

**UNIVERSITY OF EDUCATION, WINNEBA**



**INVESTIGATING THE IMPACT OF DEFORESTATION ON LAND  
ECOSYSTEM IN ASSIN FOSU MUNICIPALITY**



**2026**

**UNIVERSITY OF EDUCATION, WINNEBA**



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ECOSYSTEM IN ASSIN FOSU MUNICIPALITY**



**A dissertation submitted to the School of Graduate Studies in  
partial fulfillment of the requirements for the award of  
the degree of Master of Education  
(Social Studies Education)**

**Department of Social Studies Education  
Faculty of Liberal and Social Studies Education**

**FEBRUARY, 2026**

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## DECLARATION

### Student's Declaration

I, Veronica Oduro, declare that this dissertation entitled is my own work and has not been submitted previously, in whole or in part, in respect of any other academic award. Where other sources of information have been used, they have been acknowledged.

**Signature** .....

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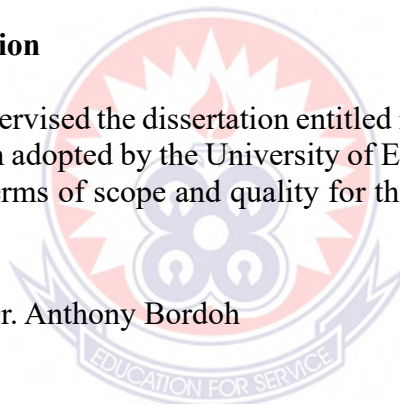
### Supervisor's Declaration

I declare that I have supervised the dissertation entitled in accordance with the standards of research presentation adopted by the University of Education, Winneba, and confirm that it is sufficient in terms of scope and quality for the award of Master of Education in Social Studies.

**Supervisor's Name:** Dr. Anthony Bordoh

**Signature** .....

**Date** .....



## DEDICATION

To my husband, Mr. Philip Affram, my children Leslie Bright Appianin Affram, Stanley Affram, Docia Affram, and Andrew Affram, and my sister, Magdalene Ofosu, for their love, patience, and understanding throughout this journey.



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## TABLE OF CONTENTS

<b>Content</b>	<b>Page</b>
DECLARATION	iii
DEDICATION	iv
ACKNOWLEDGEMENT	v
TABLE OF CONTENTS	vi
LIST OF FIGURES	ix
GLOSSARY	x
ABSTRACT	xi
<b>CHAPTER ONE: INTRODUCTION</b>	<b>1</b>
1.1 Background to the Study	1
1.2 Statement of the Problem	3
1.3 Theoretical Framework	5
1.4 Purpose of the Study	6
1.5 Objectives of the Study	6
1.6 Research Questions	6
1.7 Significance of the Study	7
1.8 Definition of Terms	7
1.9 Scope and Delimitation of the Study	8
1.10 Organisation of the Study	9
<b>CHAPTER TWO: LITERATURE REVIEW</b>	<b>11</b>
2.1 Introduction	11
2.2 Conceptualizing Deforestation and Land Ecosystems	11
2.3 Drivers of Deforestation in Ghana	13
2.4 Theoretical Framework	15

2.5	Conceptual Framework	18
2.6	Social Studies Education and Environmental Sustainability	22
2.7	Gaps in the Literature and Justification for the Study	24
<b>CHAPTER THREE: RESEARCH METHODOLOGY</b>		<b>29</b>
3.0	Introduction	29
3.1	Research Paradigm	29
3.2	Research Approach	30
3.3	Research Design	30
3.4	Study Area	30
3.5	Population of the Study	31
3.6	Sample and Sampling Techniques	31
3.7	Data Collection Instruments	33
3.8	Data Analysis	34
3.9	Trustworthiness of the Study	34
3.10	Ethical Considerations	37
3.11	Summary of Chapter	37
<b>CHAPTER FOUR: RESULTS AND DISCUSSION OF THE STUDY</b>		<b>38</b>
4.1	Introduction	38
4.2	Demographic Characteristics of Respondents	38
4.3	Presentation and analysis of findings	39
4.4	Discussion of findings	44
4.5	Summary of the Chapter	49

<b>CHAPTER FIVE: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS</b>	<b>50</b>
5.0 Introduction	50
5.1 Summary of Findings	50
5.2 Connections to Previous Research and Theory	51
5.3 Conclusions and Implications	52
5.4 Limitations of the study	54
5.5 Recommendations and suggestions for future research	54
<b>REFERENCES</b>	<b>57</b>
APPENDIX A	61
APPENDIX B	66
APPENDIX C	69



## LIST OF FIGURES

Figure	Page
1: Conceptual Framework Linking Deforestation, Ecological Systems, and Educational Response	20



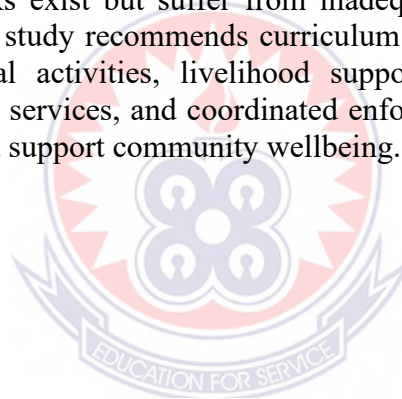
## GLOSSARY

EPA -	Environmental Protection Agency
FAO -	Food and Agriculture Organization
GES -	Ghana Education Service
MEA -	Millennium Ecosystem Assessment
REDD	Reducing Emissions from Deforestation and Forest Degradation
SDGs	Sustainable Development Goals



## ABSTRACT

This study investigated the impact of deforestation on the land ecosystem in Assin Fosu Municipality, Central Region of Ghana. The research examined the causes and spatial patterns of forest loss, stakeholder perceptions and practices, and the role of Social Studies education and local governance in promoting sustainable land management. A qualitative case study design was employed, involving twenty-nine participants including Social Studies teachers, students, farmers, municipal officers, and community leaders. Data were collected through semi-structured interviews, focus group discussions, and observations, and analysed thematically using Bronfenbrenner's Ecological Systems Theory as the guiding framework. The findings revealed that deforestation is driven primarily by livelihood pressures, particularly farming expansion, charcoal production, and illicit logging, concentrated at forest margins, riverbanks, and transport corridors. These activities have resulted in soil erosion, declining water availability, reduced crop yields, and biodiversity loss. While stakeholders demonstrated awareness of environmental harm, economic constraints and weakened customary protections limited conservation action. Social Studies education showed potential for fostering environmental stewardship, but curriculum priorities, resource limitations, and weak practical engagement restricted its effectiveness. Local governance frameworks exist but suffer from inadequate enforcement capacity and logistical support. The study recommends curriculum reforms emphasizing practical, assessed environmental activities, livelihood support for vulnerable households, strengthened extension services, and coordinated enforcement mechanisms to protect the land ecosystem and support community wellbeing.



## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background to the Study

The relationship between human beings and their physical environment is a central theme in Social Studies education. Forests form a cornerstone of ecosystem stability, particularly in tropical countries like Ghana, where environmental systems and social structures are inextricably connected. Forests make substantial contributions to the resilience of the land ecosystem by protecting biodiversity, supporting water cycles, and preserving soil structure. However, human activities such as deforestation account for a significant portion of environmental degradation worldwide, creating a crisis that requires not just scientific solutions, but social and behavioural change (FAO, 2021).

In Social Studies, the land ecosystem is viewed as the stage upon which human life and economic activities depend. However, Ghana's forest cover has dropped significantly from the early 1900s to 2020 (Forestry Commission of Ghana, 2023). This loss has impacted biodiversity and livelihoods while causing significant degradation to the land ecosystem. This is particularly evident in rural areas where residents rely largely on natural resources. Between 2001 and 2022, Ghana lost a vast amount of tree cover (Global Forest Watch, 2023), raising questions about the effectiveness of citizenship education regarding environmental stewardship.

In the Central Region of Ghana, the pace of deforestation is accelerating due to human activities. Assin Fosu Municipality demonstrates a worrying mix of environmental decline and unsustainable land use practices. Historically located in the semi-deciduous forest zone, the municipality has undergone a dramatic shift in land use patterns. Dense

forest portions are being turned into farmlands, residential settlements, and shrublands. The municipality's economy is primarily agrarian, with the majority of the population engaging in smallholder farming practices that rely largely on forest removal. Population expansion and unemployment have contributed to the decline of the land ecosystem in the area, resulting in logging, sand mining, and charcoal production.

According to Owusu et al. (2020), wooded land in Assin Fosu fell by more than 45% between 2000 and 2018. This loss has resulted in noticeable consequences for the land ecosystem, such as soil erosion and the siltation of rivers. According to the Environmental Protection Agency (EPA, 2022), deforestation has reduced soil fertility, jeopardising food security. Furthermore, the conversion of forest ecosystems to plantations has resulted in a decline in the services the ecosystem provides to the community.

Deforestation has a far-reaching impact on the social and economic foundation of local communities. The degradation of the land ecosystem directly impacts household livelihoods in Assin Fosu, particularly among vulnerable groups like women and youth who rely on forest products. Furthermore, as forest ecosystems collapse, traditional knowledge systems associated with biodiversity and cultural conservation practices are disappearing (Mensah & Yirenkyi, 2021). This loss of indigenous knowledge is a critical concern for Social Studies, which seeks to preserve cultural heritage. Despite the importance of forests, local responses to deforestation have been inadequate. While the government has enacted national policies, their implementation at the municipal level is limited. In Assin Fosu, local authorities have faced challenges in enforcing land use restrictions. Furthermore, knowledge regarding the conservation of the land ecosystem has remained low.

Social Studies education in Senior High Schools plays a key role in reducing deforestation by fostering environmental citizenship. However, environmental issues in Ghanaian Senior High Schools are frequently handled as abstract topics, detached from students' daily experiences. Adjei et al. (2021) found that many students in forest communities have a limited grasp of the effects routine activities have on the land ecosystem. This highlights a larger issue like the mismatch between the environmental knowledge taught in Social Studies classrooms and the actual behaviour of students and community members.

As a result, there is an urgent need for localised research that details the consequences of deforestation on the land ecosystem and informs education-based initiatives. A targeted examination into the Assin Fosu Municipality provides a unique chance to understand the relationship between deforestation and land ecosystem deterioration. This study is consistent with Ghana's commitment to the Sustainable Development Goals (SDGs), particularly Goal 4.7 (Education for Sustainable Development), which aligns with the core mandate of Social Studies education.

## **1.2 Statement of the Problem**

Over the last two decades, deforestation has become one of Ghana's most significant challenges, with far-reaching consequences for land ecosystems and local livelihoods. Despite increased attention to forest conservation, the practice of unregulated tree felling and bush burning persists. The Central Region of Ghana, notably the Assin Fosu Municipality, is a clear example of this trend, where the degradation of the land ecosystem is occurring at a rapid rate.

According to recent statistics from Global Forest Watch (2023), the Assin Fosu area lost significant tree cover between 2001 and 2022. This loss has harmed local ecosystems and reduced the natural plant cover required for stability. Furthermore, Owusu et al. (2020) found that ongoing deforestation in the municipality has contributed to soil erosion and poor water quality. These consequences not only threaten environmental sustainability but also harm the local economy, creating a social problem that requires investigation.

National environmental policies offer a framework for tackling deforestation, but their practical enforcement at the municipal level has been insufficient. Public engagement in forest conservation is low, particularly among the youth. This suggests a gap in civic consciousness and responsibility towards the land ecosystem.

