

BRIEFING NOTE

PRIORITY ACTIONS FOR ADDRESSING COMMUNITY RESILIENCE AND RIGHTS IN COMPETING LAND USE FOR MINING, AGRICULTURE AND FOREST UTILIZATION IN GHANA

Prepared by: Resource Conservation Initiative (RESCONI) November, 2023





Foreword

Land is an essential natural resource that underpins economic growth and development. In Ghana, it is mainly used for farming, mining and as a forest resource. Farming is the mainstay of the Ghanaian economy, providing employment, and economic livelihoods for many individuals and communities. The forest also serves as a source of timber and Non-Timber Forest Products (NTFPs) such as fruits, nuts and medicinal plants, among others. It also provides employment opportunities by virtue of the timber industry and its trade practices. The forests are home to diverse wildlife, unique landscapes, and cultural heritage sites which attract tourists, nature enthusiasts, research scientist among others. Mining provides employment and a source of government revenue. Additionally, it directly and indirectly offers

economic growth, development and general prosperity. However, the negative effects of the utilization of the forest resources (illegal logging and chainsawing), and socio-economic and environmental implications associated with illegal mining necessitate the need for balance such that mining, and the utilization of the forest resources are undertaken in a sustainable and environmentally friendly manner. This will ensure that the exploitation of these resources does not benefit only the present generation but also the future generations.

In recent times, Ghana has been confronted with the severe risk of environmental catastrophe due to the high levels of environmentally unfriendly human activities such as illegal mining and logging, chainsaw lumbering and farming within its forest reserves. This phenomena of illegal mining and illegal logging equally extends into the Outside Forest Reserve (OFR). While these activities are not new, evidence indicates that the extent at which these activities are being perpetrated might sooner than expected, wipe away all of the country's forests.

The Resource Conservation Initiative (RESCONI) has undertaken a research project titled "Support to Promote Community Resilience and Rights in Competing Land Use for Mining, Agriculture and Forest Utilization in Ghana". The research spanned a period of one year (September 2022 – August 2023) and was later extended to close out on 30th November 2023.

It was undertaken in two (2) districts, namely: Atwima Mponua District (AMD) in the Ashanti Region and Asutifi North District (AND) in the Ahafo Region. These sites are very sensitive biodiversity hotspots, viable agricultural lands for food crop production and agro-commodity cash crops such as cocoa by virtue of their rich agricultural soils. The project locations have also experienced several illegal mining activities with negative impacts on the environment.

This study highlights existing gaps in applicable policies, and recommends strategies to enhance community knowledge, skills and resilience. Additionally, it also recommends a human and environmental centered approach to address the threats from illegal forest exploitation and illegal mining to safeguard the ecological integrity of the project landscapes for sustained and improved cocoa production and the socio-economic wellbeing of the local populace.

There is more to do, in terms of action. We hope this study will equip readers and the broad array of stakeholders including government agencies, the MMDAs (Asutifi North District Assembly and Atwima Mponua District Assembly), Traditional Authorities, community members, research institutions, academia and Non-Governmental Organisations (NGOs) intrinsically linked to the search for effective solutions to these environmental challenges. To this end, stakeholders should work in concert to implement the recommendations of this study with the MMDAs.



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Summary findings and responsive actions

The important summary findings of the study are as follows:

- i. There is the urgency and need to balance farming, mining, and forest resources utilization in project districts. This necessitates effective forest resources utilization for a balance between environmental sustainability, social inclusiveness and economic development.
- ii. The trajectory of forest cover decline leaves much worry and may indicate a failure of management, programmes and initiatives aimed at arresting deforestation and forest degradation. The spatial evidence gathered reveals a dwindling forest cover. This has been confirmed through a 30-year land cover change analysis between 1990 and 2021.
- iii. Farming was the dominant economic activity in the study districts. A significant proportion of the respondents were from farming households (94.22% for Asutifi North District (AND) and 95.30% for Atwima Mponua District (AMD) while less than 6% (5.78% for AND and 4.7% for AMD) were from mining households.

iv. There are three (3) key forest and land resource-based livelihood activities (farming, illegal mining, and logging) in the study districts. More than 90% of respondents are engaged in farming (91% for AND and 94% for AMD) and they are mostly smallholder farmers, Moreso, farming employs a large proportion of the population and contributes to food security and economic development and there is also commercial farming, to a lesser degree, to produce exportoriented crops such as cocoa.

- v. The majority of lands are used for farming activity whilst a comparatively small extent are used as mining sites (represented as 7% and 5% for AND and AMD, respectively, and this has contributed adversely to negative environmental impacts. This, comparatively appears to be on the ascendency and a threat to the sustainability of the environment and socio-economic development of the local impacted
- vi. On cocoa production and livelihood nexus, cocoa production has been a key economicactivity.

