impact tourism, including infrastructure, travel requirements, security, and environmental protection.

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<sup>5</sup> Tourism-related technologies, e.g. networked cameras in forest allowing guests to view wildlife otherwise impossible to view. Or designing an appropriate tropical open air lift to permit guests to access higher altitude experiences in safe and low impact manner.

<sup>6</sup> Roads, walkways, trails, etc., but also information technology such as fibreoptic installation, and mains electricity extension/upgrades, public visitor facilities, trail development, maybe cable car, etc., amongst others.

### 4.3. GREEN DEVELOPMENT PATHWAY2: SUSTAINABLE BOTANICAL/NTFP HARVEST FOR EXPORT

Financing non-timber forest products (NTFPs) is complex, as it requires appropriate supervision/regulation and careful policies to maximise its clear benefits. NTFPs are used or traded by 1.5 billion people worldwide, with the majority of NTFP use and trade taking place at local and regional levels, that are mostly unknown to policymakers. Even NTFPs in international trade are difficult to quantify, and records are sparse. Between 1999 and 2011, FAO conducted research on the value of the forestry sector, estimating that global forest product exports were \$421 billion, with NTFPs and roundwood accounting for about 5% of that total. In order to reduce regulatory barriers for small holders and common pool/property systems, forest policy must be cross-sectoral and scale sensitive.

NTFPs farming and marketing are very critical for the economic empowerment of rural poor, particularly women. Yet, the contribution of NTFPs farming to the empowerment of communities and the vulnerable remains largely undervalued. In Brazil and other countries that border the Amazon Forest, tonka beans and golden grass have been harvested sustainably providing consistent revenue and taxes to communities and government. In savanna ecological zones in northern Ghana, over 900,000 women are employed, and their livelihoods improved through shea nut collection and local processing resulting in significant job creation, increased household incomes and local value addition .

Harvesting and cultivation of forest botanicals for medicinal, flavouring, and nutritional purposes, remains an untapped opportunity in the forest supply chain in Ghana. The Atewa Range contains an estimated 15-25 rich and ecologically unique forest botanicals that could be commercially exploited for pharmaceuticals and cosmetic applications. The EU and the Chinese markets are clear destinations for many of such forest botanicals as raw materials for biotechnological and ethnopharmacological relevance. With private sector investment and upscaling of already existing micro businesses, products like voacanga, griffonia, kombo, annatto, colanuts among many plants, fruits, and seeds, that doubles as spice and medicine in the wild can be sustainably managed for business opportunities and job creation.

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7 SNV 2011 (<https://snv.org/update/making-collection-womens-gold-safer-women-ghana>)

### i. Potentials

- i. Establish a special purpose fund for proper development of NTFPs in Ghana and the Atewa landscape to fully take opportunities in the sector.
- ii. NTFP policy needs review to place emphasis on sustainable harvest practices, safeguards for farmers, value-addition, marketing and promotion as well as private sector drive and gender priorities.
- iii. Private manufacturing companies who are benefiting by way of supplies from farmers must take interest in the welfare of the forest and farmers. A dedicated levy from such companies with focus on enhancing the NTFP value chain and sustainable harvesting should be incorporated at local levels.
- iv. NTFP related projects can be nested in broader emission reduction/REDD+ programme/projects.
- v. The private sector needs to be incentivised to expand investments in the NTFP sector. Large commodity firms seek reliable supply of target botanical products but there is a gap of the SME companies operating in the space. Such incentives may take various forms to stimulate formation and operation of credible botanical companies in the country.

### ii. Risks, constraints, challenges

- i. The lack of processing and storage facilities is a major constraint hindering the sustainable management of NTFPs supply chain in Ghana. Some forest products, like mushrooms, get spoilt within a few days after harvesting, while other products require careful drying prior to sale. The absence of local food processing and storage facilities also limits the marketing of NTFPs both locally and internationally. Processing facilities must be made available to encourage the commercialisation of these goods on a long-term basis in order to increase food security, generate more sustainable employment and income possibilities, and improve the lives of farmers. While private sector may address some of these issues, government will have strategic roles to play.
- ii. Another key challenge is the compliance with quality standards, improper handling, storage, labelling and certification in the NTFPs supply chain in Ghana. While discussions on NTFPs labelling and certification have increased recently, the applicability and its impact as a tool to promote the development of NTFPs remains unclear.

- iii. The legal and regulatory framework for the development of NTFPs in Ghana has received little attention. The forest policies still categorise NTFPs as “minor” forest products, resulting in less emphasis on these products than timber within forest management programmes and policies. The lack of a definite policy on NTFPs has impacted negatively on their promotion, development, and their supply chain management.
- iv. Absence of funding for NTFPs management/cultivation is extreme. Commercial banks have not demonstrated interest in this sector and their processes are too difficult and time-consuming for the majority of farmers. Steps need to be taken to enhance rural and agricultural development finance facilities that encourage manage/cultivate NTFPs in and around their farms.
- v. Collection, processing, and selling of NTFPs continue to be significant institutional issues. Harvesters of NTFPs employ non-sustainable techniques. The supply chain for NTFPs in Ghana would be considerably improved by increasing the capacity of farmers and collectors in effective harvesting and processing techniques.
- vi. Research and knowledge-sharing is important aspect to growing this sector. Many stakeholders have limited knowledge of botanical products in their backyards. Increased research, documentation, dissemination, training about the geographic distribution, potential uses, market values, sustainable harvest practices and processing techniques are all necessary for the identification, evaluation, and sustainable utilisation of NTFPs.

Table 1 below lays out the challenges, current situation, and potential solutions to address issues of the sector.

No	Key challenges	Current situation and opportunities	Recommended strategies
1	Lack of a clear policy to guide the use, management, and development of NTFPs	The Ghana Poverty Reduction Strategy Paper (GPRSP). Increasing potential of NTFPs in poverty reduction	Effective promotion of NTFPs farming as a core element of the country's forestry policy-making process and national poverty reduction strategy
2	Inadequate research on NTFPs in Ghana	The surge in global interest in NTFPs	Government should encourage and facilitate collaboration with and within research institutions in order to document useful NTFPs
3	Over harvesting and deforestation	Domestication potentials More farmers ready to engage in the domestication	NTFPs domestication should be promoted as an integral part of strategies aimed at halting the depletion of forest resources.
4	Inadequate finance for NTFPs farmers	The establishment of agricultural development and rural banks in Ghana	NTFPs farmers should be given access to credit facilities to enable them engage in the production of these products  Government to encourage agricultural development and rural banks to provide low interest loans to farmers
5	Poor NTFPs harvesting and processing skills	Potential for international market for some products exists	Building the capacity of farmers and collectors in efficient harvesting and processing of NTFPs  Establishment of local food processing companies to process and can NTFPs
6	Lack of packaging and labelling skills	Opportunity for international market  Growing influence of green economy principles and practices	Build the capacity of farmers in packaging and labelling of their products.  Development of standards for labelling and certification of NTFPs in Ghana