Furthermore, the effects of deforestation in Assin Fosu are worsened by challenges within the educational sector. Social Studies is a core subject in Senior High Schools designed to instill positive attitudes towards the environment. However, studies show that students frequently lack contextual awareness of local environmental challenges (Adjei et al., 2021). Environmental education in Senior High Schools is often theoretical, with little emphasis on observation and action. As a result, young people lack the attitudes required to play an active role in preserving the land ecosystem.

The specific problem this study addresses is the limited understanding of how deforestation has impacted the land ecosystem in Assin Fosu Municipality, and the failure of current Social Studies education efforts to mitigate this through behavioural change. There is a gap in how such environmental deterioration is being addressed through educational and community-level solutions. Therefore, it is critical to explore

the physical impact of deforestation on the land ecosystem, as well as the socio-educational factors that influence the situation.

### **1.3 Theoretical Framework**

The guiding theoretical foundation for this study is Urie Bronfenbrenner's (1979) Ecological Systems Theory. This theory views human development and behaviour as taking place within nested networks of environmental impact. It is highly relevant to Social Studies as it connects individual behaviour to broader social and environmental contexts.

According to Bronfenbrenner, human behaviour is influenced by five interdependent systems:

**Microsystem:** This refers to immediate settings where individuals interact. In the Assin Fosu context, this involves farmers clearing land and Senior High School students learning about the environment in Social Studies classes.

**Mesosystem:** This describes the interactions between different microsystems. For example, the cooperation between Senior High Schools and the community in promoting sustainable land use.

**Exosystem:** This represents institutions and policies that have an indirect impact on individuals, such as the local assembly's decisions on land zoning.

**Macrosystem:** This covers broad societal standards and cultural values. In Ghana, this includes attitudes toward land ownership and national development goals that may affect the land ecosystem.

**Chronosystem:** This considers the impact of time, such as historical changes in land tenure systems.

This theoretical approach allows the study to examine deforestation in Assin Fosu not just as a physical event, but as a result of multi-layered social interactions. It helps to explain how the decline of the land ecosystem is driven by education, policy, and community behaviour.

#### **1.4 Purpose of the Study**

The purpose of this study was to examine the effects of deforestation on the land ecosystem in Assin Fosu Municipality in Ghana's Central Region. 1.5 Objectives of the Study

#### **1.5 Objectives of the Study**

The study seeks to:

1. Identify the causes, spatial patterns, and environmental effects of deforestation on the land ecosystem in the Assin Fosu Municipality.
2. Examine stakeholder perceptions, knowledge, and practices related to deforestation and its environmental effects.
3. Evaluate the role of Social Studies education and local governance in addressing deforestation and sustainable land management.

#### **1.6 Research Questions**

Based on the stated objectives, the study seeks to address the following research questions:

1. How do the causes and spatial patterns of deforestation in the Assin Fosu Municipality relate to its effects on the land ecosystem?
2. How do local stakeholders perceive deforestation, and what knowledge or practices shape their interactions with the environment?

3. How effective are Social Studies education and local governance in mitigating deforestation and supporting sustainable land management?

### **1.7 Significance of the Study**

This research has both academic and practical implications. Academically, it adds to the body of research on land-use change in Ghana. While some national studies use broad data, few have looked at the lived experiences and localised impacts of deforestation on the land ecosystem through a Social Studies lens. The study enhances a people-centred perspective of environmental change, emphasizing the human dimension of ecosystem management.

Practically, the study offers actionable information for local government officials, Senior High Schools, and civil society organisations. The findings can help create environmental education programmes within the Social Studies curriculum that address the specific issues forest-dependent communities face. Furthermore, the findings could inform municipal planning, particularly in the areas of forest conservation and public awareness.

The study supports Ghana's national policy goals on environmental sustainability and contributes to the broader agenda of the Sustainable Development Goals (SDGs), specifically Goal 4.7 (Education for Sustainable Development), which aligns with the citizenship education mandate of Social Studies.

### **1.8 Definition of Terms**

**Deforestation** – The permanent removal of forest vegetation for purposes such as agriculture, logging, mining, or urban development.

**Land Ecosystem** – The interconnected system of soil, plants, water, animals, and microbial life that sustains ecological functions and human livelihoods.

**Ecological Systems Theory** – A framework developed by Urie Bronfenbrenner that views human development and behaviour as shaped by nested environmental systems ranging from immediate settings to broader societal contexts.

**Social Studies Education** – A citizenship-focused subject in Ghana's curriculum that promotes environmental awareness, civic responsibility, and sustainable development.

**Sustainability** – The capacity to maintain ecological balance and meet present needs without compromising the ability of future generations to meet their own needs.

**Sacred Groves** – Culturally protected forest areas maintained through traditional beliefs and customary practices in Ghanaian communities.

**Slash-and-Burn Agriculture** – A farming method involving the cutting and burning of vegetation to clear land for cultivation.

**Biodiversity** – The variety of plant and animal species within an ecosystem.

### **1.9 Scope and Delimitation of the Study**

This research falls under the discipline of Social Studies Education and focuses on the interaction of environmental sustainability, citizenship education, and community development. Geographically, the study is limited to the Assin Fosu Municipality in the Central Region of Ghana.

Thematically, the study looks into the influence of deforestation on the land ecosystem, with a focus on soil degradation and biodiversity loss. The educational focus is on how environmental awareness and civic responsibility regarding land use are communicated in local institutions, specifically Senior High Schools.

The population for the study includes Senior High School students and teachers, as well as community members and local officials. The study takes a qualitative approach, collecting data through interviews and observations to understand the lived realities of deforestation in the area.

The study is delimited in several key respects:

First, it concentrates solely on the Assin Fosu Municipality and does not make broad generalisations about the entire Central Region.

Second, the study focuses on the effects of deforestation on the land ecosystem and does not address atmospheric or marine effects.

Third, the study uses qualitative methods to investigate perceptions and behaviours rather than quantitative techniques like satellite imagery analysis.

Finally, the study focuses on pedagogical frameworks related to Social Studies education rather than pure forestry science.

### **1.10 Organisation of the Study**

The study is organised into five chapters:

Chapter One provides the introduction, comprising the background to the study, statement of the problem, theoretical framework, purpose, objectives, research questions, significance, scope, and organisation of the study.

Chapter Two focuses on the review of related literature, examining empirical and theoretical works relevant to deforestation and the land ecosystem.

Chapter Three outlines the methodology, describing the research design, population, sampling techniques, and data collection instruments.

Chapter Four presents the results and discussion of the findings.

Finally, Chapter Five covers the summary, conclusions, and recommendations of the study.



## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter reviews literature that supports an understanding of deforestation and its effects on land ecosystems. It discusses the environmental changes linked to forest loss, the social and institutional factors that drive land use decisions, and the educational issues that influence public awareness and community involvement. Despite various efforts to protect forests, significant loss continues to occur in many parts of the country, including areas such as Assin Fosu, where declining tree cover affects livelihoods and weakens local management systems. The chapter also considers how Social Studies education can contribute to responsible environmental behaviour, although evidence shows that classroom practice often falls short of stated curriculum aims. Both theoretical and empirical studies are examined to provide a foundation for the study, followed by the conceptual framework and the key gaps this research seeks to address.

#### **2.2 Conceptualizing Deforestation and Land Ecosystems**

Deforestation is the permanent loss of forest vegetation for purposes such as agriculture, logging, mining, or urban development. While forest transition can occur naturally due to wildfires or disaster, the majority of deforestation, particularly in West Africa, is human. Small-scale farming, illicit chainsaw operations, charcoal manufacture, and artisanal mining are all contributing factors to deforestation in Ghana. These activities, which frequently occur in environmentally vulnerable zones, are aided by lax land-use management and enforcement (Acheampong et al., 2019; FAO, 2021). As of 2022, Ghana had lost more than 1.4 million hectares of tree cover since 2001, with the Central

Region showing some of the most persistent patterns of forest loss (Global Forest Watch, 2023).

Land ecosystems are made up of interdependent connections between soil, plants, water, animals, and microbial life. Forest ecosystems in particular are among the most productive land systems, providing a variety of services. These include carbon sequestration for climate stabilization, watershed protection, biodiversity conservation, and nutrient cycle regulation (MEA, 2005). Forests help reduce erosion, improve soil fertility, and aid in rainfall production and microclimate adjustment. These activities are critical for supporting agriculture and water availability in locations such as Assin Fosu, which are located in the semi-deciduous forest zone.

The loss of tree cover causes significant disturbances in these natural processes. Soil deterioration is one of the most direct consequences. Without vegetation to hold soil in place, rainfall causes topsoil erosion, nitrogen depletion, and the loss of organic matter required for crop development (Asase & Kyei, 2021). Deforested land also absorbs less water, resulting in increased surface runoff and less groundwater recharge. This has an impact on both agricultural and household water access, especially during the dry season. Furthermore, habitat fragmentation accelerates biodiversity loss by forcing species to decline or go extinct locally. According to studies, unmanaged deforestation has resulted in large losses in forest-dwelling species in portions of Ghana (Attuquayefio & Fobil, 2020).

There are also long-term effects on land productivity and local livelihoods. As forest quality deteriorates, land becomes less suited for agriculture, resulting in reduced

agricultural yields and increasing food insecurity. This frequently locks populations in a cycle of poverty, pushing more land removal in pursuit of productive regions. The cumulative effect leads to deterioration, which has a direct influence on social and economic stability. Many forest-dependent communities, particularly in rural Ghana, recognize the link between environmental degradation and livelihood vulnerability, but governmental interventions frequently fail to address it (Nyamekye et al., 2020).

In conclusion, deforestation is both a cause and a result of environmental and socioeconomic imbalances. Understanding its effects on terrestrial ecosystems lays the groundwork for evaluating the larger consequences for education, government, and community sustainability.

### **2.3 Drivers of Deforestation in Ghana**

Understanding the root causes of deforestation necessitates investigating both direct and systemic forces. While tree loss is clearly linked to land clearance, the incentives for such activities are firmly founded in socioeconomic pressures, institutional constraints, and historical land use traditions. The Ghanaian setting involves a complex interaction of human needs, environmental governance, and land tenure dynamics, all of which contribute to long-term forest degradation.

### **2.3.1 Agricultural Expansion and Shifting Cultivation**

Agriculture is the leading cause of deforestation in Ghana. Smallholder farmers frequently use slash-and-burn or shifting cultivation practices to clear land for subsistence crops including maize, cassava, and plantain. Although this practice has historically sustained rural livelihoods, growing population pressures and decreased soil fertility have resulted in shorter fallow seasons, necessitating the ongoing removal of additional wooded areas (Asare et al., 2021). Cocoa planting in forest edge regions like as Assin Fosu has accelerated forest conversion, sometimes without adequate environmental safeguards.

### **2.3.2 Logging, Fuelwood Harvesting, and Charcoal Production**

Commercial and illicit logging contribute significantly to deforestation in Ghana's high forest zones. While legal logging is governed by licenses, illicit chainsaw operations have become common due to inadequate enforcement capability and significant local demand for timber (Acheampong et al., 2019). In addition, fuelwood and charcoal continue to be the primary energy sources for cooking in rural and peri-urban homes. The unsustainable collection of wood for these reasons, particularly in the Central and Northern areas, contributes to tree cover loss. Despite continuous regulatory measures, alternatives to biomass energy are still mainly unavailable or pricey for many people (Amu-Mensah et al., 2020).

### **2.3.3 Urbanization, Infrastructure, and Land Tenure Issues**

Rapid urbanization, particularly in district capitals and peri-urban areas such as Assin Fosu, has led to the removal of forests for houses, roads, and public facilities. Infrastructure projects frequently displace or split forest reserves, especially when environmental impact studies are inadequately enforced or ignored entirely. Land

tenure uncertainty hampers sustainable land use. In many places, uncertain land ownership and customary tenure arrangements prevent long-term investment in reforestation or conservation activities (Nyamekye et al., 2020).