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- vii. Mining activities in these communities have resulted in deforestation, soil erosion, water pollution, and habitat destruction. These environmental changes can harm ecosystems and disrupt the livelihoods of communities that depend on natural resources for their subsistence, such as farming and fishing. It was observed that increased temperature, erratic rainfall pattern and drought negatively affected agricultural production. Thus, it is important to promote climate-smart agricultural practices and technologies (sustainable land management, water conservation, agroforestry, and the use of improved seeds and crop varieties) that improve resilience and adaptation.
- viii. Unsustainable logging practices, illegal mining, agricultural expansion, and fuelwood collection, all contribute to deforestation and forest degradation in the study districts. This has led to the loss of biodiversity, ecosystem services, and negatively affects the livelihoods of communities dependent on forest resources.
- ix. Approximately 95% and 99% of respondents, respectively for AND and AMD in this study confirmed that forest cover has dwindled over the past 30 years.
- x. On Water Quality Parameters, the surface water sampled from River Desiri, one of the major rivers within the Tano Offin Forest Reserve confirms the damaging environmental impact of illegal mining on river systems as well as the significant health risks exposure to downstream users of water bodies. There was evidence

of high turbidity (6,000% > the WHO threshold), as well as the presence of harmful heavy metals (chromium (240% > WHO threshold), and lead (280% > WHO threshold)), when compared with an undisturbed stream.

xi. Interest in lands given out to other parties in the study districts were for illegal small-scale mining. The use of lands for illegal small-scale mining activity by other parties could arguably lead to less arable land for cocoa production and increase potential negative impacts on cocoa productivity levels.



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CHAPTER 1

INTRODUCTION

Land resources, including agricultural lands, forests, natural habitats, and minerals are critical for Ghana's growth. Together, agriculture, forestry and minerals account for more than 20 percent of Ghana's Gross Domestic Product (GDP) and are a major source of revenue and local livelihoods¹. Cocoa is a predominant commodity in agriculture and accounts for 7 percent of GDP and 20 – 25 percent of export earnings². According to the World Bank national accounts data and Organization for Economic Co-operation and Development (OECD) national accounts files for 2022; agriculture, forestry and fishing accounted for 18.8% of Ghana's GDP. Also, according to the Ghana Statistical Service (2023) the solid minerals sub-sector contributed to 7.6% of Ghana's GDP.

Despite the significant contribution of mining, forestry and agriculture to the socio-economic development and foreign exchange earnings of Ghana, the country is facing a serious risk of an environmental catastrophe due to the high levels of environmentally unfriendly human activities such as illegal mining (galamsey), illegal logging and lumbering and illegal farming within its forest reserves³ which equally extend into the Outside Forest Reserves (OFR)⁴. In addition, Artisanal Small-scale Mining (ASM) also appears to be destructive and pose severe environmental problems as well as livelihood challenges to local communities, mining industry and the economy as a whole.

The Government of Ghana (GoG) has implemented several programmes aimed at addressing the devastating effects of deforestation and forest degradation and these include the Ghana Forest Investment Program (GFIP) which is already implementing activities focused on agricultural drivers of deforestation by working with cocoa farmers and communities to rehabilitate and protect forest reserves. The ongoing Ghana Landscape Restoration and Small-Scale Mining Project (GLRSSMP) seeks to strengthen integrated natural resource management and increase benefits to communities in targeted savannah and cocoa forest landscapes.

¹ Ghana Statistical Service (2020) Annual Agriculture Production Statistics– January 2020. Agriculture accounts for 18.5% of GDP, with food crops, cocoa and forestry accounting for 81.2% of sectoral output.

² 3rd Ghana Economic Update. Agriculture as an Engine of Growth and Job Creation, World Bank, 2018.

³ A forest reserve means a protected forest land constituted under section 17 of the Forest Ordinance (CAP 157) that sets the limits and situation of the land constituting it and published in the Gazette

⁴ OFR refers to timber production areas outside of the gazetted forest reserves.

Notwithstanding all these government interventions, there is the need for concerted efforts from non-state actors and non-governmental organizations in the country's quest to promote sustainable land-use, improved agricultural production and adoption of appropriate management practices. The Resource Conservation Initiative (RESCONI) has undertaken a research project titled "Support to Promote Community Resilience and Rights in Competing Land Use for Mining, Agriculture and Forest Utilization in Ghana". The project study sites were from two (2) districts namely; Atwima Mponua in the Ashanti Region and Asutifi North District in the Ahafo Region and as shown in Figure 1.



Figure 1: Project location map for AND and AMD

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The purpose of this developmental research with focus on assessing the impact of illegal mining on cocoa production, sustainable forest management and climate vulnerability through consultations with the relevant stakeholders and regulatory agencies towards finding a lasting solution to the menace of the present-day illegal mining, illegal felling and unsustainable agricultural practices bedeviling the country. Primarily, the project sought to generate knowledge on inconsistencies in the mining, forestry and cocoa production sectors and their associated regulatory contradictions.

1.1 Objectives of the Briefing Notes

This briefing note seeks to highlight the underlisted:

- i. Exploring the factors and main actors driving the conversion of arable lands and forests into illegal gold mines.
- ii. Empowering the stakeholders to ensure and guarantee sustainable forest management, and mining practices and adoption of best practices for climate mitigation and adaptation through citizen led engagement.
- iii. Increase awareness of public officials, the Traditional Authorities, Civil Society Organizations (CSOs) and community members on issues and gaps in key policies and laws governing mining, forestry and agricultural (cocoa) sectors.