Table 1 Summary challenges of NTFP production in Ghana and strategies

7	In adequate marketing information	High demand for NTFPs in Ghana  Opportunity for penetrating the international market with NTFPs	<p>Ministry of Food and Agriculture to facilitate the dissemination of agricultural marketing information to farmers.</p> <p>Government should improve marketing, transport and communications infrastructure</p> <p>Empowerment of farmers and collectors to form farmer-based organisations and foster linkages between farmers and traders</p> <p>New and more innovative and sustainable materials should be developed for this purpose.</p> <p>MOFA should set up demonstration farms in rural communities to serve as centres of excellence for educating and training farmers</p> <p>Awareness creation of the nutritional, medicinal, and environmental benefits of NTFPs by the Ministries of Agriculture, Health and Environment will significantly help to promote the farming of NTFPs in Ghana</p>
8	Lack of inputs and farm construction materials	A number of NGOs are already involved in promoting NTFPs in the country	
9	Inadequate awareness creation on the nutritional and health values of NTFPs	The increasing potential of NTFPs in nutrition and health improvement and poverty reduction strategies	

#### **4.4. GREEN DEVELOPMENT PATHWAY3: LANDSCAPE LEVEL EMISSION PROGRAMME**

Ghana's Cocoa Forest REDD+ Programme was the first commodity REDD+ programme in the world and it was the first African country to have successfully execute an ERPA with the Carbon Fund of the World Bank which provided for the sale of GHG emissions reductions to the World Bank. This process was a challenging journey over many years <sup>8</sup> but the opportunities for further carbon transactions are increasing as result of progress in the UNFCCC negotiation process.

Ghana began its engagement in REDD+ in 2008 with funding from the World Bank's Forest Carbon Partnership Facility (FCPF) for REDD+ Readiness Process. Other national and bilateral support and technical assistance has also been provided to complement the process. Ghana's vision for REDD+ is to significantly reduce emissions from deforestation and forest degradation over the next twenty years as well as address threats that undermine ecosystem services and environmental integrity. Over the 20-year programme, Ghana aims to produce over 294M tCO<sub>2</sub> of emission reductions <sup>9</sup>.

Initially, Ghana adopted a REDD+ implementation approach that focused on small-scale REDD+ pilots, but the majority of the pilots lacked the technical expertise and financial backing to make significant progress. Ghana subsequently adopted a jurisdictional approach to REDD+ implementation with an initial focus on the High Forest Zone, and scaling-up to cover the other distinct major ecological zones of the country such as the Northern Savanna Zone.

This chain of REDD+/carbon finance started with initial funding from the Rockefeller Foundation to support early work on climate smart agriculture by a team of international and local NGOs in Ghana. This thinking then led to the United Kingdom's Department for International Development (DFID) support for a Climate-Smart Cocoa Working Group, which looked at cocoa sector sustainability in light of climate change and REDD+ <sup>10</sup> and advocated for a climate smart pathway to a more sustainable sector. Recommendations and outputs from the DFID funded climate-smart cocoa working group, in addition to the political and sector support it garnered, directly informed a national visioning process for a jurisdictional approach to REDD+ focused on cocoa as a major driver of deforestation. This formal visioning process was supported by FCPF funds, and the resulting vision document led to Ghana being formally invited to submit an ER-PIN to the Carbon Fund. The process

8 <https://partnershipsforforests.com/wp-content/uploads/2020/10/Unlocking-carbon-finance-in-Ghana.pdf>

of drafting and presenting the ER-PIN was also supported by the FCPF.

Between 2009 and 2013, approximately \$118 million was committed to institutions in Ghana to support REDD+, while approximately \$19 million in REDD+ finance was actually invested or disbursed to in-country recipients, including government institutions, NGOs, research institutions and companies (Agyei and Asare, 2014)

In general, there are three types of funding for REDD+: funding to enable “readiness” for REDD+ and an enabling environment, funding to assist implementation, and results-based finance. The majority of REDD+-funded activities and initiatives in Ghana as of 2013 (getting about 25% of pledged REDD+ financing) were focused on REDD+ preparedness building and the creation of enabling environments. However, as of 2013, the Climate Investment Fund (CIF), through multilateral development banks, and the Government of Ghana as an in-kind contribution, had committed the majority of the REDD+ funding, amounting to over \$90 million, to support the implementation of activities under Ghana’s Forest Investment Program (FIP). More recently various project type funding is being studied in the country.

#### i. Potentials

- i. Bilateral and multilateral finance to NGOs and research institutions in Ghana has increased the number of community-based forest and land governance structures being developed and supported to serve as building blocks for REDD+ implementation, fostering inclusive participation and delivering financial and non-financial benefits in an equitable and transparent manner.
- ii. Increasing availability of REDD+ finance globally, coupled with the increasing amount of REDD+ funding coming to Ghana, has substantially increased awareness and discussion nationally and within key sectors about ecosystem services, climate change, agricultural productivity, and livelihoods. Activity based financial instruments such as green bonds, social bonds and loans can be used to raise money

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9. <https://partnershipsforforests.com/wp-content/uploads/2020/10/Unlocking-carbon-finance-in-Ghana.pdf>

10. The Climate-Smart Cocoa Working group started with 10 national and international cocoa sector stakeholder representatives and over the course of four years became a serious group representing approximately 10 institutions. It was facilitated and supported by the Nature Conservation Research Centre and Forest Trends, with financial support from DFID



to finance or refinance projects or activities in the Atewa landscape.

iii. Potential to package Atewa HIA landscape as a nested REDD+ project within the GCFRP with a bespoke set of clients and stakeholders would be of extremely high interest to international investor/ off takers of ER credits over a 30-year time frame. Such a project could be harnessed to leverage finance to ecotourism and NTFP initiatives in the landscape with secure long-term finance.

## ii. Risks, constraints, challenges

i. Private sector participation in REDD+ funding and activities has not been encouraged and supported to date in country.

ii. Carbon offsets and performance payments have been a weakness of the ER process to date in Ghana. If this shift can be allowed to occur, then finance will be easier to harness to the Atewa landscape.

iii. Community and farmer benefits from REDD+ have not been a priority to date under GCFRP. This needs to change if successful implementation is to be achieved with potential Atewa landscape project.