#### **2.3.4 Institutional and Policy Gaps**

Although Ghana has produced national measures such as the Forest and Wildlife Policy (2012) and the REDD+ Strategy (2016), local implementation remains inadequate. Municipal assembly frequently lack the technical expertise, resources, and legal power to enforce environmental bylaws or coordinate afforestation efforts. The lack of connectivity between the forestry, agricultural, and education sectors also impedes coordinated responses to deforestation. These deficiencies lead to fragmented policy enforcement and low community involvement (Amanor, 2021).

In conclusion, the causes of deforestation in Ghana are complex and interconnected. They represent not just livelihood and economic concerns, but also more fundamental structural challenges such as governance, energy availability, and environmental policy. A chic knowledge of these issues is required for creating sustainable land management interventions and incorporating environmental education into local development planning.

#### **2.4 Theoretical Framework**

Ecological Systems Theory, developed by Urie Bronfenbrenner in 1979, provides a structured way to understand how human development and behavior are shaped by a series of interconnected environmental systems. Although the idea originated in developmental psychology, it has subsequently been used to a variety of fields, including education, sociology, and environmental studies. Its significance to

environmental education stems from its explanation of the many and interconnected variables that determine people's perceptions and responses to ecological concerns.

#### **2.4.1 Core Structure of the Theory**

The idea divides human experience into five tiered systems. The microsystem consists of immediate settings such as home, school, and peer groups. For deforestation, this might refer to how kids engage with environmental issues at school or how farmers connect with their land on a daily basis. The mesosystem refers to the links between various environments. For example, coordination between schools and municipal environmental agencies has the potential to affect community knowledge and behavior.

The exosystem includes structures that have an indirect impact on humans, such as municipal forestry rules and district planning agencies. Even if citizens don't directly engage with these systems, their presence or absence influences environmental decisions. The macrosystem encompasses the larger ideological and cultural background. Land use ideals, economic interests, and national development goals all impact how Ghanaians view and respond to environmental challenges. The fourth layer, the chronosystem, integrates the temporal component, documenting changes in environmental awareness, legislation, or land use trends over generations.

#### **2.4.2 Application to Environmental Education and Land Use**

Ecological Systems Theory is very beneficial in comprehending the complexities of land degradation and deforestation in places like Ghana. These challenges are not just the product of human choices, but also of institutional capability, education systems, cultural traditions, and economic pressures. A land user's decision to remove forest may be motivated by urgent subsistence requirements (microsystem), restricted access

to agricultural extension services (exosystem), or larger development narratives that prioritize production over conservation (macrosystem).

In education, this approach emphasizes the need of contextualizing environmental learning within a larger network of factors. Schools alone cannot change behavior if teachings about sustainability are opposed by household behaviors, community regulations, or commercial incentives to utilize land in an unsustainable manner. Researchers in Ghana and other African countries have used the theory to investigate these processes. Boateng et al. (2016) investigated how changes in agricultural techniques were influenced by both individual knowledge and social-ecological factors. Aryee (2007) demonstrated how institutional flaws at the exosystem level might hinder community conservation efforts despite stringent environmental standards.

#### **2.4.3 Relevance to This Study**

This study use Urie Bronfenbrenner's Ecological Systems Theory to examine the impact of many interacting factors environmental knowledge, policy enforcement, cultural values, and economic pressures on human behaviour concerning forest resources in Assin Fosu. This concept is particularly pertinent as it perceives environmental issues, such as deforestation, as outcomes of interconnected systems rather than isolated actions. At the microsystem level, land clearing decisions are influenced by household need and agricultural techniques. The mesosystem illustrates the interactions among homes, schools, markets, and local institutions that facilitate or regulate resource utilisation. The exosystem encompasses larger elements such as policy implementation, market demand for charcoal and timber, and infrastructure advancement. The macrosystem encompasses governmental policies, cultural ideas, and societal conventions pertaining to environmental stewardship. The chronosystem

illustrates the temporal evolution of factors such as forest cover and precipitation patterns. Employing this theoretical framework, the study provides an in-depth analysis of deforestation in Assin Fosu, while linking environmental behaviour to the civic and environmental education goals of Social Studies. The paradigm clarifies how Social Studies education can foster environmentally responsible citizenship by enhancing learners' comprehension of the interconnected social, economic, and ecological factors that influence sustainable resource management.

## 2.5 Conceptual Framework

A conceptual framework is useful for guiding and organizing research, particularly in studies involving complex and linked concerns such as deforestation. In this research, the framework explains how environmental concerns affect human behavior, government, and education. It also integrates the theoretical perspective of Bronfenbrenner's Ecological Systems Theory to the real-world issues addressed in Social Studies teaching.

### 2.5.1 Theoretical Structure

The concept uses an organized systems approach, developed from Bronfenbrenner, to demonstrate how many levels of influence impact and are affected by deforestation.

The systems are:

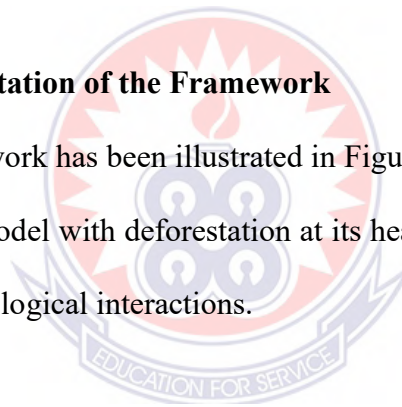
1. **Microsystem:** This comprises the most direct players, such as landowners, families, and schools. Their decisions and actions directly affect the ecosystem.
2. **Mesosystem:** This level examines how institutions and community organizations interact with people and families. Their cooperation may either help or undermine sustainable land practices.

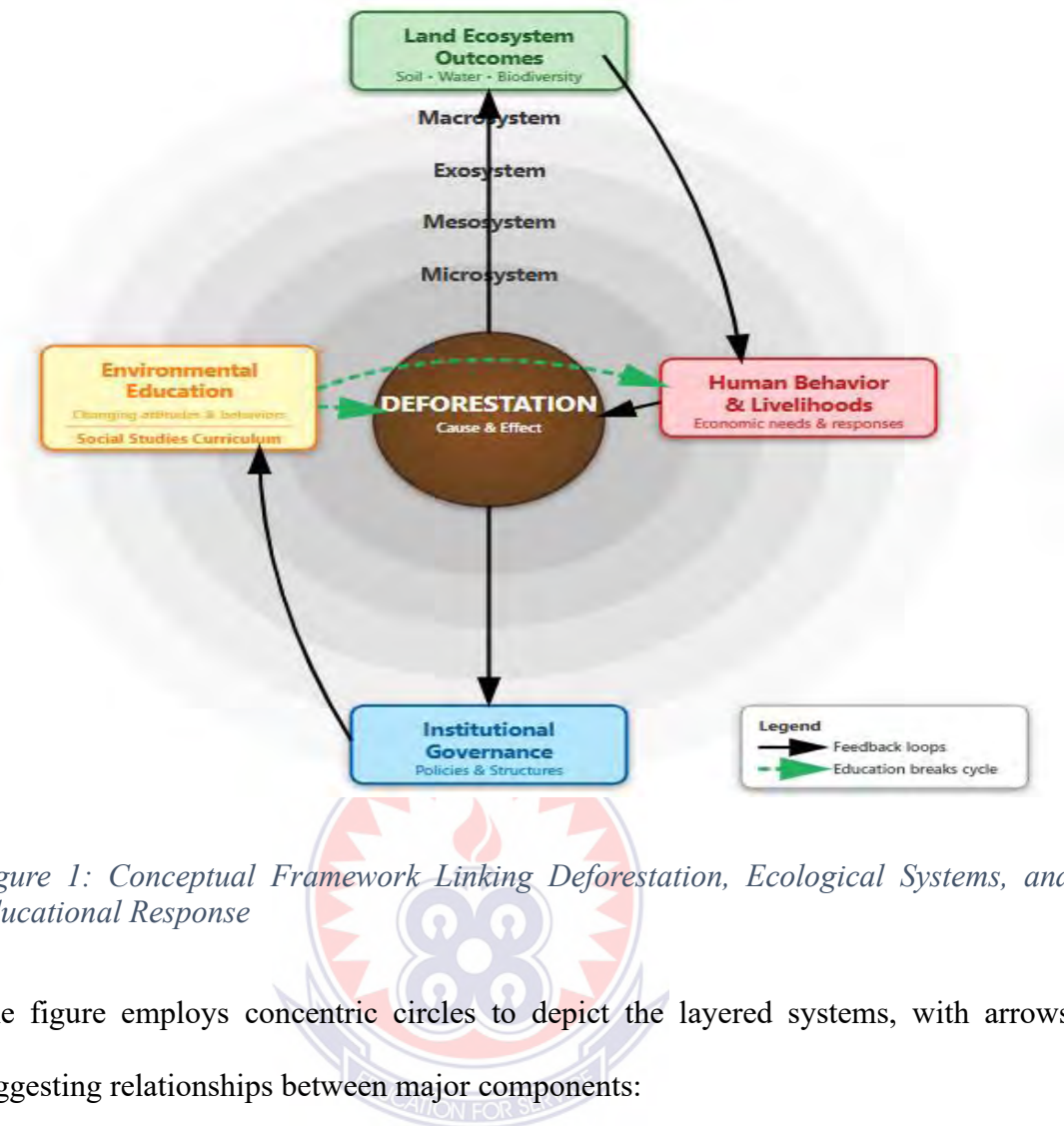
3. **Exosystem:** This includes actions made by municipal governments, forest management agencies, and other organizations that may not directly affect local residents but have an impact on their surroundings.
4. **Macrosystem:** This level encompasses national legislation, economic trends, and cultural values that influence land use patterns throughout a country.
5. **Chronosystem:** This illustrates the impact of time, which includes historical changes in forest cover, shifting policy, and long-term land use trends.

Each of these systems influences the drivers and reactions of deforestation. The impacts are not unidirectional rather they generate a cycle of causes and consequences that affect one another.

### **2.5.2 Visual Representation of the Framework**

The conceptual framework has been illustrated in Figure 1 below. This graphic depicts a structured cyclical model with deforestation at its heart as both a cause and an effect of larger social and ecological interactions.





*Figure 1: Conceptual Framework Linking Deforestation, Ecological Systems, and Educational Response*

The figure employs concentric circles to depict the layered systems, with arrows suggesting relationships between major components:

1. **Land Ecosystem Outcomes** refer to how forest loss affects soil, water, and biodiversity.
2. **Human Behavior and Livelihoods** reflect how people respond to environmental changes or economic needs, which can either reduce or increase deforestation.
3. **Environmental Education** aims to change attitudes and behaviors through learning, exclusively in schools.
4. **Institutional Governance** involves the policies and structures that guide how land and forests are managed.

5. **Social Studies Curriculum Focus** is recognized in the framework as an educational entrance point for young people to build environmental values and civic responsibility.

Feedback loops in the model demonstrate how deforestation impacts other areas, such as livelihoods, which can lead to greater environmental deterioration. However, these loops may be broken or reversed by improving education, strengthening institutions, and raising community awareness.

### **2.5.3 Role of Education in the Framework**

One of the main assumptions underpinning this approach is that deforestation is both an environmental and a social issue. Humans contribute to forest destruction, although their actions are influenced by knowledge, values, and institutional support. This is when education becomes critical.

Social studies, as case in point, may help pupils grasp the connections between human activity and the environment. It can also foster critical thinking about how legislation and community actions impact natural resources. When pupils learn about these challenges at a young age, they are more likely to become environmentally conscious citizens.