1.2 Structure of the Briefing Note

This Briefing Note is grouped into five (5) sections and these are:

- Introduction, Structure and Research Methodology
- Study findings
- Discussions
- Conclusions
- Recommendations

1.3 Research Methodology

A concurrent mixed-methodological approach, consisting of a case study and inductive research based on the Theory of Change (ToC) was used in this study. The study data was gathered from both secondary and primary sources. The secondary data included scientific, technical, and administrative reports, and publications from Ministries, Departments and Agencies (MDA's), journals and national dailies in Ghana. The primary data was collected using questionnaire administration methods, interview methods and observation methods. The guestionnaires for both farmers and miners were mounted on the KoBoCollect platform and administered to the respondents by reading the questions from the screen of the Android tablets on which the KoboCollect application had been installed and entering the answers. Based on the ToC and in line with the study objectives, a combination of desk study and extensive field work were used to collect primary data through interviews with key informants such as Traditional Authorities, and formal and informal institutions within the study districts. A total of 528 respondents were interviewed of which 294 and 234 respondents were from the AND and AMD respectively. Descriptive statistical tools such as frequencies and percentages were used to analyze variables that are quantitative in nature. Nominal variables such as gender and status of origin and ordinal variables such as occupation and farm ownership were analyzed by use of frequencies and percentages. On the other hand, continuous and discrete variables such as age, income amongst others was analyzed using percentiles (minimum, 25th, 50th, 75th and maximum). The results

of the quantitative data were integrated with the qualitative data to add meaning to the quantitative data which is consistent with the concurrent mixed methodological approach adopted for the study.



Figure 2 : Theory of Change (ToC) to Promote Community Resilience and Rights in Competing Landuse for Mining, Agriculture and Forest Utilization in Ghana

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CHAPTER 2

STUDY FINDINGS

2.1 Demographic distribution

The demographic distribution of respondents varies across the study districts. The age pyramid shown indicates some similarities but unique differences in the age distribution among farmers and miners in the study districts. For instance, AND and AMD show a higher percentage of respondents to be within the 40-59 age group (53.71% for AND and 55.75% for AMD) with other age groups forming the minority. This indicates an ageing active farming and mining population in the study districts. The limited involvement of the youth (20-39 years) in farming and agricultural activities, especially in AMD, supports the growing concern of dwindling interest of the youth in farming and agricultural related activities.

2.2 Age-Sex structure

The gender distribution of respondents across the study districts showed a similar distribution. Both AND and AMD have 41% of respondents identified as female while 59% identified as male. Indicatively, male respondents formed a higher percentage relative to females, epitomizing the domination of males in farming and mining in AND and AMD.



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A significant proportion of respondents in AND (55.14%) are non-natives with 44.86% being natives (indigenes). Conversely, most of the respondents from AMD are natives (76.49%) with only 23.5% being nonnatives. The vast variation on nativity characteristics of the study district could be an indication of the migration characteristics of AND and AMD, providing a preliminary basis for further research into the distinct immigration and emigration dynamics of the study districts.



Figure 4: Distribution of respondent by status in AND and AMD

2.3 Sector of occupation

There is a similarity in the distribution of respondents. In all the study districts, a significant proportion of the respondents were from farming households (94.22% for AND and 95.30% for AMD) while less than 6% (5.78% for AND and 4.7% for AMD) were from mining households. This resonates with the district level statistics which allude to farming as the dominant economic activity in the study districts.



Figure 5: Distribution of respondents by occupation in AND and AMD

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Three key livelihood activities (farming, illegal mining, and logging) have been identified in the study districts. The pattern for productive use of land in the study districts showed a similar pattern. More than 90% of respondents are engaged in farming (91% for AND and 94% for AMD). Farming is characterized by small holder farmers who produce mostly for subsistence with few commercial purposes using traditional farming methods.

2.4 Land use inventory

Considering the livelihoods identified in the study district, respondents engaged in mining in AND and AMD are 7% and 5% respectively. As mentioned earlier, the study districts are rich in mineral resources, particularly gold and bauxite. Gold is the most significant mineral in AND whilst both gold and bauxite are prevalent in AMD, where the Tano-Offin Forest Reserve is located. The low involvement of the local populace directly in forest sector business operations which are capital intensive and formally undertaken by medium to large scale timber companies is depicted by the involvement of 1% of respondents in each district in logging operations and activities.





The study districts support a wide range of farming practices due to the favourable climate and fertile soils. In the study districts, farming practices are characterized by a mix of subsistence and commercial agriculture, with a focus on crops suitable for the districts' climate and soil conditions. Additionally, subsistence farming is prevalent in the study districts, with farmers growing mostly food crops to meet the needs of their households. Subsistence agriculture ensures food security and self-sufficiency for rural communities. Most farmers (29.61%) had farm sizes between 3-6 acres (29.25% in AND and 30.34% in AMD). Generally, the next highest farm size ranges from 6-10 acres (23.28%) with AMD having a similar pattern (26.92% of farmlands ranging from 6-10 acres). However, AND showed a different pattern where farm sizes between 0-3 acres were the second dominant among respondents engaged in farming. Farm sizes ranging between 6-10 acres had the third highest frequency (20.75%) in AND. Farm sizes of 0-3 acres and 10-15 acres both had a frequency of 14.96% each. Generally, large farm sizes ranging from 15-20 acres were the least dominant farm size in the study communities. This confirms the prevalence of smallholder farming in the study communities.



Figure 7: Percentage of farmers owning farm sizes in AND and AMD

2.5 Crop production analysis

The major crops cultivated in the study districts include cocoa, plantain, cocoyam, cassava, maize, pepper, tomatoes, okro and garden eggs. Farmers cultivate both food and cash crops with cocoa as the most important cash crop in the study districts. Cocoa is the most cultivated crop by farmers in the study districts with 22.66% of farmers growing cocoa in AND and 31.85% growing cocoa in AMD. Plantain is the second most cultivated crop (16.63% in AND and 17.43% in AMD). While cocoyam is the third most cultivated crop in AND being grown by 13.58% of farmers, cassava was the third most cultivated crop by 11.57% of farmers. Though there is a similarity in the diversity of crops, the proportion of farmers cultivating the various crops differ across study districts.