## 5. CONCLUSION AND RECOMMENDATIONS

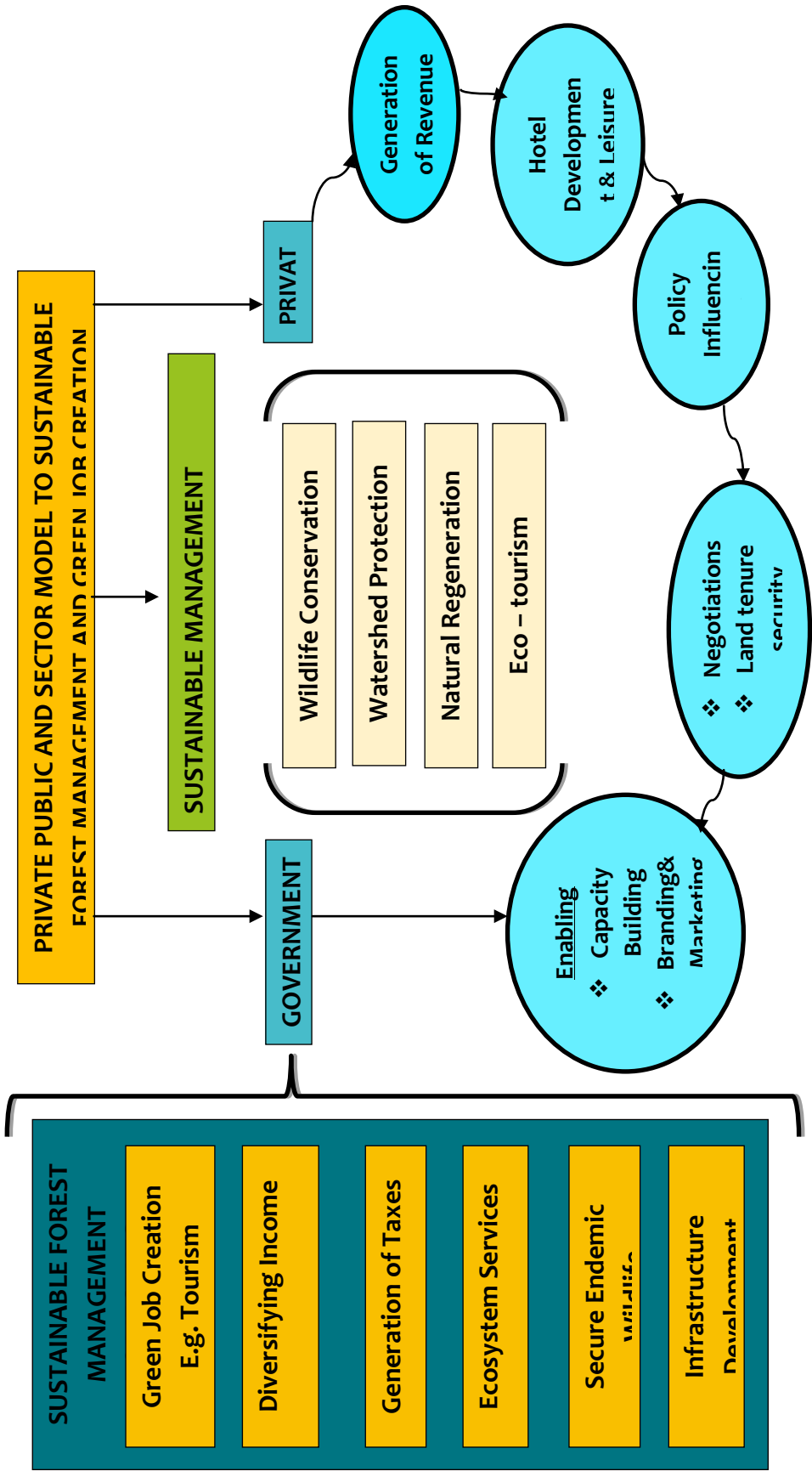
In conclusion, the team's synthesis analysis is of the view that generating funds domestically to finance green development initiatives is essential and achievable. This could also serve as a fundamental justification for sourcing investment internationally. Taxation of industrial, some select derivative instruments including green bonds, green insurance, credit guarantees, bank loans and environmentally harmful economic activities could serve as a potential source of generating funds for financing the identified green development pathways. The government needs to include allocations in its annual budgets for green investments in the three sectors. The country should also embrace and implement the "green finance" paradigm with focus on private sector, which can be defined as market-based investment and lending schemes that incorporate environmental factors. Such financing can cover numerous green development activities in Ghana, including green/ecotourism loans with modest interest rates from banks; environmental bonds in the forestry sector; and venture capital for NTFP projects.

Our analysis also concludes that having a favourable investment climate and reduction in risk instruments are critical conditions for financing green development pathways transition in Ghana. These can be achieved in several ways including: the reduction of financing barriers imposed by the local economy; intensification of capacity- building and knowledge transfer to increase awareness of green economy opportunities across the three sectors; and development of Public– Private Partnerships (PPPs) to enhance the private sector involvement through investment.

6. ANNEXES

Annex 1: A PPP model for the tourism sector

An example of A PPP model for the tourism sector:source; D.K Abu (2022) An example of A PPP model for the tourism sector:source; D.K Abu (2022)



## Annex 2: summary of main external financing sources and their financing gaps

Source: D. K Abu .2022

Source	Main focal areas in forestry	Gaps
Bilateral donors	Capacity building, catalytic investments	Mainstream investments  (Production forests, certification, forest restoration etc)
World Bank group	Poverty reduction, sustainable development, global environmental services	Mainstream investment (production forests, certification, forest restoration)
African Development Bank	Forestry for sustainable economic development, environmental conservation	Mainstream investment (production forests, certification, forest restoration)
GEF	Agreed incremental global benefits from biodiversity, land degradation, and climate change	Investment in SFM in production forests
ITTO	Capacity building for SFM from sustainably managed forests	Mainstream investment
BioCarbon Fund (BioCF)	Afforestation and reforestation pilot projects, avoided deforestation	Mainstreaming to meet the demand in developing countries
Forest Carbon Partnership Fund (FCPF)	REDD readiness building REDD carbon emission reduction offsets	Broader capacity building beyond REDD mechanisms Upstream investment for achieving emission reduction
Strategic Climate Fund (SCF)—PPCR, Forest Investment Program	Improve climate resilience Incentives for maintaining carbon- rich ecosystems	Production forests

Clean Technology Fund (CTF)	Incentives for clean technologies (Biodiversity utilisation and industry efficiency)	Forests not covered
FAO and NFP Facility	Technical assistance, support to national forest programmes	Mainstream investment production forests, certification, forest restoration
Adaptation Fund	Adaptation measures in countries that are particularly vulnerable to the adverse effects of climate	Industrial timber production Coverage will possibly include ecosystem services. Currently very few disbursements
CDM	Afforestation/reforestation offsets	Production, analytical work
Conservation funds	Biodiversity hotspots and other protected and conservation areas	Poverty, forests outside protected areas Production of timber products



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## **PART FOUR**

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# Action Plan and Road Map

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## ACRONYMS

ERPA	Emissions Reduction Purchase Agreement
GCFRP	Ghana Cocoa Forest REDD+ Programme
GOG	Government of Ghana
GTA	Ghana Tourism Authority
GEPC	Ghana Export Promotion Council
GIPC	Ghana Investment Promotion Council
GSBAs	Globally Significant Biodiversity Areas
GHG	Green House Gases
HIA	Hotspot Intervention Area
IFC	International Finance Corporation's
NTFP	Non-Timber and Forest Product
SDGs	Sustainable Development Goals
SSNIT	Social Security and National Insurance Trust
VCS	Verified Carbon Standard



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## 1. INTRODUCTION

Biodiversity and ecosystem services constitute local, regional, and global public goods, and as such requires a combination of regulation, market-based incentives (taxes and subsidies), and public investments in infrastructure and conservation for their sustainability. Africa is at a crucial point in its development. In order to achieve national development objectives that are consistent with the Sustainable Development Goals (SDGs) and the African Union's Agenda 2063, it tries to accelerate economic growth in a way that is both fiscally and environmentally sustainable. According to the United Nations, it will cost around \$1.3 trillion per year in Africa to accomplish the SDGs by 2030. Population growth, which is anticipated to reach 43% between 2015 and 2030, might cause that to rise to \$19.5 trillion<sup>1</sup>. The average estimate for African countries' potential to fulfil the SDGs by 2030 is 53% of what is required, especially for the objectives to end extreme poverty, hunger, and inequality; address climate change; and develop resilient infrastructure.