The paradigm implies that education is not only a passive component. It has the capacity to affect other aspects of the system, such as behavior, community participation, and even institutional reform. By including environmental topics into the curriculum, schools may help develop a generation that recognizes and confronts the causes and consequences of deforestation.

## **2.6 Social Studies Education and Environmental Sustainability**

Environmental deterioration is increasingly seen as a civic and educational concern, in addition to an ecological one. Social Studies education, particularly in Ghana, has the potential to improve environmental sustainability by focusing on citizenship, critical thinking, and social growth. This section delves into how Social Studies promotes environmental awareness, the role of sustainability in the curriculum, and the constraints of classroom implementation.

### **2.6.1 The Role of Social Studies in Civic and Environmental Education**

Ghana's curriculum now includes social studies to develop national consciousness and responsible citizenship. Over time, its scope grew to encompass environmental problems, establishing it as a topic concerned with the interactions between people, location, and policy (Boadu, 2016). Social Studies, via issues such as population, land use, and government, promotes civic involvement and ecological responsibility, particularly among elementary and secondary students.

Several experts emphasize its importance in promoting environmental literacy. Kwenin (2021) argues that including environmental subjects into Social Studies helps to shape students' views towards climate change, cleanliness, and resource conservation. These skills are especially important in Ghana, where many communities, like Assin Fosu, are directly affected by forest degradation and poor land-use practices.

### **2.6.2 Environmental Themes in the Ghanaian Social Studies Curriculum**

Ghana's Social Studies curriculum includes explicit allusions to environmental sustainability, such as conservation methods, human-environmental interaction, and responsible land use. However, these topics are frequently portrayed in abstract or too

broad terms, limiting their relevance to local environmental concerns. Angyagre and Quainoo (2019) claim that, while the curriculum promotes global knowledge, it does not always address the ecological issues that Ghanaian communities face.

According to Adom et al. (2018), culturally entrenched symbols and tales, such as Adinkra motifs, can be useful instruments for teaching about the environment in the classroom. When students interact with recognizable cultural components, their environmental knowledge becomes more grounded and meaningful. Yet, such integrative techniques are neglected.

### **2.6.3 Gaps in Implementation and Pedagogical Practice**

Despite legislative intentions, classroom practices frequently fall short of fostering effective environmental education. Bordoh et al. (2021) observe that many instructors lack pedagogical content understanding or access to community-based resources that may help make sustainability issues more practical. Teaching is still mostly textbook-driven and exam-oriented, with limited space for interactive or practical learning that may lead to a better knowledge of the environment.

A frequent issue is the disconnect between curricular content and teacher readiness. Mensah et al. (2023) discovered that even when resources like environmental clubs or municipal collaboration possibilities are available, they are seldom used in classes owing to time restrictions, a lack of support, or administrative priorities.

### **2.6.4 Toward a More Contextualized and Civic-Driven Environmental Education**

Improving the efficacy of Social Studies in promoting sustainability necessitates a change toward more place-based and civic-driven teaching methods. Incorporating local case studies, utilizing community resources, and encouraging student-led

environmental initiatives may improve engagement and connect classroom information to real-world concerns. This is especially crucial in communities facing environmental challenges, as students and families are direct participants in ecological transformation. Educators such as Dwomoh (2018) and Kwenin (2021) stress that exposing students to participation activities related to environmental justice and civic engagement increases their likelihood of developing a long-term commitment to sustainability. This underscores the concept that Social Studies is more than simply a topic. It is a tool for developing knowledgeable, environmentally conscientious citizens.

## **2.7 Gaps in the Literature and Justification for the Study**

While research on deforestation and environmental sustainability in Ghana continues to expand, major gaps exist, notably at the relationship of community-level forest loss, educational practice, and behavioral change. This section identifies important gaps in the previous research and explains why the current study is being conducted in the Assin Fosu Municipality.

### **2.7.1 Limited Integration of Education and Environmental Governance**

Most empirical research on deforestation in Ghana concentrate on ecological or economic factors, generally using satellite data, land use change analysis, or forestry policy assessments. Although these techniques offer useful macro-level insights, they usually ignore the social and educational aspects of forest degradation. For example, while Acheampong et al. (2019) and Nyamekye et al. (2020) show regional deforestation patterns, they provide little information about how local knowledge, attitudes, and formal education impact these outcomes. This gap makes it difficult to create treatments that link ecological strategies to human behavior.

There is a notable shortage of research on how municipal-level players such as schools, teachers, assemblies, and homes interact with environmental policies. The significance of education as a platform for promoting sustainability is understudied, particularly in smaller districts such as Assin Fosu. This leaves a vacuum in our understanding of how formal and informal learning processes influence responses to deforestation.

### **2.7.2 Underdeveloped Empirical Focus on Social Studies as a Sustainability Tool**

Despite the integration of environmental education within the Social Studies curriculum in Ghana, empirical scholarship examining how the subject functions as a tool for environmental sustainability remains limited. Social Studies has traditionally been positioned as a civic-oriented subject aimed at promoting responsible citizenship, critical thinking, and problem-solving skills among learners. Within this framework, issues such as environmental conservation, sustainable resource use, and community responsibility are incorporated into the curriculum. However, while these themes are formally embedded in the curriculum, the extent to which Social Studies education effectively translates environmental knowledge into practical environmental consciousness and behaviour among students remains insufficiently examined in empirical literature.

Existing studies on Social Studies education in Ghana tend to focus primarily on curriculum structure and content rather than on its practical impact on environmental awareness and sustainability behaviours. For example, Angyagre and Quainoo (2019) analysed the content of the Social Studies curriculum and highlighted the inclusion of environmental topics such as natural resource conservation, waste management, and sustainable development. However, their work largely centred on the curriculum framework itself and did not empirically investigate how these topics are delivered in

classrooms or how they influence students' environmental attitudes and behaviours. Similarly, Bordoh et al. (2021) explored teachers' perceptions of the Social Studies curriculum and identified challenges related to instructional strategies, teaching resources, and curriculum implementation. While their findings provide valuable insights into teacher perspectives, the study did not link these perceptions to measurable outcomes in students' environmental understanding or community environmental practices.

Furthermore, much of the available literature tends to examine Social Studies education within relatively general educational contexts without explicitly connecting classroom learning to the environmental realities faced by students in their communities. As a result, the relationship between Social Studies instruction and students' lived experiences in environmentally vulnerable areas remains underexplored. Environmental sustainability education is most effective when learners can connect classroom knowledge with observable environmental challenges within their local contexts. Yet, empirical studies rarely investigate whether Social Studies teaching enables learners to interpret and respond to environmental issues such as deforestation, land degradation, and unsustainable resource exploitation within their immediate surroundings.

Another limitation in the existing body of literature is the geographical concentration of empirical research. Many studies examining Social Studies pedagogy and curriculum implementation have been conducted in urban or relatively well-resourced schools. This concentration limits the generalisability of findings, particularly in relation to rural and peri-urban communities where environmental challenges are often more severe. Communities such as Assin Fosu experience increasing environmental pressures,

including land degradation, deforestation, and unsustainable agricultural practices. Yet, these areas remain relatively underrepresented in empirical research examining the effectiveness of Social Studies education in fostering environmental responsibility.

This gap is particularly significant because rural and peri-urban communities often rely heavily on natural resources for their livelihoods. Consequently, environmental degradation in such areas directly affects economic stability, food security, and community well-being. Understanding how Social Studies education influences students' environmental awareness and behaviours in these contexts is therefore crucial for evaluating the subject's potential role in promoting sustainable community practices.

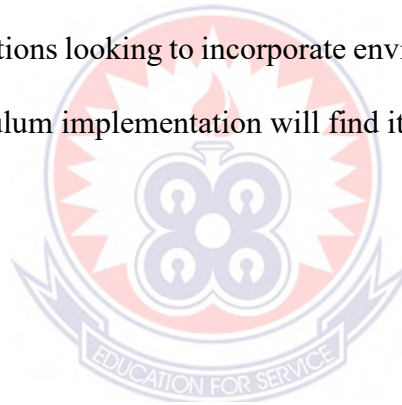
Given these limitations, there remains a clear need for empirical research that moves beyond curriculum analysis and teacher perceptions to examine how Social Studies education functions in practice as a sustainability tool. Specifically, there is a need to explore how Social Studies teaching engages students with local environmental realities and whether the knowledge and values promoted in the classroom translate into environmental awareness and responsible practices within their communities.

This study addresses this empirical gap by examining how Social Studies education operates within a deforestation-prone community context, focusing on how the subject contributes to students' understanding of environmental sustainability and their responses to environmental challenges. By situating the study within the environmental realities of communities such as Assin Fosu, the research provides deeper insight into the practical role of Social Studies education in promoting environmental consciousness and sustainable community engagement.

#### **2.7.4 Relevance to Assin Fosu Municipality and Broader Development Goals**

An important but often disregarded location for researching how deforestation affects land ecosystems and education is Assin Fosu. The region is sensitive to both climatic and human influences since it is situated in a transitional zone between Ghana's high forest and savannah zones. However, not much research has been done on its unique educational and environmental dynamics. The study adds a localized viewpoint that is frequently absent from regional or national surveys by selecting this site.

The study also backs more general development frameworks, such as the Sustainable Development Goals (SDGs 4, 13, and 15 in particular) and Ghana's National Environmental Policy. Education planners, local government officials, and non-governmental organizations looking to incorporate environmental knowledge into local governance and curriculum implementation will find its conclusions useful.



## CHAPTER THREE

### RESEARCH METHODOLOGY

#### 3.0 Introduction

This chapter details the methodological framework used to investigate the impact of deforestation on the land ecosystem and the role of Social Studies education in Assin Fosu Municipality. It outlines the research paradigm, approach, and design that guided the inquiry. Furthermore, it describes the study area, the population, and the specific sampling techniques employed to select participants. The chapter also explains the instruments used for data collection, the procedures for data analysis, and the measures taken to ensure the trustworthiness and ethical integrity of the study.

#### 3.1 Research Paradigm

The study is anchored in the interpretivist research paradigm. According to Cohen, Manion, and Morrison (2018), interpretivism relies on the premise that social reality is not singular or objective but is shaped by human experiences and social contexts. In this study, understanding the degradation of the land ecosystem requires exploring the subjective views of the people who live and work in the forest fringe communities. This paradigm is appropriate for Social Studies research as it allows the researcher to interact with participants to understand how they construct meaning from their environment, their livelihoods, and the education they receive (Creswell & Poth, 2018). It moves beyond mere statistics of forest loss to understand the human behaviours and institutional failures driving the phenomenon.

### **3.2 Research Approach**

A qualitative research approach was adopted for this study. As noted by Denzin and Lincoln (2011), this approach is distinct from quantitative methods as it focuses on words, narratives, and deep descriptions rather than numerical data. The choice of the qualitative approach is justified by the need to gain a detailed understanding of the complex interactions between the school curriculum, community land use, and the local ecosystem. Qualitative research allows for the exploration of the "how" and "why" questions regarding environmental behaviour which statistical surveys often miss (Creswell, 2014). It provides the flexibility to probe into sensitive issues, such as illegal logging and the challenges teachers face in delivering environmental education in Senior High Schools.

### **3.3 Research Design**

The study employed a case study design. Yin (2018) defines a case study as an in-depth empirical investigation of a particular phenomenon within its real-life context. Assin Fosu Municipality was selected as the specific case for this investigation due to its unique position as a transition zone experiencing rapid deforestation. This design allows the researcher to gather comprehensive data from multiple sources within a bounded system (Stake, 1995). By focusing on this specific municipality, the study can provide a detailed analysis of how national environmental policies and the Social Studies curriculum are practically implemented or ignored at the local level.