Figure 8: Crop production analysis in AND and AMD

2.6 Gender disparity in the distribution of farm size

Gender disparity in the distribution of farm sizes was also assessed as part of the study to support earlier publications (Kuusaana, Kidido & Halidu-Adam, 2013 and Lambrecht I. & Karoff T., 2020) that have made prior observations about the existing disparity. Generally, the disparity in farm sizes was more pronounced in AND relative to AMD with females having smaller farm sizes relative to their male counterparts. Farms sizes for females in AND and AMD were generally less than 10 acres.



Figure 9: Distribution of acres of farm against gender in AND and AMD

2.7 Distribution of farm location

It was also confirmed that encroachment of farmlands into forest reserves is also a major concern, as it leads to deforestation and loss of biodiversity. A significant proportion of respondents had farms outside protected areas (forest reserves). In both districts, more than 90% of respondents were engaged in farming activities outside forest reserves with 7.23% of farms in forest reserves in AND and 5.7% of farms inside reserves in AMD. Importantly, there are more farms (1.53%) within forest reserves in AND relative to the proportion of farms within forest reserves in AMD.



Figure 10: Distribution of farm location in AND and AMD



Figure 11: Distribution of forest reserve farms by communities in AND and AMD

2.8 Cocoa production-livelihood nexus

The cocoa production-livelihood nexus refers to the significant role that cocoa farming plays in the livelihoods of many Ghanaians. Cocoa production has been a key economic activity in Ghana for decades, providing income, employment, and sustenance for numerous individuals and communities and AND and AMD are no exception. The cocoa production data for 2011/12 to 2021/22, as received from the Ghana Cocoa Board is depicted in Figure 12.



Figure 12: Cocoa production data for AND and AMD from 2011/12 to 2021/22 crop years

2.8.1 An overview of the cocoa production-livelihood nexus in the study districts

This aspect includes the following:

1. Economic Importance

Cocoa is the main cash crop of the Ghanaian economy and a significant contributor of national revenue. It is a major contributor to the study districts' economies and accounts for a substantial portion of employment and household incomes. The cocoa sector supports the livelihoods of numerous smallholder farmers, traders, processors, and other actors along the cocoa value chain. For instance, in AND, most cocoa farmers have been noted to earn within the range of GH¢ 1,000 – GH¢ 3,000 from 2020 – 2022. The yearly income from cocoa farmers from 2020 – 2022 falls within the range of GH¢ 1,000.00 – GH¢ 3,000 with an average of 31.14% of the respondents. The income from farmers in the range of GH¢ 5,000 – GH¢ 10,000 was 24.54%, 24.88% and 24.17% for 2020, 2021 and 2022 respectively. Income from farmers in excess of GH¢ 10,000.00 for this period averaged 23.89%.



Figure 13: Annual income of cocoa farmers in AND

Meanwhile, the annual income from cocoa farmers from 2020 – 2022 in the range of GH¢ 3,000.00 – GH¢ 5,000.00 was the highest amount earned by cocoa farmers. Thus, 29.24% of farmers earning GH¢ 3,000.00 – GH¢ 5,000.00 in 2020, 28.92% earned GH¢ 3,000.00 – GH¢ 5,000.00 in 2021 and 28.83% earned GH¢ 3,000.00 – GH¢ 5,000.00 in 2022. This was closely followed by income from farmers in excess of GH¢ 10,000.00 for this period, which averaged 25.80%. The income from farmers in the range of GH¢ 5,000 – GH¢10,000 was 21.64%, 21.69% and 22.09% in 2020, 2021 and 2022 respectively.



Figure 14: Annual income of cocoa farmers in AMD

2.9 Nature of Mining (including Sand Winning)

There are three (3) distinct types of mining systems in AND compared to AMD. In AND, illegal mining is carried out by an estimated 82.35% of respondents who are unregulated illegal miners popularly called galamseyers, community mining is being undertaken by 11.76% whilst 5.88% of respondents are miners who are engaged in private businesses purposely incorporated for mining. Conversely, all respondents in AMD were engaged in illegal mining.

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Figure 15: Distribution of miners by category/ mode of mining practice

2.10 Awareness of importance of forests

With respect to forest resources utilization, the study districts are endowed with diverse forest ecosystems being part of the High Forest Zone (HFZ) of the country. Awareness of the importance of our forest resources is highly acknowledged by the general populace and most importantly the forest fringe communities. An estimated 97% of respondents were aware of the importance of forests with only 1% having no awareness and 2% responding "not sure". This further confirms the extensive awareness of the importance of forests and related resources in the study communities and districts.



Figure 16: Awareness of the importance of forests in AND and AMD

2.11 State of forest cover

A significant proportion of respondents in each study district (more than 94% of respondents) confirmed that forest cover and its associated benefits have dwindled over the past 30 years. In AND, 94.55% of respondents confirmed that forest cover and benefits respondents derive from the forest resources have dwindled over the past 30 years with 3.64% responding that forest cover has remained the same while 1.81% believe that forest cover has increased. Similarly, 98.65% of respondents in AMD confirm that forest cover and the benefits they derive from forest resources have dwindled over the past 30 years, while 1.35% believe forest cover and its associated benefits have remained the same. Respondents further confirmed dwindling benefits derived from forest resources (93.2% in AND and 97.7% in AMD).