The struggle between development and environmental protection is a constant battle, particularly as it pertains to extractive industries. In Ghana, the battle has played out over the past decade over the Atewa Range Forest Reserve and surrounding landscape. The Atewa Range Forest Reserve is distinctive in terms of its classification as Upland Evergreen Forest and contains numerous endemic and rare species. Several butterfly species are strictly endemic to the area and seasonal marshy grasslands, swamps and thickets on the tops of Atewa's plateaus are also thought to be nationally unique. Atewa was declared a national forest reserve in 1925, then was classified as a Special Biological Protection Area in 1994, as a Hill Sanctuary in 1995 and, finally in 1999, as one of Ghana's 30 Globally Significant Biodiversity Areas (GSBAs) based on its high botanical diversity. Designation as a GSBA is equivalent to IUCN's Category IV designation: a protected area designated mainly for conservation through management intervention (IUCN 1994). Alongside the area's important biodiversity and ecosystem characteristics, Atewa serves crucial water provisioning services. The forest area functions as a natural water tower and is responsible for the sourcing and supply of potable water for over 5 million people in the Eastern, Central and Greater Accra Region of Ghana. The Densu River includes the Weiya Reservoir that supplies water for approximately half of the Accra Metropolitan Area.

<sup>1</sup> GEF. (n.d.). Blended Finance. Retrieved December 8, 2021, from <https://www.thegef.org/what-we-do/topics/blended-finance>

<sup>2</sup> <http://www.wrc-gh.org/basins/densu/>

Atewa is vulnerable to mining exploration activities, due to the presence of low-grade bauxite as well as gold deposits. While there was growing consensus and support for giving Atewa the status of a National Park, the 2016 elections triggered a shift in policy towards the development of an integrated aluminium industry, of which bauxite extraction is a major component. Indeed, the aluminium industry was identified as a strategic anchor industrial initiative in Ghana's Coordinated Programme of Economic and Social Development Policies 2017-2024<sup>3</sup> and the Government of Ghana deployed an infrastructure in anticipation for a refined bauxite agreement with China<sup>4</sup>. Several NGOs have tried to protect Atewa and propose the area to receive National Park status, and in 2021, Atewa Forest was included on the list of Alliance for Zero Extinction sites, meaning that the forest now falls under the International Finance Corporation's (IFC) No-Go areas for project financing and cannot be used for mining<sup>5</sup>.

Therefore, to ensure that Ghana can achieve the vision as outlined in its Coordinated Programme as well as develop within the three dimensions of a green economy (environment/ecology, social, and economic) and important Sustainable Development Goals, the EU has assigned experts to identify green development pathways to encourage sustainable and environmentally-friendly alternatives to bauxite mining in the Atewa Forest region. This report provides a Green Development Roadmap and Action Plan for these development pathways.

To date, the team has completed two of the specific objectives of the assignment, namely:

- ♦ Identify a suite of green development pathways that will lead to job creation and incentivise government to commit to green economy in the Atewa Landscape.

3 <https://www.fao.org/faolex/results/details/en/c/LEX-FAOC174137/>

4 <https://ghana.arochoa.org/projects/protecting-atewa-forest/>

5 <https://www.atewa.org/index.php/2021/04/10/breaking-zero-extinction-status-makes-atewa-no-go-area-for-mining/>

1 GEF. (n.d.). Blended Finance. Retrieved December 8, 2021, from <https://www.thegef.org/what-we-do/topics/blended-finance>

2 <http://www.wrc-gh.org/basins/densu/>

3 <https://www.fao.org/faolex/results/details/en/c/LEX-FAOC174137/>

4 <https://ghana.arochoa.org/projects/protecting-atewa-forest/>

5 <https://www.atewa.org/index.php/2021/04/10/breaking-zero-extinction-status-makes-atewa-no-go-area-for-mining/>

- ♦ Identify green job creation and business opportunities for the teeming youth in the landscape based on the existing skill sets and prospects for skills enhancement, as well as financial instruments and mechanisms for the implementation of the identified opportunities.

The team has now turned its attention to preparing the final objective of the assignment, namely:

- ♦ Elaborate and validate a Green Development Roadmap and Action Plan for the sustainability of Atewa Landscape.

### **1.1. GENERAL CONTEXT**

Ghana's Green Jobs Strategy aims to assist state institutions and the private sector in strategically positioning themselves to alleviate the difficulties of climate change while maximising the potential for ecologically sustainable growth. This is to be accomplished using a programming method incorporating four interconnected sub-projects:

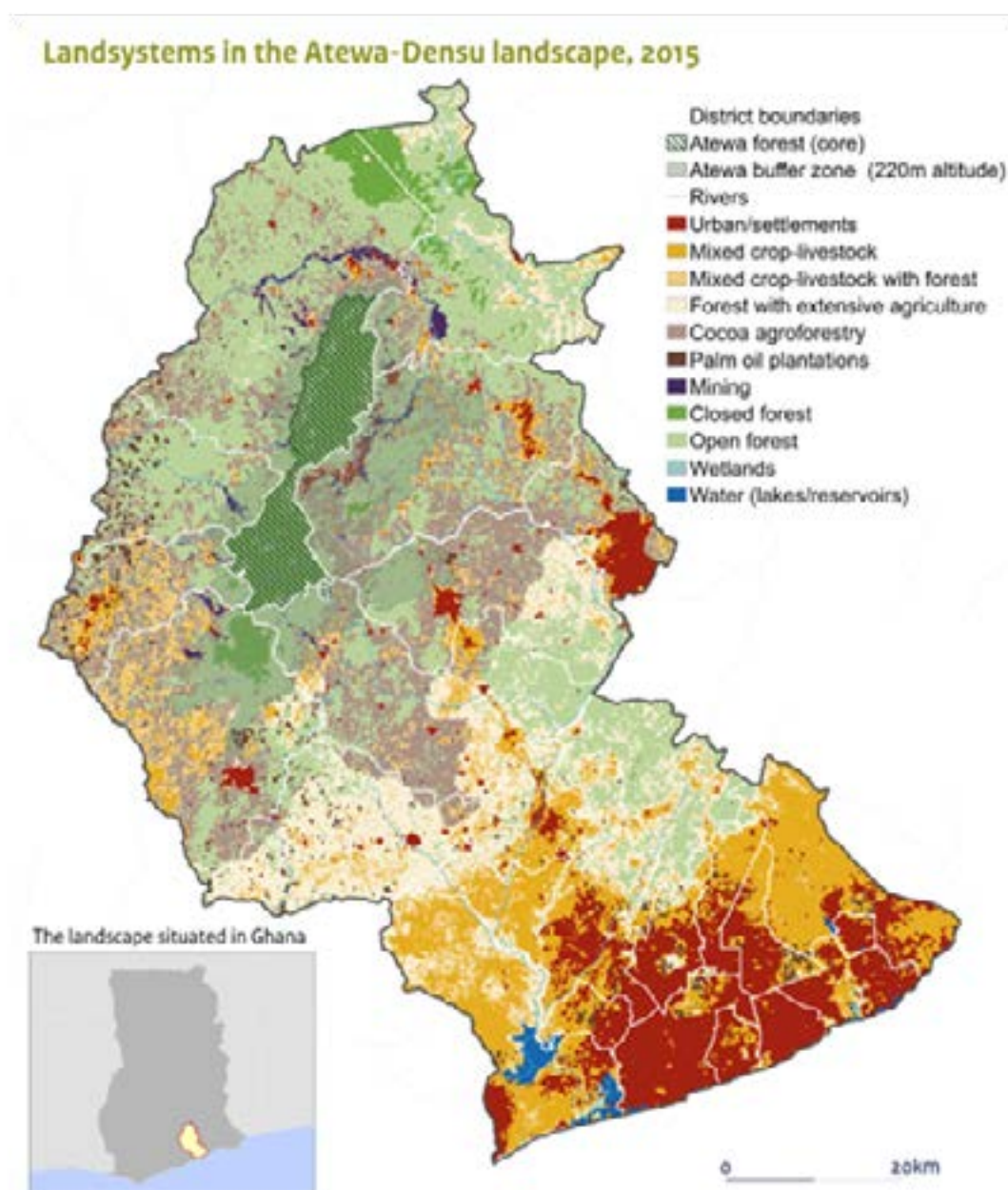
- ♦ Green Jobs Coordination and Capacity Development Project, aimed at building the capacity of government planning and policy coordination institutions to initiate, develop, coordinate and promote the mainstreaming of green in government planning at the sectoral and sub-national level.
- ♦ Green Jobs Skills Development Project, aimed at promoting skills development for green jobs within priority sectors.
- ♦ Green Enterprise Development and Access to Markets for Green Products Project, aimed at creating an enabling environment for SMEs to expand and create opportunities for employment in green business through finance, business development, tax incentives and technology adoption and.
- ♦ Green Enterprise Finance Project, aimed at mobilising public and private sector resources to support enterprises, start-ups and existing businesses that are going green<sup>6</sup> .