### **3.4 Study Area**

The study was conducted in the Assin Fosu Municipality in the Central Region of Ghana. The municipality is situated in the semi-deciduous forest zone, an area historically known for its rich vegetation and biodiversity. However, recent human

activities have severely altered this land ecosystem. The area is characterized by intense agricultural activities, with cocoa and food crop farming being the main source of livelihood for the population. Rapid urbanization and the expansion of settlements have further stressed the forest reserves. The municipality has several educational institutions, including Senior High Schools, which serve as the primary sites for formal citizenship education. The choice of this area is deliberate as it presents a clear example of the conflict between economic survival and environmental preservation.

### **3.5 Population of the Study**

The target population for the study consisted of all individuals and groups relevant to the issue of land ecosystem management and education in the Assin Fosu Municipality. This includes all Social Studies teachers and students in the Senior High Schools within the municipality. It also encompasses officials from the Municipal Education Directorate, the Environmental Protection Agency (EPA), and the G Commission. Furthermore, the population includes local farmers and community leaders who interact directly with the land. These groups were identified because they possess the specific knowledge and lived experiences necessary to answer the research questions regarding deforestation and education.

### **3.6 Sample and Sampling Techniques**

A sample size of 29 participants was selected for the study. The selection process was guided by the principle of data saturation, where sampling continues until no new themes emerge and further data collection becomes redundant (Saunders et al., 2018).

### **3.6.1 Sampling Techniques**

The study employed purposive sampling and snowball sampling techniques. According to Etikan et al. (2016), purposive sampling allows the researcher to deliberately choose participants who have specific characteristics relevant to the study. This was used to select Senior High Schools, teachers, and municipal officials. For instance, teachers were chosen based on their experience in teaching Social Studies, while farmers were chosen based on the location of their farms near forest reserves.

Snowball sampling was used specifically to locate community members and illegal loggers who might be hesitant to speak. As described by Patton (2002), this involved asking one participant to recommend another who had relevant experience with forest activities, ensuring access to "hidden" populations.

### **3.6.2 Sample Selection and Justification**

The participants were distributed as follows:

Six Social Studies teachers were selected, two from each of three targeted Senior High Schools in the municipality. The justification for selecting two from each school was to compare teaching methods and resource usage within the same institution. These teachers were required to have a minimum of three years of teaching experience to ensure they were familiar with the syllabus and student attitudes.

Ten students were selected to participate in Focus Group Discussions. This number was increased from an initial five to ensure a broader representation of student views. The selection focused on student leaders and members of environmental clubs who are expected to demonstrate high levels of civic responsibility.

Five farmers were selected based on the criteria that their farmlands shared a boundary with a forest reserve or degraded land. This specific inclusion criterion ensured that the participants had direct, daily interaction with the changing land ecosystem and could give first-hand accounts of soil degradation and yield changes.

This group included officers from the Forestry Commission, the EPA, and the Municipal Assembly. They were selected for their role in policy enforcement and their technical knowledge of the deforestation rates in the area.

Three traditional leaders were selected to provide historical context on how land tenure systems and community values regarding the forest have changed over time.

### **3.7 Data Collection Instruments**

The study utilized three main instruments to gather data: semi-structured interview guides, focus group discussion guides, and observation checklists.

#### **3.7.1 Semi-Structured Interviews**

Interview guides were designed for teachers, farmers, and municipal officials. Kvale (2007) notes that the semi-structured format allows the researcher to ask core questions while having the freedom to ask follow-up questions based on the respondent's answers. This was particularly useful for discussing sensitive topics like the failure of land-use laws.

#### **3.7.2 Focus Group Discussions**

The focus group discussions guide was used for the Senior High School students. Krueger and Casey (2014) argue that group discussions are effective in social research as they encourage participants to interact and debate issues. This method revealed the

collective attitude of the youth toward the environment and highlighted the gap between their classroom knowledge and actual behaviour.

### **3.7.3 Observation**

An observation checklist was used to assess the physical state of the ecosystem in the municipality and the teaching environment in the schools. As recommended by Cohen et al. (2018), direct observation allows the researcher to verify participant claims against the physical reality (e.g., checking if schools actually have the textbooks they claim to have). In schools, observations focused on the availability of teaching materials related to the environment.

### **3.8 Data Analysis**

The data analysis followed the Thematic Analysis framework proposed by Braun and Clarke (2006). All interviews and discussions were audio-recorded and transcribed verbatim. The transcripts were read multiple times to gain familiarity with the data. The researcher then generated initial codes from the data, identifying interesting features. These codes were collated into potential themes that directly addressed the research questions. For example, responses regarding "soil erosion" and "low yields" were grouped under the theme of "Impact on Land Ecosystem." The themes were then reviewed and refined to ensure they accurately reflected the participants' views.

### **3.9 Trustworthiness of the Study**

In qualitative research, trustworthiness replaces the quantitative concepts of validity and reliability. Following the framework established by Lincoln and Guba (1985), four criteria were used to ensure trustworthiness: credibility, dependability, transferability, and confirmability.

### **3.9.1 Credibility**

Credibility refers to the truthfulness and accuracy of the data and the extent to which the findings reflect the participants' realities. To ensure credibility, the researcher employed member checking, where summaries of the findings were shared with selected participants to confirm that their views and experiences were accurately represented (Lincoln & Guba, 1985). This process helped verify that the interpretations made by the researcher were consistent with the intended meanings of the participants. Additionally, triangulation was employed to enhance credibility. Data were collected from multiple sources, including semi-structured interviews, field observations, and relevant documents, and these sources were compared to identify converging evidence. Triangulation helped strengthen the validity of the findings by ensuring that the conclusions were supported by different forms of data rather than relying on a single source.

### **3.9.2 Dependability**

Dependability refers to the stability and consistency of the research findings over time and across conditions (Shenton, 2004). To ensure dependability, the researcher maintained a detailed audit trail, documenting the entire research process, including the development of the research design, data collection procedures, transcription processes, coding strategies, and theme development. This documentation allows other researchers to trace the logic and methodological decisions made throughout the study.

Furthermore, to strengthen the reliability of the coding process, an independent researcher with experience in qualitative analysis was engaged to review the coding framework and emerging themes. The second coder independently examined a portion of the interview transcripts and the preliminary codes developed by the researcher. The

codes and themes were then compared and discussed to ensure consistency and clarity in interpretation. Any discrepancies identified during this process were reviewed and resolved through discussion until agreement was reached. This process of peer examination and inter-coder verification helped enhance the consistency and dependability of the thematic analysis.

### **3.9.3 Transferability**

Transferability refers to the extent to which the findings of a study can be applied to other contexts with similar characteristics. In qualitative research, transferability is achieved by providing thick description of the research setting and participants (Geertz, 1973). In this study, detailed descriptions were provided regarding the Assin Fosu Municipality, the environmental context of deforestation in the area, the characteristics of the participating schools, and the backgrounds of the participants.

By presenting this contextual information, readers and other researchers are able to assess whether the findings related to Social Studies education and environmental awareness in deforestation-affected communities may be applicable to other forest-fringe communities in Ghana or similar contexts.

### **3.9.4 Confirmability**

Confirmability refers to the degree to which the findings of a study are shaped by the participants' experiences rather than by researcher bias or personal assumptions (Lincoln & Guba, 1985). To ensure confirmability, the researcher maintained a reflexive journal throughout the study to record personal reflections, assumptions, and potential biases that could influence the interpretation of the data (Creswell & Poth, 2018).

In addition, the use of an independent coding review further strengthened confirmability by ensuring that the themes generated from the data were not solely

dependent on the researcher's interpretation. The findings presented in the analysis chapter are also supported with direct quotations from participants, allowing readers to clearly see the connection between the raw data and the interpretations made. This approach ensures that the voices and perspectives of the participants remain central to the findings of the study.

### **3.10 Ethical Considerations**

The study adhered to strict ethical standards as outlined by Cohen et al. (2018). Informed consent was obtained from all participants before data collection. The purpose of the study was explained clearly, and participants were assured that their involvement was voluntary. To ensure anonymity, the names of the Senior High Schools and individual participants were replaced with codes. Confidentiality was maintained by storing data on a password-protected device accessible only to the researcher. Special care was taken when interviewing students to ensure the setting was safe and non-threatening.

### **3.11 Summary of Chapter**

This chapter has described the methodology used to conduct the study. It detailed the interpretivist paradigm, the qualitative case study design, and the purposive sampling techniques used to select participants from Senior High Schools and the community in Assin Fosu. The chapter also outlined the data collection instruments and the thematic analysis procedure. The next chapter will present the results and discussion of the findings derived from the data.

## CHAPTER FOUR

### RESULTS AND DISCUSSION OF THE STUDY

#### 4.1 Introduction

This chapter presents and analyses the study findings from interviews with teachers, farmers, municipal and environmental officers, students and community leaders in the Assin Fosu Municipality. Data from twenty-nine respondents were organised around the study objectives and research questions. The analysis used a thematic approach to show how the causes and spatial patterns of deforestation relate to effects on the land ecosystem, how local stakeholders perceive and act on deforestation, and how Social Studies education and local governance influence these processes. The presentation that follows, uses verbatim excerpts from participants to illustrate key points and to preserve the voices of the community.

#### 4.2 Demographic Characteristics of Respondents

The study drew on the perspectives of six Senior High School Social Studies teachers, five farmers with varying roles in land use, four municipal and environmental officers, ten senior high school students, and three community leaders. Teachers had between five to fifteen years' teaching experience. Farmers' ages ranged from their early thirties to late fifties and included cocoa farmers, a charcoal burner and mixed-crop growers. The municipal respondents represented planning, agriculture, forestry and the Environmental Protection Agency. Student participants were drawn from different classes and programmes, and community leaders included an assemblyman, a sub-traditional leader and a women's group leader. These respondents offered a mix of

practical, institutional and local perspectives on land use and the changing condition of the ecosystem in the municipality.

### **4.3 Presentation and analysis of findings**

The findings are presented under the three research questions. Each subsection gives analytic descriptions of the subthemes, illustrative quotations, and interpretive commentary that explains how the subtheme answers the relevant research question.

All interviews were audio recorded and transcribed verbatim. Thematic analysis guided data processing. Transcripts were read repeatedly to gain familiarity and initial codes were generated from recurrent ideas that directly addressed the research questions. Codes were then grouped into themes that represented causes and spatial patterns of deforestation, perceptions and practices among stakeholder groups, and the role of education and governance in response to forest loss. Themes were reviewed and refined until they accurately reflected participants' accounts. The findings are presented by research question, with emergent subthemes integrated under each question where they contribute to understanding the main issues.

#### **4.3.1 Findings addressing RQ1**

How do the causes and spatial patterns of deforestation in the Assin Fosu Municipality relate to its effects on the land ecosystem?

##### **Livelihood-driven clearing: farming expansion, charcoal and timber extraction**

Respondents described tree loss as a patterned response to household and market pressures. Farmers reported opening new plots when existing land lost fertility, while charcoal burners and chainsaw operators described extraction as routine income

generation. Municipal officers linked these activities to population growth and demand for agricultural land.

*“The forest around here is not as it used to be...farmlands keep pushing further inside the forest.”* (F1, Farmer)

*“Charcoal is our main source of income...without charcoal I cannot feed my family.”* (F2, Farmer)

These accounts show that deforestation is closely connected to livelihood decisions. The evidence answers research question one by identifying the proximate causes of tree loss when households require cash or new arable land, they clear trees. That clearing, occurring repeatedly across households, cumulatively reduces the area and functioning of the land ecosystem.