Figure 17: State of forest cover and forest utilization

2.12 Utilization of forest resources

Illegal logging was reported by respondents in the study districts as the most dominant (22.64%) reason for the dwindling forest cover. About 16.98% of respondents (from AND and AMD) believe that galamsey is the second most prevalent reason for the dwindling forest cover. Other reasons mentioned by respondents include improper land management (15.09%), forest fires (13.21%), increase in population and agricultural expansion (11.32%) as well as lack of proper enforcement and governance (10.94%).



Figure 18: Reasons for dwindling state in forest cover in AND and AMD

2.12.1 Causes of deforestation in AND

In ranking the importance of the factors that account for deforestation in AND, 87.44% of respondents confirmed illegal logging as the most important contributing factor, followed by weak law enforcement (23.60%) and illegal mining (23.26%). Mining within forest reserves was ranked as a factor accounting for dwindling forest cover (46.46%) followed by charcoal burning (32.14%) and settlement expansion (20.27%). Other factors include poverty, wildfire as well as unsustainable agriculture production.



Figure 19: Factors for deforestation in AND

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2.12.2 Causes of deforestation in AMD

Responses from respondents in AMD confirm 'illegal logging' as the most important factor contributing to deforestation in AMD, followed by 'illegal mining' (40.57%) and 'weak law enforcement' (22.95%). 'Poverty and unsustainable agriculture production' were considered to be influencing factors contributing to deforestation by respondents (54% and 44.59% respectively). 'Wildfires' (34.06%) and 'charcoal production' (28.95%) were considered as the least important factors accounting for deforestation in AMD. Other factors mentioned include 'expansion of settlements/ built up areas' and 'mining within forest reserves.'



Figure 20: Factors for deforestation in AMD

2.12.3 Perceived Effects of Deforestation and Forest Degradation

The perception of respondents about the effects of deforestation and forest degradation varies across the study districts. Respondents in AND consider increasing temperature (22.74%), erratic rainfall pattern (19.70%), declining agricultural yield (18.06%) and wildfires (10.34%) as the most dominant perceived effects of deforestation and forest degradation. Other perceived effects mentioned by respondents in AND include soil erosion (6.86%), windstorms (5.77%), decrease in air quality (4.68%), pest and diseases (4.24%), rainstorms (3.70%), water pollution (3.37%), flooding (0.33%), not sure (0.22%) and scarcity of NTFPs. Meanwhile, respondents in AMD perceive declining agriculture yield (18.32%), increasing temperature (17.66%), erratic rainfall pattern (14.46%), windstorms (11.70%) and water pollution (10.71%) as the dominant effects of deforestation and forest degradation. Other factors perceived by respondents in AMD as the effects of deforestation and forest degradation include rainstorms (7.51%), pests and diseases (6.51%), soil erosion (4.19%), wildfires (3.64%), decreased air quality (3.20%), flooding (1.77%), not sure (0.22%) and scarcity of non-timber forest products (0.11%).

The gendered effect of deforestation and forest degradation among respondents denote a perception of an equal effect on both males and females. Consequently, 62.41% of respondents in AND believe that the effect of deforestation and forest degradation on males and females are the same with 87.84% of respondents from AMD sharing the same view. A slightly higher proportion of respondents in AND (28.10%) believe males

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are most affected by the effects of deforestation and forest degradation relative to the respondents from AMD (6.76%).



Figure 21: Perceived effects (including gender effects) of deforestation and forest degradation

2.12.4 Awareness of Sustainability Initiatives

There are on-going sustainability initiative and interventions such as Ghana Cocoa Forest REDD+ Programme (GCFRP) that aim to promote biodiversity conservation and regulate sustainable resource utilization. There are also community-based forest management initiatives that involve local communities in forest conservation and benefit-sharing being implemented in the study districts.

The level of awareness of respondents about these sustainability initiatives being implemented to address deforestation, forest degradation and other environmental challenges were assessed. The majority of respondents in AND (37%) and AMD (43%) were not aware of any initiatives being taken to address these challenges. In AND, respondents who were aware and those who were not aware of such initiatives were 32% each. Meanwhile, the level of awareness in AMD was relatively low with only 17% being aware of initiatives to address environmental challenges and 39% having no awareness of such initiatives.



Figure 22: Awareness of sustainability initiatives to address environmental challenges

2.12.5 Other Environmental Challenges in the Study Districts

Information on other environmental challenges being experienced by respondents besides deforestation and forest degradation were also collected. Increasing temperatures and erratic rainfall were the highest perceived environmental challenges mentioned by respondents in both AND and AMD. About 26.89% of respondents in AND believe increasing temperatures are the most prevalent environmental challenge followed by erratic rainfall (26.69%), inappropriate use of agro-chemicals (15.09%), dry spells (9.28%), improper waste disposal (9.28%), decreased water quality (6.38%), decreased air quality (6%) as well as pest and diseases (0.39%). The environmental challenges perceived by respondents from AMD include erratic rainfall (25%), increasing temperature (21.70%), decreased water quality (16.15%), inappropriate use of agro-chemicals (15.45%), dry spells (8.85%), improper waste disposal (7.99%), decreased air quality (4.69%) was well as pest and diseases (0.17%). Generally, decreased air quality as well as pest and diseases were perceived as the least environmental challenges in both study districts.