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<sup>6</sup> Republic of Ghana, Ministry of Employment and Labour Relations, Draft Ghana National Green Jobs Strategy (2021–2025).

The government's commitment to greening the economy is reflected in the formulation of the Green Jobs Strategy. However, it makes no mention of how many green jobs will be produced or expected as a result of this policy. While the Ministry of Employment and Labour Relations designed the strategy, other government agencies must be involved to ensure the strategy's successful execution and achievement of its goals. In this sense, the government should link the Green Jobs Strategy to current flagship efforts like Planting for Food and Jobs, the Government Decentralised Industrialisation Agenda (One District One Factory Initiative), and the enormous community irrigation project (One Village One Dam Initiative).

The potential for the Atewa landscape to contribute to the success of these strategies, and to create significant jobs and business opportunities, is high. Also, the conservation potential in Atewa significantly outweighs any other land usage. As a traditional destination for the global tourism sector, protected areas such as Atewa can provide for job opportunities and livelihoods. The pharmaceutical sector has also benefited immensely from species genetic variety and preserving species in protected areas will ensure that future medications can be discovered (CBD, 2008).



Map 1 showing land systems in the Atewa-Densu landscape, 2015. Source: Meijer et al. Towards a Living Landscape: using modelling and scenarios in the Atewa-Densu landscape in Ghana (2018)

Source: Meijer, J, Shames, S and Geisen P. (2018) Towards a Living Landscape: using scenarios and modelling in the Atewa-Densu landscape in Ghana, PBL Netherlands Environmental Assessment Agency and EcoAgriculture Partners, The Hague.

The Atewa Range has unique characteristics that create economic opportunities for tourism, recreation, mental and physical health, and aesthetic appreciation. The forest represents a source of spiritual value and cultural identity to the Akyem Abuakwa Traditional Area. This includes a number of sacred groves located within the forest and a Royal Mausoleum at the Okyehene's Palace. Although tourism potential is not part of the current supply of ecosystem services, the potential is clear and future developments can create new revenues from nature.

The diverse but critical services delivered by Atewa to the vast majority of the people justify its continued protection through a prospective national park arrangement. Further investigation into the value that the different category of stakeholders including the fringe communities place on Atewa and the services it provides could help in the development of appropriate management actions that ensures delivery of conservation outcome, distribution of social benefits and management effectiveness.

Synthesis analysis indicated that the three pathways could potentially generate \$1.24billion annually and over 150,000 jobs. These assumptions were drawn from working cases of ecotourism, Non-timber Forest Products (NTFP) production and carbon emission related. See table below

Table 1 Summarised estimated potential jobs and revenue in Atewa landscape

Green Pathways	Revenue	Direct jobs	Indirect jobs	Businesses	Taxes
Ecotourism	\$1.11 billion/yr	5,500	23,100	462	154 mil/yr
Landscape emissions reductions	\$9 mill/yr	125,000	n/a	n/a	\$1.2 mil/yr
NTFP/ botanical sustainable harvest & processing	\$4 mill/yr	19,100	n/a	50	\$600,000/yr
<b>Totals</b>	<b>\$1.24 billion/yr</b>	<b>149,600</b>	<b>23,100</b>	<b>512</b>	<b>\$155.8 mil/yr</b>

This report covers the third objective of this assignment which elaborates the Green Development Roadmap and Action Plan for the Sustainability of Atewa Landscape. The Roadmap and Action Plan is focused on ecotourism, emissions reduction