### **Spatial patterns: margins, riverbanks and transport corridors as hotspots**

Participants consistently located cutting at settlement edges, along riverbanks and in areas close to roads where harvested timber can be moved. These locations were described as the first to be cleared and as the places showing the fastest change in landscape form.

*“Rivers nearby are drying up because of forest loss.”* (S4, Student)

*“Chainsaw operators work at night near the tracks, and that is where we see most of the damage.”* (O3, Forestry Commission)

This spatial pattern explains why certain ecosystem services decline first. Clearing at margins and riparian strips reduces shade, increases runoff and accelerates erosion, locating cutting near roads speeds the removal of trees and the fragmentation of

remaining patches. The pattern therefore links cause and place to the observed ecosystem effects described by respondents.

### **Observable ecosystem impacts: erosion, water decline, heat and yield loss**

Respondents described a clear sequence of effects after clearing: short-term productivity gains are followed by soil exhaustion, surface runoff, falling yields and less reliable water in streams. These consequences were reported by farmers, students and community leaders alike.

*“Yields are dropping, and we spend more on fertiliser...rain patterns change because there are no trees.” (F3, Farmer)*

*“When I was young, it was easy to find firewood and water. Now women walk long distances.” (L3, Women’s leader)*

The narratives show that ecosystem decline is not abstract but experienced in daily life. Linking proximate drivers to spatial hotspots and then to specific ecosystem effects answers research question one comprehensively: the data demonstrate how economic decisions translate into place-specific loss of services that sustain agriculture and household water needs.

### **4.3.2 Findings addressing RQ2**

How do local stakeholders perceive deforestation, and what knowledge or practices shape their interactions with the environment?

#### **Awareness combined with pragmatic constraints**

Stakeholder groups generally recognised that tree loss harms the ecosystem, yet awareness was constrained by economic realities. Teachers reported that students attend to local examples, but farmers and charcoal producers emphasised the need to secure livelihoods.

*“Students usually show interest when we discuss environmental issues, especially if I mention something happening in their own community.” (T1, Teacher)*

*“We know cutting too many trees is harmful, but there is no alternative.” (F2, Farmer)*

The findings show that knowledge exists in the microsystem of school and household but that ecosystem forces market demand, lack of income alternatives and weak support services limit the capacity to change behaviour. In short, perception alone does not result in conservation action where economic pressures persist; this explains why awareness does not automatically translate into reduced clearing.

### **Erosion of customary controls and shifting cultural norms**

Several community leaders and elder farmers recalled traditional taboos and protected groves that previously conserved patches of forest. Respondents reported that these customs have weakened, particularly among younger people, leaving small but important areas vulnerable.

*“Our ancestors had taboos against cutting sacred groves...these rules kept some forests intact, but now youth do not respect them.” (L2, Sub-traditional leader)*

*“In our days, the forest was thicker...only a few still keep that tradition.” (F5, Farmer)*

This theme explains part of the social mechanism in research question two. Where customary restraints have eroded, social control that once conserved the ecosystem no longer operates effectively. Cultural change therefore compounds economic drivers and reduces the informal protections that mitigated clearing.

### 4.3.3 Findings addressing RQ3

How effective are Social Studies education and local governance in mitigating deforestation and supporting sustainable land management?

#### **Social Studies education: potential constrained by curriculum and resources**

Teachers and students described Social Studies as an appropriate subject for environmental learning, yet its operational effect is limited by curriculum and assessment structure, inadequate teaching materials and few practical activities. Teachers reported using local examples, when possible, but time constraints and exam priorities narrow what can be taught.

*“The syllabus mentions environmental degradation but does not go deep into deforestation...exam questions hardly cover this area.”* (T1, Teacher)

*“If each student was forced to plant and nurture one tree as part of continuous assessment, it would be better.”* (S1, Student)

These responses indicate that Social Studies has the potential to shape attitudes and practices when instruction is localised and practical, but current policy and classroom realities restrict that potential. The mesosystem connection between school and community is therefore underused. Improving curriculum focus, supplying materials and integrating assessed practical activities could increase the subject’s contribution to sustainable land management.

## **Governance and enforcement: legal instruments constrained by capacity and politics**

Officers and leaders confirmed the existence of by-laws and national instruments, but they also pointed to weak enforcement, limited personnel, funding shortfalls and occasional political interference. Enforcement was described as sporadic and rarely sustained.

*“By-laws exist, but enforcement is weak. Monitoring requires logistics we do not always have.”* (O1, Municipal Planning Unit)

*“Charcoal production, illegal logging and farming expansions are the major drivers. Weak enforcement makes it worse.”* (O4, EPA district officer)

The evidence shows that governance frameworks alone do not guarantee protection of the ecosystem. Effective regulation depends on resources, consistent institutional action and community reporting mechanisms. Until those elements improve, education and customary controls must operate within a governance environment that often fails to deter unsustainable practices.

### **4.4 Discussion of findings**

This discussion relates the themes to the theoretical framework and the literature, and indicates whether the findings confirm, extend or nuanced previous studies. Bronfenbrenner’s Ecological Systems Theory provides a useful lens. It highlights how individual choices in the microsystem are embedded within mesosystem links, influenced by exosystemic institutions and shaped by macrosystem values and changes over time.

### **Drivers, spatial patterns and ecosystem impacts**

The recognition of agriculture, charcoal production, and illegal logging as the principal drivers of deforestation in the study area broadly aligns with existing empirical literature on forest degradation in Ghana. Various regional and national studies have identified smallholder agricultural expansion and the rising demand for biomass energy as key contributors to deforestation in the country. Acheampong et al. (2019) identified that the expansion of agricultural land and charcoal manufacturing were significant contributors to deforestation in various forest-adjacent communities in Ghana. The Food and Agriculture Organization (FAO, 2021) asserts that smallholder agriculture and deforestation for firewood remain the primary drivers of deforestation in West African forest regions. Thus, the findings of this study corroborate and reinforce these prevailing national and regional tendencies.

Furthermore, the pattern described by participants where forest loss initially provides short-term economic benefits but ultimately leads to soil degradation, diminished agricultural productivity, and erosion corresponds with previous ecological studies conducted in Ghana. The study by Asase and Kyei (2021) demonstrates that deforestation diminishes soil fertility, increases surface runoff, and accelerates land degradation in communities reliant on forests. Attuquayefio and Fobil (2020) assert that deforestation disrupts local hydrological systems, induces soil erosion, and diminishes ecosystem production. This study's findings corroborate prior evidence that deforestation negatively affects ecosystem stability and long-term land productivity.

This study's drivers align with existing literature, although it enriches previous studies by providing detailed municipal-level insights into the spatial dynamics of deforestation. This research highlights specific localised patterns of deforestation,

particularly along agricultural boundaries, riverbanks, and transportation corridors within the Assin Fosu Municipality, in contrast to numerous other studies that have examined deforestation at national or regional levels. This spatially grounded evidence enriches the literature by illustrating the geographical concentration of deforestation within particular landscape features, thereby offering practical guidance for targeted environmental management strategies, such as riparian buffer protection and the oversight of forest exploitation along road networks.

Furthermore, the findings can be examined via the lens of Bronfenbrenner's ecological systems theory, which clarifies the interrelations of human-environment interactions. At the microsystem level, choices regarding livelihood within a family, particularly those related to agriculture, charcoal production, and deforestation, directly influence forest utilisation. Household-level decisions are influenced by mesosystem influences, including improved market access and the expansion of road networks, facilitating the movement and sale of forest resources. Furthermore, macrosystem dynamics, such as the increasing demand for charcoal and timber in urban areas, exacerbate the pressure on local forest resources.

The chronosystem feature is evident in the respondents' observations of environmental changes throughout time, particularly with the reduction of forests and the alteration of rainfall patterns. Global Forest Watch (2023) indicates that these observations align with broader evidence globally and within Ghana, demonstrating ongoing forest loss. This study's findings not only confirm existing research on the causes and ecological consequences of deforestation but also offer context-specific insights into the spatial and socio-ecological processes affecting forest degradation at the municipal level.

From Bronfenbrenner's perspective, household decisions in the microsystem interact with mesosystem factors such as market access and road networks to produce spatial patterns of clearing; ecosystem drivers, including demand for charcoal and timber, then amplify these patterns. The chronosystem is visible in respondents' accounts of changing rainfall and longer-term forest decline, consistent with national trends reported by Global Forest Watch.

### **Perceptions, knowledge and customary controls**

The coexistence of awareness and pragmatic constraints confirms findings that environmental education alone rarely yields behaviour change where alternatives are lacking (Nyamekye et al., 2020). Teachers and students showed knowledge consistent with Social Studies objectives (Boadu, 2016; Kwenin, 2021), but farmers continued to clear where survival demands it. This confirms the argument that awareness needs to be coupled with livelihood options and institutional support to change practice.

The evidence on eroding customary protections confirms the literature on the conservation value of sacred groves and taboos in Ghana (Adom et al., 2018). The present findings add nuance by linking the erosion of these norms to intergenerational shifts and livelihood pressures, showing how the weakening of local social controls accelerates exposure of remnant forest patches. This suggests that conservation strategies may benefit from recognising and working with customary institutions where they still function.

### **Social Studies education and governance**

Teachers' accounts that the Social Studies syllabus treats environmental topics broadly and that teaching is constrained by exam pressures and lack of materials confirm prior studies of curriculum overload and exam-driven pedagogy in Ghana (Bordoh et al.,

2021; Mensah et al., 2023). At the same time, students' support for practical, assessed projects confirms pedagogical literature advocating place-based, civic-driven learning to improve transfer of knowledge into practice (Dwomoh, 2018; Kwenin, 2021). The study therefore both confirms and elaborates earlier work: Social Studies is positioned to contribute to sustainability, but systemic reforms are required for it to do so effectively.

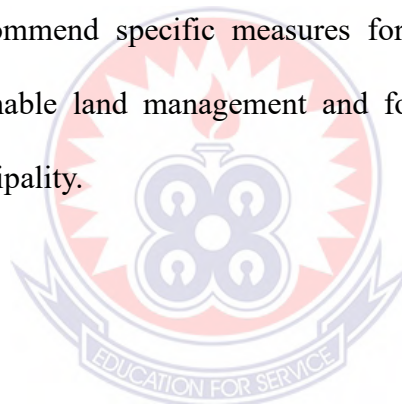
Governance findings corroborate policy analyses that national frameworks exist but local implementation is weak due to resource and capacity constraints (Amanor, 2021). The study thus confirms the need for strengthened local enforcement, consistent extension services and mechanisms for community reporting backed by logistics and political support.

### **Overall assessment and implications**

Overall, the findings confirm national patterns of drivers and impacts, expand those accounts with municipal-level qualitative detail and refine understanding of the social mechanisms at work, particularly the interaction between knowledge, customary norms and livelihood needs. Applying Bronfenbrenner shows that interventions must operate across levels: supporting households with viable alternatives, strengthening school community links to translate knowledge into practice, and improving ecosystem capacity for enforcement and resource provision. Practically, this suggests a combined strategy of curriculum reform (practical, assessed environmental activities), support for agroforestry and seedling provision, and strengthened extension and enforcement that includes

#### **4.5 Summary of the Chapter**

This chapter presented findings from twenty-nine respondents, organised by the three research questions. It showed that deforestation in Assin Fosu is driven mainly by farming expansion, charcoal production, illegal logging and settlement pressure, concentrated at forest margins and along watercourses, and resulting in soil erosion, reduced water availability and biodiversity loss. Stakeholder perceptions reveal awareness of these problems but also pragmatic acceptance where livelihoods depend on tree removal. Social Studies education and local governance were identified as potential instruments for change, yet both are constrained by curriculum priorities, lack of materials, weak enforcement and limited resources. The next chapter will draw on these findings to recommend specific measures for strengthening Social Studies' contribution to sustainable land management and for improving local governance responses in the municipality.