Figure 23: Other environmental challenges aside deforestation

2.13 LANDUSE RIFT

2.13.1 Landuse Categorization

The project districts have seven (7) landuse classes namely close forest, open forest, waterbody, grassland, settlement / bare surface, cropland and other land (no data). A 30-year landuse trend analysis was conducted for both districts and Table 1 and Figure 24 presents the landuse for Atwima Mponua District and Table 2 and Figure 24 presents the landuse for Asutifi North District.

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Table 1: Landuse Trend Analysis for Atwima Mponua District

Landuse Category	1990 (ha)	2021 (ha)
Close Forest	77561.80	40222.64
Open Forest	99709.50	57247.96
Waterbody	4.90	697.31
Grassland	9181.90	14377.10
Settlement/ Bare Surface	332.00	1965.04
Cropland	1379.50	73696.35
Other land	36.80	0.00
Total	188,206.40	188,206.40

Table 2: Landuse Trend Analysis for Asutifi North District

Landuse Category	1990 (ha)	2021 (ha)
Close Forest	42262.7	27800.1
Open Forest	38276.7	15556.7
Waterbody	No Data	67.29
Grassland	12005.8	19348.4
Settlement/ Bare Surface	113.1	3615.4
Cropland	743.2	27105.7
Other land	92.1	0
Total	93493.60	93493.60



Figure 24: Base and updated land use map for AND and AMD (19902021)

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From the landuse landcover change map, the dwindling forest cover has been confirmed through a 30-year land cover change analysis between 1990 and 2021. Importantly, there has been a 34.22% decline in closed forests and a 59.36% decline in open forests within AND. Similarly, closed forests within AMD have reduced by 48.44%, while open forests have reduced by 42.59%.

2.13.2 Land Ownership, Conveyance Systems and End Use

Allodial and usufruct land ownership dominate the land acquisition and tenurial structure among farmers and miners in the study communities within the study districts as shown in Figure 25. with sharecropping being the second most dominant means to access land for farming. About 62.36% of respondents from AND have allodial or usufruct ownership of their lands while 85.25% of respondents in AMD have allodial or usufruct entitlement to their lands. The percentage of respondents engaged in sharecropping to access farmlands is high in AND (31.73%) relative to AMD (11.98%). Other land acquisition and tenurial systems identified in AND include hiring (2.58%), third-party land (1.48%), free occupant (1.11%) and out-right purchase (0.74%). Other land acquisition and tenurial rights in AMD include outright purchase (1.38%), free occupant (0.46%), hiring (0.46%) and third-party land (0.46%). The disparity in land acquisition and tenurial rights observed in the study districts provides a preliminary basis for further investigation into potential correlations with spatial differences in land value and/or local socio-economic development dynamics.



Figure 25: Category of land acquisition and tenurial rights

2.13.3 Assignment of interest in land to other parties

A significant proportion of respondents confirm their assignment of interest in land to other parties in both AND and AMD. About 90% of respondents in AND had assigned interest in their land to other parties while in AMD, about 95% of respondents have undertaken similar conveyance. Interest in land with sizes ranging from 1 – 25 acres have been assigned to other parties. In AND, the size ranges are 1 – 5 acres, 10 acres, 15 acres and 25 acres. The dominant (22%) land size assigned to other parties is 3 acres with 2 acres, 15 acres and 25 acres being the least dominant (4% each). Other land sizes given out to other parties include 6 acres (17%), 5 acres (13%), 10 acres (13%), 1 acre (13%) and 4 acres (4%). 40% of respondents in AMD have given 3 acres of their lands to other parties, 20% have given out 4 acres while 10% each have given out 1, 2, 13 and 25 acres.



Figure 26: Land use right conveyance and sizes given out

2.13.4 Reasons for Assignment of interest in land to other

The reasons given in AND for assigning interest in land to other parties were to make use of idle land (42%), for higher returns (31%), other reasons (23%) and to restore degraded farms (4%). On comparative terms, making use of idle land was the most dominant (60%) reason for assigning interest in land to other parties in AMD. Other reasons mentioned by respondents in AMD include higher returns (30%) and other reasons (10%). In AND, higher returns (27%) and making use of idle land (45%) were the most dominant reason given by respondents who are farmers whilst other reasons (5%), higher returns (5%) and to restore degraded farms (5%) were reasons given by respondents engaged in mining. Similarly, higher returns (10%), making use of idle land (10%) and other reasons (10%) were given by respondents in AMD engaged in mining. In AND, 73% of the lands assigned to other parties were used for crop production and 12% were used for illegal/small scale mining whilst 15% were used for other purposes. In AMD, 70% of lands with interest assigned to other parties are used for crop farming while 30% are used for illegal/small scale mining.



Figure 27: Assignment of interest irland, reasons, and enduses

2.13.5 Distribution of communities involved in illegal mining arising from assignment of interest in land to other parties

Four communities have been identified to have the incidence of illegal mining due to assignment of interest in land to other parties. Kenyasi No.1 in AND is the sole community (100%) with the incidence of illegal mining among respondents due to interest in land being assigned to other parties. Conversely, three (3) communities in AMD, Achiase, Adobewura and Ahwianfutu, have 33.33% each of respondents having their lands assigned to other parties being used for illegal mining.