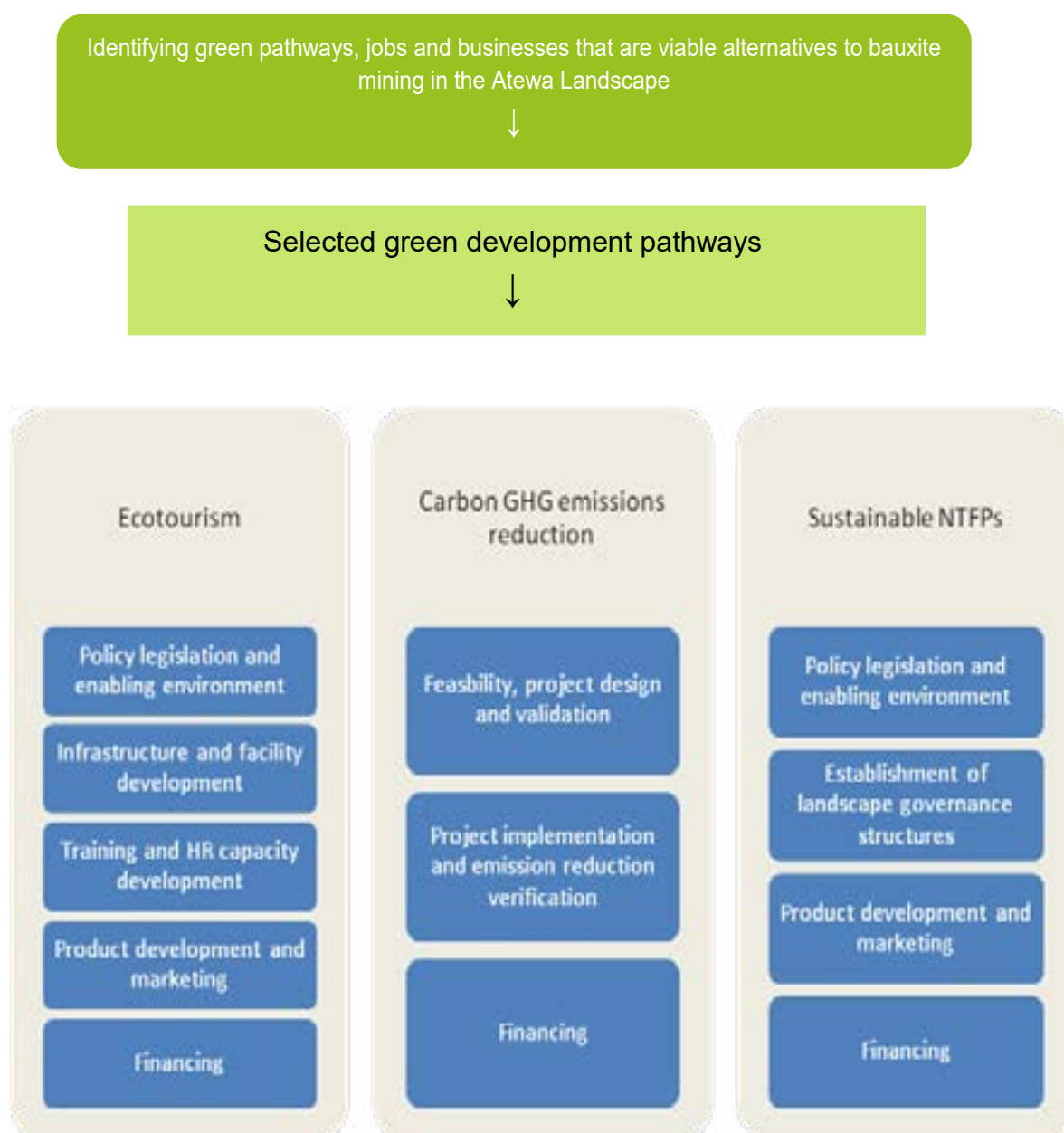


initiative and sustainable NTFP botanical harvest pathways.

## 1.2. OVERALL GOAL

The **10-year goal for the Atewa landscape** is the successful development of select **green development pathways, green jobs and green businesses** that provide a **viable alternative to the bauxite mining scenario**. The selected green development pathways to be developed under this roadmap include ecotourism, carbonGhG emission reductions and Sustainable NTFP botanical harvesting project. Below, we briefly outline each pathway and key elements for successful implementation. The figure below illustrates the Atewa Landscape Roadmap as outlined in the narrative below.

Figure 1 Atewa Landscape Roadmap



## 2. ECOTOURISM

### 2.1. CONTEXT

Ghana has the potential to become the top ecotourism destination in West Africa if the Atewalandscape is developed into an ecotourism hub along the lines of the Central Region Tourism Development Project of the 1990s. For decades, the ecological significance of Atewa Forest has been recognised. The forest was first set aside a century ago to protect the headwaters of three important rivers that flowed all the way to Accra. The Atewa Forest has been recognised for its unique flora since the 1970s, when Hall and Swaine (1976) designated it as one of only two “Upland Evergreen” forests in Ghana. However, it was a nationwide botanical fieldwork project in the early 1990s to review the preservation strategy for all of Ghana’s Forest Reserves that ushered in a new understanding of Atewa’s biological significance.

Over 100 globally threatened and near-threatened plants and animals can be found in this single forest – accounting for nearly 20% of Ghana’s total list of threatened and near threatened species – and 20-50% of the country’s list of all species demonstrating that a comprehensive ecotourism plan for the Atewa landscape is needed<sup>7</sup>. It is clear from the findings of this assignment that the advantages of ecotourism development in Atewa will bring both ecological, employment and financial returns which far exceed all upside estimates from bauxite mining.

The transformation of the landscape into a hub of green and circular socioeconomic activities in the country for sustainable jobs and well-being, as envisaged in the Kyebi Declaration led by the Okyenhene of the Akyem Abuakwa Traditional Area, requires making the Atewa Range Forest Reserve into a National Park. The National Park will be enhanced by the construction of unique and unrivalled tourism attractions in and around the forest, which will operate as a magnet for a variety of green development projects, aligned with the goals of creating a climate-smart and sustainable landscape.

### 2.2. IMPLEMENTATION ELEMENTS

The Atewa landscape ecotourism pathway requires five key roadmap implementation elements for success, as outlined in the table below:

- ♦ Policy and enabling environment
- ♦ Infrastructure and facility development

<sup>7</sup> [https://www.conservation.org/docs/default-source/publication-pdfs/ci\\_atewa\\_ghana\\_booklet](https://www.conservation.org/docs/default-source/publication-pdfs/ci_atewa_ghana_booklet).

- ♦ Human resource development & capacity building
- ♦ Product development and marketing
- ♦ Financing availability – both public & private

Table 2 Ecotourism - specific action plan

ACTION 1		ECOTOURISM				
SUB-ACTIONS	ACTIVITIES	SHORT-TERM	MEDIUM-TERM	LONG-TERM	LEAD ROLE	FINANCING
Policy legislation and enabling environment	Securing government commitment of not mining in Atewa				GOG/CSO	CSO/development partners
	Conduct technical review of policy, legislations and investment environment				CSO	Development partners/CSO
	Support establishment and operations of Ecotourism Optimisation Working Group for Atewa landscape				GoG	Development partners/CSOs
	Engage for the establishment of a parliamentary select committee on tourism				GoG	Development partners/CSOs

	Document and support the development of policy alternatives for ecotourism				CSOs	Development partners
	Support the engagement with MMDAs in Atewa landscape on legislations and other pressing issues on the landscape				CSOs	Development partner
	Support engagements with traditional authorities on ecotourism				CSOs	Development partners
Infrastructure and facility development	Support eco-tourism development plan for Atewa landscape including physical infrastructure, social structures and economic structures				GoG	Development partners/CSO
	Identify priority public-private Partnership (PPP) ecotourism opportunities and facilitate uptake at Atewa				GoG	GoG/private/CSO

	Develop investment financing instruments and plans, targeting specific infrastructure				GoG/ GIPC	GoG/ Development partners
	Mobilise stakeholders including private sector to facilitate innovative start-ups in ecotourism.				GoG/ GIPC	GoG/ private
Training and human resources capacity	Support technical assessment study on ecotourism training and capacity needs.				GoG/ CSOs	GoG/ Development partners
	Establish modalities for ecotourism/ hotel trainings and capacity building				GoG/ private	GoG/ Development partners
	Support training programmes with appropriate tools				GoG/ private	GoG/ Development partners/ private
Product development and marketing	Full articulation and development of Atewa ecotourism products.				GTA	development partners

	Develop a comprehensive marketing plan and strategies				GTA/ private	GoG/private
	Work with appropriate channels to share information				GTA	GoG
Financing	Conduct scan of available sustainable investment sources for Atewa ecotourism initiative				GTA/ CSO	GoG/ Development partners
	Develop investment plans for financing ecotourism in Atewa				GTA	GoG
	Facilitate financing arrangements including setting of smaller funding mechanisms				GTA/ GIPC	GoG
	Appropriate significantly sections of Ghana tourism levy and SSNIT funds towards establishing of special vehicle for ecotourism in Atewa				GTA	GoG

	Establish a special Atewa green bond to provide the necessary support for Atewa				GoG	GoG
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### 2.3. TIMEFRAME ANALYSIS

Sustainable ecotourism planning and time frame is about finding the right balance between the needs of people and places. It involves clearly defining purpose, vision, and a point of difference or identity for your community. Our definitions are segmented into short, medium and long term with the short being from one to five years, medium term 5 to ten (10) years and long term ten (10) years and above.