## CHAPTER FIVE

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

#### 5.0 Introduction

This chapter summarises the main findings, links the results to prior research and the theoretical framework, draws conclusions and outlines implications for policy and practice. It also notes the study's limitations and offers recommendations for Social Studies practice, local governance, and future research.

#### 5.1 Summary of Findings

The study found that deforestation in Assin Fosu is driven chiefly by livelihood pressures and commercial extraction. Participants reported that farming expansion, charcoal production and illicit chainsaw operations repeatedly cause clearing at settlement margins, along riverbanks and beside transport corridors. Farmers explained that when existing land becomes less productive, they open new plots in forest areas, and charcoal burners said that cutting trees is often the only reliable source of cash. A municipal officer stated that population growth, farming expansion and uncontrolled logging are the main drivers.

Spatially, respondents located the most rapid change at forest edges and riparian strips. Students and community leaders reported drying streams and hotter local conditions, and farmers reported falling yields and soil degradation. One farmer reflected that yields are dropping, and we spend more on fertiliser and rain patterns change because there are no trees. These accounts establish a clear cause-and-effect pattern, livelihood-driven clearing concentrates at accessible places and produces measurable decline in the land ecosystem.

Perceptions across groups combined awareness of harm with pragmatic constraints. Teachers and students showed knowledge of environmental concepts and responded positively to localised lessons, but many households continued to clear trees because of economic need. A teacher observed that students usually show interest when we discuss environmental issues, especially if I mention something happening in their own community. Community leaders reported that customary protections such as sacred groves and taboos had weakened, leaving remnant forest patches exposed.

Regarding Social Studies and governance, the study found potential for education to foster stewardship but also structural limits. Teachers reported that the Social Studies syllabus mentions environmental topics but does not prioritise deforestation, and they lack teaching aids and fieldwork opportunities. Students suggested practical tasks such as assessed tree-planting to bridge classroom learning and community action. Municipal and environmental officers confirmed that laws and by-laws exist but that enforcement is often weak because of funding, staffing and political constraints.

## **5.2 Connections to Previous Research and Theory**

The findings confirm national and regional studies that identify smallholder agricultural expansion, charcoal demand and illicit logging as central drivers of forest loss. They also align with research showing that removal of tree cover leads to soil erosion, lower yields and altered water availability. The study expands that literature by providing municipal-level, qualitative detail on spatial hotspots and on how customary norms have changed in response to livelihood pressures.

Bronfenbrenner's Ecological Systems Theory proved useful for interpreting these results. The microsystem level captures household decisions to clear land for farming or charcoal. The mesosystem reflects interactions between schools and households and

the potential for Social Studies to influence family practice. The ecosystem covers institutional factors, including extension services and enforcement capacity, which shape the options available to households. The macrosystem encompasses wider values about land and development that influence whether younger people respect traditional protections. Lastly, the chronosystem helps explain observed long-term changes in rainfall patterns, tenure practice and the erosion of customary norms. In short, the theory clarifies how individual behaviour and community practices operate within nested social and institutional influences to produce measurable change to the ecosystem.

The study's education findings corroborate literature that identifies curriculum overload and exam-driven teaching as barriers to place-based environmental education. The suggestion that practical, assessed projects would strengthen transfer of learning confirms arguments in the pedagogical literature for civic-driven, experiential approaches to sustainability education. At the governance level, the confirmation that laws exist but local implementation is weak supports policy research calling for capacity building, community reporting mechanisms and stronger extension services.

### **5.3 Conclusions and Implications**

The study leads to four principal conclusions.

First, deforestation in Assin Fosu is the product of clear, livelihood-driven decisions that occur in predictable locations and that produce observable degradation of the land ecosystem.

Second, awareness of environmental harm is present across schools and communities but is not enough to change behaviour where economic alternatives and institutional support are absent.

Third, Social Studies has untapped potential to promote sustainable land management when the curriculum is localised, resourced and linked to assessed practical activities.

Fourth, governance frameworks at municipal level are inadequate in enforcement capacity and logistic support, which reduces the deterrent effect of laws and leaves community protections weak.

The implications follow directly from these conclusions. Interventions should operate across levels.

At household level, incentives and practical alternatives such as support for agroforestry and provision of seedlings can reduce pressure to clear.

At the school level, revising Social Studies practice to include assessed, practical tasks such as student-led tree planting and stronger school–community projects will improve the transfer of knowledge to household behaviour.

At the institutional level, strengthening extension services, providing logistical support for enforcement, and promoting safe community reporting of illicit operations will improve the effectiveness of governance.

Finally, recognising and working with customary protections where they persist can help preserve remnant forest patches that are critical for water and biodiversity.

#### **5.4 Limitations of the study**

The study has several limitations that should be noted when interpreting the results.

First, the sample was purposive and relatively small, composed of twenty-nine participants selected to provide depth rather than representativeness; this constrains the ability to generalise findings beyond the municipality.

Second, the data rely on self-report and interviews, which introduce the possibility of response bias such as social desirability or selective recall.

Third, the research did not include remote sensing or quantitative land-cover analysis that could validate the spatial claims with satellite-derived data, combining qualitative accounts with spatial analysis would strengthen inferences about the extent and rate of tree loss.

Fourth, the cross-sectional design captures perceptions and conditions at a single period and cannot directly measure change over time.

Finally, constraints of time and resources limited the extent of direct field observation and the number of communities covered.

#### **5.5 Recommendations and suggestions for future research**

The recommendations below flow from the study's findings and their implications for education, governance and community practice.

At the level of Social Studies practice, the curriculum should be revised to include practical, assessed environmental tasks. Teachers reported that students respond when lessons are local and practical, and students suggested that tree-planting projects assessed as part of continuous evaluation would promote sustained action. Teacher training should emphasise place-based pedagogy, and the Ghana Education Service

should supply basic teaching aids and support school–community partnerships for field activities.

For livelihoods and local land management, municipal authorities and development partners should prioritise support for agroforestry schemes, provision of seedlings and small grants for alternative livelihoods to charcoal production. Extension services need strengthening so that farmers receive technical support for sustainable land management and incentives for leaving trees standing where appropriate.

Regarding governance, the municipal assembly and the Forestry Commission should coordinate to improve patrols, logistics and community reporting mechanisms. Where reporting is limited by fear, anonymous reporting channels and community-based monitoring schemes could be piloted. Recognising customary institutions that still protect sacred groves and establishing formal partnerships with traditional leaders may help conserve valuable remnant patches.

For community engagement and equity, programs should recognise the differential burdens of ecosystem decline. The study found that women experience increased time costs for firewood and water collection. Interventions should therefore include gender-sensitive measures, such as promoting energy-saving stoves and supporting women’s groups in alternative income generation.

For research, several directions would strengthen understanding and policy relevance. A mixed-methods study combining qualitative interviews with satellite land-cover analysis would validate spatial patterns and trends. A longitudinal design would document change over time and the impact of specific interventions. Comparative studies across municipalities with different governance arrangements would identify

institutional factors that reduce deforestation pressure. Finally, action research that pilots and evaluates school-based, assessed environmental projects would test whether the suggested curriculum changes produce household-level change.

In concluding, the study showed that deforestation in Assin Fosu is a social as well as an environmental problem. Participants reported that economic necessity, weakened customary controls and limited institutional capacity operate together to reduce tree cover and to degrade the land ecosystem. Addressing the problem therefore requires coordinated action across education, governance and livelihood support. If schools are resourced to link learning with local practice and if communities receive viable alternatives to destructive land use, then the knowledge present in classrooms can become a force for protecting the land ecosystem and for supporting the long-term well-being of households and communities.



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## APPENDIX A

### Semi-Structured Interview Guides

#### Interview Guide for Social Studies Teachers

##### Consent Statement

This study is being conducted as part of a Master's thesis in Education at the University of Education, Winneba (UEW). The purpose is to investigate the impact of deforestation on land ecosystems in Assin Fosu Municipality, with particular attention to the role of Social Studies education.

Your participation is voluntary, and you may withdraw at any point without penalty. Responses will be kept anonymous and confidential. No personal identifiers will appear in the final report. Data will be used solely for academic purposes.

By participating, you are providing informed consent. If you have questions, you may seek clarification before proceeding.

##### Section A: Demographic Information

- Gender: Male / Female
- Age: \_\_\_\_
- Academic Qualification: \_\_\_\_
- Years of Teaching Experience: \_\_\_\_

##### Section B: Thematic Questions

1. What topics related to the environment and deforestation do you cover in your Social Studies lessons?
2. How do your students respond to lessons on environmental issues?
3. What challenges do you face in teaching about deforestation and sustainability?
4. How do you relate classroom teaching on environmental issues to the realities in Assin Fosu?
5. In your view, what role can Social Studies education play in promoting sustainable practices in the community?

## **Interview Guide for Students**

### **Consent Statement**

This study is being conducted as part of a Master's thesis in Education at the University of Education, Winneba (UEW). The purpose is to investigate the impact of deforestation on land ecosystems in Assin Fosu Municipality, with particular attention to the role of Social Studies education.

Your participation is voluntary, and you may withdraw at any point without penalty. Responses will be kept anonymous and confidential. No personal identifiers will appear in the final report. Data will be used solely for academic purposes.

By participating, you are providing informed consent. If you have questions, you may seek clarification before proceeding.

### **Section A: Demographic Information**

- Gender: Male / Female
- Age: \_\_\_\_
- Class Level: \_\_\_\_

### **Section B: Thematic Questions**

1. What have you learned in Social Studies about the environment and forests?
2. How do your lessons help you understand the issue of deforestation?
3. Do you see examples in your community that connect to what you learn in class?
4. How do you think young people can help protect the environment?
5. What suggestions do you have to make Social Studies more useful for solving environmental problems?

## **Interview Guide for Municipal/Environmental Officers**

### **Consent Statement**

This study is being conducted as part of a Master's thesis in Education at the University of Education, Winneba (UEW). The purpose is to investigate the impact of deforestation on land ecosystems in Assin Fosu Municipality, with particular attention to the role of Social Studies education.

Your participation is voluntary, and you may withdraw at any point without penalty. Responses will be kept anonymous and confidential. No personal identifiers will appear in the final report. Data will be used solely for academic purposes.

By participating, you are providing informed consent. If you have questions, you may seek clarification before proceeding.

### **Section A: Demographic Information**

- Position/Role: \_\_\_\_
- Department/Unit: \_\_\_\_
- Years of Service in Assin Fosu: \_\_\_\_

### **Section B: Thematic Questions**

1. What are the key drivers of deforestation in Assin Fosu from a municipal perspective?
2. How has forest loss affected land use, biodiversity, and the local economy?
3. What policies or interventions are currently in place to address deforestation in the municipality?
4. What challenges does the assembly face in implementing environmental policies?
5. How can the education sector, especially Social Studies, contribute to addressing deforestation?

### **Interview Guide for Farmers**

#### **Consent Statement**

This study is being conducted as part of a Master's thesis in Education at the University of Education, Winneba (UEW). The purpose is to investigate the impact of deforestation on land ecosystems in Assin Fosu Municipality, with particular attention to the role of Social Studies education.

Your participation is voluntary, and you may withdraw at any point without penalty. Responses will be kept anonymous and confidential. No personal identifiers will appear in the final report. Data will be used solely for academic purposes.

By participating, you are providing informed consent. If you have questions, you may seek clarification before proceeding.