2.14 Land Use Conflict

A significant proportion of respondents (87% in AND and 95% in AMD) confirmed that they experience conflicts regarding the use of their lands for the various livelihood activities (mining, farming logging, etc.) earlier mentioned.



CHAPTER THREE

DISCUSSIONS

3.1 Policy Considerations

The existing policies, (namely, the Forest and Wildlife Policy (2012), Minerals and Mining Policy (2014), Ghana Cocoa Sector Development Strategy II (CSDSII) (2017/18 – 2026/2027) and, Climate Change Policy (2013), all seek to guarantee a sustainable and environmentally safe environment for cocoa production and livelihoods of the local populace. However, there seem to be overlaps and inconsistencies that must be addressed towards the attainment of the desired status for the forestry, agriculture, cocoa and mining sectors. The small-scale mining sector has outgrown its existing legal and regulatory framework, rendering the formalization process ineffective.

In addition, the Forest and Wildlife Policy (2012) faces a persistent challenge concerning the limited involvement of local communities in managing forest and wildlife resources. Note that, while the policy highlights the importance of stakeholder participation (especially from rural communities in forest fringe areas), a recent review indicated that Traditional Authorities were only minimally engaged by the Forestry Commission in resource management (Sarpong and Inkoom, 2015). In specific reference to mining, the 2012 Forest and Wildlife policy objective stipulates as follows: -Policy Objective 1: Managing and enhancing the ecological integrity of forest, savannah, wetlands and other ecosystems. In pursuit of this objective, the strategic direction for forest ecosystem management requires that there should be sustainable forest management that will maintain

the health of the forest to produce economically viable harvest, provide social and environmental benefits for the present and the future generations. Thus, this necessitates policy strategies that include strengthening the legal framework to give permanency to gazetted forest reserves in order to conserve representative samples of major ecosystems and species (biodiversity) in the country.

A comprehensive analysis of the provisions, objectives, and approaches of the the Forest and Wildlife Policy (2012), Minerals and Mining Policy (2014), Ghana Cocoa Sector Development Strategy II (CSDSII) (2017/18 – 2026/2027) and, Climate Change Policy (2013), is essential to understand how these policies address natural resource management and conservation in the country. A thorough comparison can help identify areas of complementarity, potential conflicts, and gaps in the policies, leading to more effective and integrated management of the country's mineral and forest resources.

These challenges need to be carefully resolved through recommendations for responsive policies, institutional arrangements, and an alignment to a comprehensive land use planning policy, as they presently seem to be operating in silos and appear not to provide the enabling environment in support of a sustainably safe forest environment for the present and future generations.

3.2 Forest Cover and Land Use Change

The dwindling forest cover has been confirmed through a 30-year land cover change analysis between 1990 and 2021. Importantly, there has been a 34.22% decline in closed forests and a 59.36% decline in open forests within AND. Similarly, closed forests within AMD have reduced by 48.44%, while open forests have reduced by 42.59%.

The trajectory of forest cover decline leaves much worry and may indicate a failure of management, programmes and initiatives aimed at arresting deforestation and forest degradation. Illegal logging was identified as the leading cause of forest cover decline within forest reserves in AND and AMD.

From the local discourse it was made evident that social capital and the power and influence of the Traditional Authorities that historically played vital and critical roles in the sustainable management and utilization of the forest resources of the communities have been eroded by present institutional arrangements with government agencies. This position was evinced by the Traditional Authorities and collaborated by the local populace.

3.3 Cocoa Farming and Food Crops Production

The dominant land use for both Districts was farming. More than 90% of the respondents indicated that cocoa production and farming activities were the main use of their land. In specific terms, cocoa production was ranked as the second most important farming crop after cassava for both districts scoring 22.6% and 31.85% respectively for AND and AMD respectively. The cocoa farms were smallholder farms, with small farm sizes and comparatively low incomes (GH¢1,000.00 – GHC¢3,000.00 per annum). Generally, the productivity of cocoa farms per hectare was well below the required yield range of 1,000 kg/ha to 1,900 kg/ha. To increase productivity and income, these cocoa farmers undertake subsistence farming by intercropping (other food crops such as cocoyam, plantain, etc.) in support of their livelihoods.

3.4 Farming as the Dominant Livelihood Activity

A significant proportion of the respondents (i.e. over 90%) were involved in farming in the project study sites. This confirms the well-established notion that farming is the dominant economic activity in the study districts. For instance, the 2010 Population and Housing Census - District Analytical Report for Asutifi North reports that as high as 66.1% of households engaged in agriculture. As noted earlier, significant proportion of the respondents engaged in crop farming (86.64% for AND and 89.24% for AMD). The study further revealed that farming was characterized by smallholder farmers who produce mostly for subsistence, with few commercial purposes using traditional farming methods. Most farmers (29.61%) had farm sizes between 3-6 acres, though women could not own farms sizes more than 6 acres. Generally, large farm sizes ranging from 15-20 acres were the least dominant farm size in the study communities. This confirms the prevalence of smallholder farming in the study communities.

3.5 Impacts of Legal and Illegal Mining on Cocoa Production

The cocoa production landscape is of utmost importance; however, it is negatively being affected by both legal and illegal mining, leading to decline in cocoa production. Respondents engaged in legal and illegal mining in AND and AMD were 7% and 5% respectively.