This segmentation ensures resources are allocated appropriately while building local communities sustainably and ethically. Sustainability is at the heart of this approach to ecotourism planning, which benefits people and locations socially, economically, culturally and environmentally.

Planning with purpose is about prioritising the benefits tourism can provide for everyone and amplifying the quality of tourism over the quantity of tourism. It's about maximising the quality of life for communities, protecting ecosystems and cultures, and the quality of experiences offered for visitors.

### 2.4. FINANCING

Financing options for the ecotourism pathway include:

- ♦ State-owned national development finance institutions, such as South Africa's Industrial Development Corporation (IDC) or the Kenyan Tourism Financing Corporation (TFC), have units dedicated to financing the tourism and hospitality sector by providing asset-based finance through instruments designed to fit the risk profile and cash-flow of tourism investment projects. These units typically also support the financing of fixed assets and capital expenditure as long as projects have a significant developmental impact, such as job creation, empowerment and rural development. Ghana could establish a dedicated fund through a set of incentive-based instruments for such purpose.

- ♦ There are a handful of private financial instruments and mechanisms (traditional loans, grants, debt swaps, national climate funds, carbon markets, and insurance instruments) that Ministries of Finance can use to kick start their national climate change programs and begin to centralise and mainstream the country's climate financing related to both mitigation and adaptation.
- ♦ Encourage pension funds (SSNIT) and insurance companies, to provide finance to the tourism sector. SSNIT has previously invested in the hotel sector with mixed results.
- ♦ Encourage industry-based levy schemes to contribute to tourism promotion.
- ♦ Encourage protected-area managers and communal landowners to consider concessions as a strategy for attracting private sector operators and investors.
- ♦ Provide incentives and guarantee schemes to commercial banks to increase lending to tourism entrepreneurs, particularly SME operators.
- ♦ Protect impact investors and borrowers against currency conversion risks to capital.
- ♦ Consider issuing a tourism development bond targeting development of the Atewa Hub.
- ♦ Tourism projects can be nested in emission reduction/REDD+ programme/projects.



### 3. CARBON GHG EMISSIONS REDUCTIONS

#### 3.1. CONTEXT

The Atewa forest and surrounding landscape sequesters significant volumes of climate change-inducing carbon from escaping to the atmosphere. It has been estimated that Atewa's carbon stores is approximately equivalent to Ghana's entire national annual CO<sub>2</sub> emissions from fossil fuels<sup>8</sup>. Protecting Atewa Forest from current rates of deforestation and forest degradation could result in large volumes of emissions reductions per year. Removal of the forest for mining would incur a massive carbon replacement cost for the country which has yet to be fully understood.

Incentives, opportunities, and investments that target key non-forest high carbon stock land uses such as agroforestry are attractive, potentially effective and efficient options for achieving REDD+. Ghana's climate change objectives through its intended Nationally Intended Contribution (NDC) and promoting sustainable livelihoods match the opportunity present in the Atewa landscape. The landscape is currently identified as a priority Hotspot Intervention Area (HIA) under the Ghana Cocoa Forest REDD+ Programme (GCFRP). To date no significant HIA implementation activities have been implemented in the landscape.

The current Emissions Reduction Purchase Agreement (ERPA) of GCFRP will conclude in two years' time and this creates an opportunity to design an Atewa landscape REDD+ project that would be nested in the larger programme but have the potential to operate separately from the GCFRP.

As previously outlined in Objective 2 reports, there would be various issues to resolve during the design phase but the feasibility of such a proposal is certain, assuming the traditional leaders and community leaders and farmers would be amenable to such a plan. The broad concept would be to design a REDD+ and restoration project with significant carbon enhancement activities across a set of districts which would include the Atewa Range Forest Reserve and the surrounding cocoa and other agricultural farms.

#### 3.2. IMPLEMENTATION ELEMENTS

The carbon GHG emissions reduction pathway requires three key roadmap implementation elements for success:

- ♦ Feasibility, project design and validation

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<sup>8</sup> 2014: Boden et al 2017

- ♦ Project implementation and emissions reduction verification
- ♦ Financing

ACTION 2 CARBON GHG EMISSION REDUCTION PROGRAMME						
SUB-ACTIONS	ACTIVITIES	SHORT-TERM	MEDIUM-TERM	LONG-TERM	LEAD ROLE	FINANCING OPTIONS
Feasibility, project design and validation	Carry out a project origination				Private/CSO	Private sector investment
	Conduct feasibility FPIC and project contracting				Private/CSO	Private sector investment
	Project design document (PDD) and validation				Private/CSO	Private sector investment
Project implementation and emission reduction verification	Project implementation				Private /CSO	Private sector investment
	Project verification and issuance				Private/CSO	Private sector investment
	Project monitoring and evaluation				Private/CSO	Private sector investment
Financing	Secure investor expression of interest				Private/CSO	Private sector investment
	Negotiation project term sheet and getting financial plan in place				Private/CSO	Private sector investment
	Contracting by signing upfront investments and guiding documents				GoG/private	Private sector investment
	Transfer of VERs to through registry to investors				Private sector	Private sector investment

### 3.3. TIMEFRAME ANALYSIS

Given that forest carbon is a commodity invisible to consumers, extraordinary effort, with high transaction costs, goes into creating a paper trail designed to reassure investors. This requires adopting a time frame of short – medium-long term phases as proposed in the action document in the case of Atewa landscape emission programme to help in smoother transition. First, the seller (Atewa management board/Government) who wants to trade in the international marketplace needs to choose from among a confusing array of standards for quantifying forest carbon.

Each standard involves a particular methodology that guides the calculation of a pre-existing baseline carbon stock, projections of a counterfactual “business-as-usual” scenario (i.e., what would happen if there were no project), measuring and monitoring changes in carbon stocks, and assessment of leakage, among other technically demanding tasks.

The Verra’s Verified Carbon Standard (VCS), the most widely used, includes a range of methodologies applicable to specific scenarios, from which a prospective project developer must select most appropriate. Other standards provide greater or lesser flexibility that allow developers to fashion their own methodologies subject to technical review and approval by auditors. In order to demonstrate that the project planned conforms to both the standard and the methodology, the developer must produce a detailed “Project Design Document” (PDD). An accredited auditor must review the document, conduct a field visit to confirm the activities described and issue an opinion to “validate” the project—paid for by the proponent.