### **Section A: Demographic Information**

- Gender: Male / Female
- Age: \_\_\_\_
- Main Farming Activity: Cocoa / Food Crop / Mixed / Other

- Years in Farming: \_\_\_\_

### **Section B: Thematic Questions**

1. How would you describe the current state of forests and farmlands in Assin Fosu?
2. What are the main reasons people clear forested land in this area?
3. How has deforestation affected your farming activities and livelihood?
4. What local practices (if any) help to protect or restore the land?
5. How do you think education, particularly Social Studies, could influence community attitudes toward forest preservation?

### **Interview Guide for Community Leaders / Residents**

#### **Consent Statement**

This study is being conducted as part of a Master's thesis in Education at the University of Education, Winneba (UEW). The purpose is to investigate the impact of deforestation on land ecosystems in Assin Fosu Municipality, with particular attention to the role of Social Studies education.

Your participation is voluntary, and you may withdraw at any point without penalty. Responses will be kept anonymous and confidential. No personal identifiers will appear in the final report. Data will be used solely for academic purposes.

By participating, you are providing informed consent. If you have questions, you may seek clarification before proceeding.

#### **Section A: Demographic Information**

- Gender: Male / Female
- Age: \_\_\_\_
- Community Role: \_\_\_\_
- Years of Residence in Assin Fosu: \_\_\_\_

#### **Section B: Thematic Questions**

1. How has the environment in your community changed over the years?
2. What are the common reasons for cutting down trees or clearing land?
3. How has deforestation affected the well-being of community members?
4. What local traditions or cultural values encourage (or discourage) forest protection?

5. In your opinion, what role should schools and education play in tackling deforestation?



## APPENDIX B

### CONSENT FORMS AND PARTICIPANT INFORMATION SHEET

#### ADULT CONSENT FORM

**Project title:** Investigating the Impact of Deforestation on Land Ecosystem in Assin  
Fosu Municipality

Participant code: \_\_\_\_\_

I confirm that I have read the information sheet or it has been read to me and I understand the nature of the study. I understand that participation is voluntary and that I may withdraw at any time. I consent to take part in an interview/focus group and to be audio-recorded.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Name of researcher obtaining consent: Veronica Oduro

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

#### CHILD ASSENT FORM

**Project title:** Investigating the Impact of Deforestation on Land Ecosystem in Assin  
Fosu Municipality

Child participant code: \_\_\_\_\_

I agree to take part in this study. I know that I can stop at any time and I will not be punished if I stop.

Child signature: \_\_\_\_\_ Date: \_\_\_\_\_

Researcher signature: \_\_\_\_\_ Date: \_\_\_\_\_

#### GUARDIAN CONSENT FORM (FOR PARTICIPANTS UNDER 18)

**Project title:** Investigating the Impact of Deforestation on Land Ecosystem in Assin  
Fosu Municipality

Child participant code: \_\_\_\_\_

I confirm that I have read the information sheet and give permission for my child to participate in the study. I understand that participation is voluntary and that I may withdraw my child at any time.

Parent/guardian name: \_\_\_\_\_ Signature: \_\_\_\_\_

Date: \_\_\_\_\_ Contact phone: \_\_\_\_\_

### **PARTICIPANT INFORMATION SHEET**

**Project title:** Investigating the Impact of Deforestation on Land Ecosystem in Assin Fosu Municipality

**Researcher:** Veronica Oduro, Master of Education candidate, University of Education, Winneba

**Supervisor:** Dr. Anthony Bordoh, University of Education, Winneba

**Purpose of the study:** You are invited to take part in a study that seeks to understand how deforestation affects land ecosystems and the role of Social Studies education in addressing the issue.

**What participation involves:** If you agree to take part you will be asked to participate in a semi-structured interview or a focus group discussion. Sessions will take approximately 45–60 minutes and will be audio-recorded with your permission.

**Voluntary participation and withdrawal:** Participation is voluntary. You may withdraw at any time without explanation and without any adverse consequences.

**Confidentiality:** Your responses will be anonymised. No personal names will appear in any report. Data will be stored securely and accessible only to the researcher and supervisory team.

**Risks and benefits:** There are no direct benefits. There are minimal risks in discussing community practices; you may decline to answer any question.

**Contact:** For queries contact the researcher at [veronicaoduro04@gmail.com](mailto:veronicaoduro04@gmail.com) or

0243640756, or the supervisor at [abordoh@uew.edu.gh](mailto:abordoh@uew.edu.gh).

**Ethics approval:** This project has received approval from the UEW Department of Social Studies Education.

**Signed:**

Researcher: \_\_\_\_\_ Date: \_\_\_\_\_



## APPENDIX C

### PERMISSION LETTER FOR ST. RICHARDS SHS

HOLY SPIRIT ANGLICAN BASIC SCHOOL  
P. O. BOX 92  
ASSIN FOSO

18TH MAY 2025.

THE HEADMASTER  
ST. RICHARDS SHS  
P. O. BOX 180  
ASSIN FOSO

Dear Sir,

#### REQUEST FOR PERMISSION TO CONDUCT RESEARCH AT YOUR SCHOOL

I am Veronica Oduro, a Master of Education candidate at the University of Education, Winneba. I request permission to conduct fieldwork for my thesis titled "Investigating the Impact of Deforestation on Land Ecosystem in Assin Fosu Municipality." The study involves semi-structured interviews with Social Studies teachers and selected pupils, focus group discussions with student groups and classroom observations. Data collection is proposed on the following dates during term time: 3 June 2025 (Tuesday), 4 June 2025 (Wednesday) and 10 June 2025 (Tuesday). If these dates are not convenient, I would be grateful for alternative weekday dates between 2 June and 12 June 2025.

Participation is voluntary and pupils under 18 will participate only with parental consent and pupil assent. All data will be anonymised and used for academic purposes only. I attach participant information sheets and consent forms for your review.

I kindly request permission to conduct the research at your school.

Yours faithfully,



VERONICA ODURO  
(M.Ed. CANDIDATE, UEW)  
+233 24 364 0750

Date 29<sup>th</sup> MAY 2025

Official Stamp



THE HEADMASTER  
ST. RICHARDS SHS  
ASSIN FOSO  
054022421

## Permission Letter for Assin State College

HOLY SPIRIT ANGLICAN BASIC  
SCHOOL  
P.O. BOX 92  
ASSIN FOSO

28<sup>th</sup> MAY, 2025.

THE HEADMASTER  
ASSIN STATE COLLEGE  
P.O. BOX 25  
ASSIN BEREKU

ASSIN STATE COLLEGE  
RECEIVED  
ASSIN BEREKU  
DATE 13-11-25

Dear Sir,

### REQUEST FOR PERMISSION TO CONDUCT RESEARCH AT YOUR SCHOOL

I am Veronica Oduro, a Master of Education candidate at the University of Education, Winneba. I request permission to conduct fieldwork for my thesis titled "Investigating the Impact of Deforestation on Land Ecosystem in Assin Fosu Municipality."

The study involves semi-structured interviews with Social Studies teachers and selected pupils, focus group discussions with student groups and classroom observations. Data collection is proposed on the following dates during term time: 3 June 2025 (Tuesday), 4 June 2025 (Wednesday) and 10 June 2025 (Tuesday). If these dates are not convenient, I would be grateful for alternative weekday dates between 2 June and 12 June 2025.

Participation is voluntary and pupils under 18 will participate only with parental consent and pupil assent. All data will be anonymised and used for academic purposes only. I attach participant information sheets and consent forms for your review.

I kindly request permission to conduct the research at your school.

Yours faithfully,

  
Veronica Oduro  
UEW  
+233 24 364 0756

Allen.  
Adm. Staff  
Acc: kindly note


## Permission Letter for Obiri Yeboah SHS

HOLY SPIRIT ANGLICAN BASIC  
SCHOOL  
P.O. BOX 92  
ASSIN FOSU

28<sup>TH</sup> MAY, 2025.

THE HEADTEACHER  
OBIRI YEBOAH SENIOR HIGH SCHOOL,  
P. O. BOX 72  
ASSIN FOSU

Dear Sir,

  
APPROVED  
28<sup>TH</sup> MAY, 2025

### REQUEST FOR PERMISSION TO CONDUCT RESEARCH AT YOUR SCHOOL.

I am Veronica Oduro, a Master of Education candidate at the University of Education, Winneba. I request permission to conduct fieldwork for my thesis titled "Investigating the Impact of Deforestation on Land Ecosystem in Assin Fosu Municipality."

The study involves semi-structured interviews with Social Studies teachers and selected pupils, focus group discussions with student groups and classroom observations. Data collection is proposed on the following dates during term time: 3 June 2025 (Tuesday), 4 June 2025 (Wednesday) and 10 June 2025 (Tuesday). If these dates are not convenient, I would be grateful for alternative weekday dates between 2 June and 12 June 2025.

Participation is voluntary and pupils under 18 will participate only with parental consent and pupil assent. All data will be anonymised and used for academic purposes only. I attach participant information sheets and consent forms for your review.

I kindly request permission to conduct the research at your school.

Yours faithfully,

  
Veronica Oduro  
UEW  
+233 24 364 0756

## Permission Letter for Th District Officer Forestry Commission/EPA

Holy Spirit Anglican Basic Sch.  
P. O. Box 92  
Assin Foso  
28<sup>th</sup> May, 2025.

The District Officer Forestry Commission/EPA  
District office  
Assin Foso



Dear Sir/Madam,

### REQUEST FOR PERMISSION TO ACCESS OFFICES AND RECORDS AND TO INTERVIEW RELEVANT OFFICERS

I am a Master of Education candidate at the University of Education, Winneba. My thesis research, "Investigating the Impact of Deforestation on Land Ecosystem in Assin Fosu Municipality," requires consultation with Forestry Commission/EPA officers and access to district-level environmental reports. Proposed visits and interviews are scheduled for the week of 23–27 June 2025, preferably on 24 June 2025 (Tuesday) or 25 June 2025 (Wednesday). Please advise alternative working days if these are inconvenient.

All interviews will be conducted with informed consent, and any material used will be anonymised. I attach the participant information sheet and consent form. Your assistance in facilitating access to records and staff will be much appreciated.

Yours faithfully,

Veronica Oduro  
M.Ed. candidate, UEW  
+233 24 364 0756

### Permission Letter for Municipal Assembly

Holy Spirit Anglican Basic Sch.  
P. O. Box 92  
Assin Foso

28<sup>th</sup> May, 2025.

The Municipal Chief Executive  
Assin Foso Municipal Assembly  
P. O. Box 99  
Assin Foso

Dear Sir/Madam,

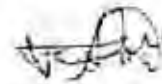
*Handwritten notes:*  
@HHS  
The applicant is the  
requester of the  
request  
28/05/2025

#### REQUEST FOR PERMISSION TO CONDUCT RESEARCH WITHIN THE MUNICIPALITY

I am conducting fieldwork for my Master of Education thesis at the University of Education, Winneba entitled "**Investigating the Impact of Deforestation on Land Ecosystem**" in Assin Foso Municipality. I request permission to interview Municipal officers, Environmental Officers, and other relevant officials to consult publicly available Municipal Reports and Records. Proposed interview dates at the Municipal Assembly are Monday, 16<sup>th</sup> June, 2025 and Wednesday, 18<sup>th</sup> June, 2025.

All participants will provide informed consent and data will be anonymized. I attach participant information sheets and consent forms for your records. The study will not interfere with official duties and interviews will be scheduled by mutual agreement.

Yours faithfully,



**VERONICA ODURO**  
**(M.ED. CANDIDATE, UEW)**  
**+233 24 364 0756**

Date: .....

Official stamp: .....