Mined-out areas were observed during field visit to communities such as Gambia No.2, Obengkrom and Ntotroso in the Asutifi North District, and in communities such as Ahwianfutu, Ampemkrom and Ntoboroso, in the Atwima Mponua District. These illegal mining activities are not environmentally sustainable, and a threat to food security as once the land is degraded, its potential to support agricultural productivity is lost. It is important to note that, any intervention aimed at reversal of these mined-out sites by reclamation is really capital intensive, time consuming and locality specific for which reason, avoided forest degradation and deforestation are very paramount in the sustainable development of these resources.

On the usage of land, it was evident in both Asutifi North and Atwima Mponua Districts that, more than 70% of land available for production (agricultural) activities are used for crop production. However, it was noted that, some respondents from communities such as Achiase, Adobewura and Ahwianfutu in the Atwima Mponua District, have given out portion of their lands to illegal miners in exchange for one-off bulk payment.

Additionally, in AND, 73% of the lands assigned to other parties were used for crop production and 12% was used for illegal/small scale mining, whilst 15% was used for other purposes. Similarly, in AMD, 70% of lands (with interest assigned to other parties) were used for crop farming, whilst 30% are used for illegal/small scale mining. Thus, if this trajectory remains unchecked, it could cause a drastic decline in the total tonnage of cocoa produced in these project districts.



CHAPTER FOUR

CONCLUSIONS

4.1 Conclusion

TThe competing interest from mining, agriculture and forest utilization should be addressed holistically within the context of a national land use plan, within which the project MMDAs have functional roles well designed with the competent regulatory agencies, the Traditional Authorities, private sector and all other interested stakeholders in the utilization of the natural resources of the country.

Again, there is the need for sustainable best practices, environmental protection measures and community involvement in the planning and decision-making processes. The government, together with all stakeholders needs to review and implement its policies, and regulations to ensure environmental conservation, responsible resource utilization, effective forest law enforcement and socio-economic development of the forest and mining communities.

In addition, since farming is the main occupation of the local population in the study districts, efforts should be made to promote sustainable farming practices through the adoption of good agricultural practices, agroecology principles, soil conservation techniques, integrated pest management, and the use of organic fertilizers as well as research and training on the use of pesticides towards avoiding negative health impacts on the farmers.

4.2 Recommendations

It is recommended that a human and environmental centred approach should be adopted to address the threats from illegal forest exploitation and mining to safeguard the ecological integrity of the project landscapes. This invariably will result in improved cocoa production and the socio-economic wellbeing of the local communities.

The populace should be equipped to be actively and integrally linked to forest and mineral resource exploitation. This could be undertaken through training, monitoring of forest and mining permits and gathering of information from relevant stakeholders such as the MMDAs, Forestry Commission, Minerals Commission, Environmental Protection Agency amongst others to develop and monitor a functional database in support of effective joint stakeholder monitoring of legal mining operations and stoppage of illegal mining operations.

Furthermore, there is a broad array of stakeholders intrinsically linked to the search for effective solutions towards addressing the menace of illegal mining. To this end, the preferred coordination strategy that allows several actors to work in concert must be explored and implemented.

Finally, there is the need to collaborate with the Traditional Authorities to develop their leadership and adaptive management for improved forest and land governance





Plate 2. 1: An Image of Workshop Participants at the National Validation Workshop at Noda Hotel, Fumesua



Plate 2. 2: (A) The DCE (Hon. I.K Marfo) of Atwima Mponua District presenting the welcome address and (B) RESCONI Research Officer explaining the land use change in the last 30 years in Asutifi North

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Plate 2. 3: Nananom in Asutifi North exchanging pleasantries after district level validation at Kenyase District Assembly Hall on the 3rd of October 2023



Plate 2.4: An image of the Participants at the National Validation Workshop Held at Noda Hotel, Fumesua on the 3^a of November 2023

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Plate 1. 1: A) RESCONI Research Team Group Photo with the Asutifi North District Co-ordinating Director, Samuel Badu – Baiden, second from right and the Planning Officer, second from the left. B) Group Photo with Management Staff of Asutifi North District Assembly after participating in the Expanded District Planning Coordinating Unit (DPCU) Meeting as part of the institutional stakeholder engagement process. Third from the right is the Planning Officer, Bismark K. Asante followed by the Lead Researcher Dr. Owusu Amponsah



Plate 1. 2: C) Group photo after engagement with management team of the Nkawie Forest District of the Forest Services Division in Ashanti Region, third from the right is Chrisantus Nyasoor, the District Manager. D) RESCONI Research Team Group Photo with Gambia No 2. Traditional Authorities (third from the right seated in the middle is Nana Kwadwo Yeboah Asiamah, Odikro for Gambia No. 2) in Asutifi North District after a consultative discussion on study objectives. E) RESCONI Research Team Group Photo with management of Goaso District, CHED-COCOBOD, Eugene Amoah in the middle is the District Cocoa Officer, and third from the right is the Lead Researcher.



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Registered Office P.O. BOX 12811, KUMASI. PLOT 36 BLOCK J, OKYEREKROM-FUMESUA, KUMASI. DIGITAL ADDRESS: AE-0605-4426

Head Quarters NO. 12-13 PAMA HOUSE, 105 WESTLANDS BOULEVARD ROAD, WEST LEGON, ACCRA. DIGITAL ADDRESS: GE-314-0597 TEL: 233-(0)24 218 4162/(0)24 608 5656 EMAIL: info@resconi.org WEBSITE: www.resconi.org