### 3.4. FINANCING

Financing options for this pathway include:

- ♦ Potential to package Atewa HIA landscape as a nested REDD+ project within the GCFRP with a bespoke set of clients and stakeholders would be of extremely high interest to international investor/ off takers of ER credits over a 30-year time frame. Such a project could be harnessed to leverage finance to ecotourism and NTFP initiatives in the landscape with secure long-term finance.
- ♦ Government should provide bank guarantees or green insurance for the private sector to enter into landscape emission reductions projects.
- ♦ Government can issue green bonds or debt swaps to commence a landscape

emission reduction programme.

## **4. SUSTAINABLE NTFP BOTANICAL HARVESTING**

### **4.1. CONTEXT**

Non-timber forest products (NTFPs) – particularly botanicals – are used or traded by 1.5 billion people worldwide, with the majority of NTFP use and trade taking place at local and regional levels. The NTFP space is less studied (mostly unknown to academics and policymakers) and even NTFPs in international trade are difficult to quantify and records are sparse. Between 1999 and 2011, the FAO conducted research on the value of the forestry sector, estimating that global forest product exports were \$421 billion, with NTFPs and roundwood accounting for about 5% of that total.

NTFPs sales are critical for the economic empowerment of rural poor, particularly women. Yet, the contribution of NTFPs to the empowerment of communities and the vulnerable remains largely undervalued. There is a growing number of forest botanicals that are being harvested sustainably providing consistent revenue and taxes to communities and government. In the Savanna ecological zones of Ghana, thousands of women have been employed and their livelihoods improved through shea nut collection and primary processing.

Harvesting and cultivation of forest botanicals for medicinal, flavouring and nutritional purposes remains an untapped opportunity in the forest supply chain of Ghana. The Atewa Range contains an estimated 15-25 rich and ecologically unique forest botanicals that can be commercially exploited for pharmaceuticals and cosmetic applications. The EU, the United States and the Chinese markets are clear destinations for many of such forest botanicals. With private sector investment and up-scaling of already existing micro businesses, products like voacanga, griffonia, kombo, annatto, colanut and other plants, fruits and seeds can be sustainably managed for significant green business opportunities and job creation. The development of the sustainable harvest botanical sector can bring in millions of dollars in revenue and create tens of thousands of jobs – particularly for women.

### **4.2. IMPLEMENTATION ELEMENTS**

The sustainable NTFP botanical harvesting pathway requires five key roadmap implementation elements for success:

- ♦ Policy and enabling environment
- ♦ Establishing landscape governance structures for sustainable harvest
- ♦ Human resource development and capacity building
- ♦ NTFP Product development and marketing
- ♦ Financing

ACTION 3 SUSTAINABLE FOREST BOTANICAL HARVEST FOR EXPORT						
SUB-ACTIONS	ACTIVITIES	SHORT-TERM	MEDIUM-TERM	LONG-TIME	LEAD ROLE	FINANCING
Policy Legislation and Enabling Environment	Review and propose changes to NTFP farming in the draft of Wildlife resources and management bill				CSO/GoG	Development partners
	Support implementation of wider standards and policies on labelling and branding compulsory before selling or export of NTFPs				CSO/GoG	Development partners
	Create appropriate collaboration framework for sustainable harvest across target landscape				CSO/GoG	Private sector

	Develop framework for cultivation of NTFPs to prevent people from depleting them				CSO/ GoG	Private sector
	Establish a government structure with functional management to safeguard decisions on NTFP harvest and export				CSO/ GoG	Development partners/CSO
	Conduct capacity building events focused on the various level of landscape governance institutions				CSO/ GoG	Development partners/CSO
	Determine appropriate modalities and deliver training to members of the established structure on NTFP farming, harvesting and storage				CSO/ GoG	Development partners/CSO
	Confirm the landscape governance structures are nested in the REDD+ architecture				CSO/ GoG	Development partners/CSO

Product Development and Marketing	Conduct a forest botanical survey on target NTFPs				CSO/ private	Development partners
	Form NTFP cooperatives to facilitate sustainable large-scale export				CSO/ private	Private
	Develop robust marketing plan and standards for labelling NTFP products in Ghana				GEPC/ CSO	Development partners
	Set up demonstration farms in select communities to serve as learning and training centers, and train communities in production practices production (e.g. no chemicals, climate resilience)				CSO/ private	Development partners/private sector
	Establish appropriate channels for information sharing and dissemination				Private	Private
Financing	Develop a targeted investment plan for the NTFP sector				GIPC/ private	GoG/private

	Formulate a special financing vehicle to finance small scale cultivation of NTFPs				GIPC/ GEPC	GoG
	Develop a community fund through private sector funding to support NTFPs				CSO	Communities
	Provide bank guarantees for private sector participation in NTFP farming				CSO/ private	Private

### 4.3. TIMEFRAME ANALYSIS

Harvesting and developing of highly valuable non-timber forest products (NTFPs) has been considered a win-win strategy where local people profit while conserving forest biodiversity ecosystem services. Nevertheless, the sustainability of NTFP harvesting has been debated and the nature of NTFP harvesting regimes scale of commercialisation are highly heterogeneous.

To achieve a sustainable harvesting, pertinent scientific information and governmental regulation are necessary. However, these conditions are clearly insufficient; community-based management strategies are fundamental, those imply: secure long-term ownership rights of the lands, effective communication between owners and/or users, efficient sanctioning systems, conflict resolution agreements, and self-determined regulations. We have structured the NTFP from short to long term based on the revolving sector that requires careful planning and management to ensure its long-term sustainability.

### 4.4. FINANCING

Financing options for this pathway include:

- ♦ Establish a special purpose fund for proper development of NTFPs in Ghana and the Atewa landscape to fully take opportunities in the sector.
- ♦ Private manufacturing companies who are benefiting by way of supplies from farmers must take interest



in the welfare of the forest and farmers. A dedicated levy from such companies with focus on enhancing the NTFP value chain and sustainable harvesting should be incorporated at local levels.

- ♦ NTFP related projects can be nested in broader emission reduction/REDD+ programme/projects

## 5. CONCLUSIONS

In conclusion, the study has clearly demonstrated that sustainable green development pathways are available, viable and offer genuine alternative to the extremely negative extractive industry option of mining bauxite in the ecologically important Atewa landscape. The three green development pathways (ecotourism, emissions reductions and forest botanical harvest) offer impressive revenues, jobs, business opportunities and taxation that far exceed any possible economic benefits from bauxite.

As such it is clear that a far wiser and beneficial course of action is to cancel all plans for bauxite mining in the Atewa landscape and make a clear commitment to upgrade the Atewa Range Forest Reserve to a national park. Following such a policy decision, it will be necessary to determine if green development pathways examined in this study should be developed under a single coordinated initiative or through separate efforts focused on each of the three individual pathways.

It is clear that ecotourism will require a longer-term effort to deliver results (5 to 10 years), while sustainable harvest of botanicals could yield dramatic results within 24 months and an emissions reduction project can yield results within 48 months.







