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EXAMINING THE CONNECTION BETWEEN ENVIRONMENTAL CONSERVATION AND SUSTAINABLE DEVELOPMENT OBJECTIVES IN SIERRA LEONE

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Abstract:
This study examines the complex interplay between environmental conservation and the attainment of sustainable development goals in Sierra Leone. The research analyses the alignment of conservation initiatives with national and international sustainable development goals (SDGs), acknowledging the country's abundant biodiversity and its continuous endeavours to overcome socio-economic challenges. The study examines policies, case studies, and stakeholder interviews to delineate the synergies and conflicts between environmental protection and socio-economic development. The results show how important it is for communities to get involved, for governments to work well, and for countries to work together to find ways to protect the environment while also boosting the economy. The results show that there are serious problems with how policies are put into action, how resources are used, and how institutions work together. These gaps make it harder to reach the 2030 Agenda for Sustainable Development. The study shows that combining traditional knowledge systems with modern conservation methods can improve environmental outcomes while also protecting cultural heritage. Ultimately, the research emphasizes the significance of integrated approaches to guarantee that environmental sustainability becomes a fundamental aspect of Sierra Leone's developmental trajectory.

JEL: Q01: Sustainable Development; **Q56**: Environment and Development; Environment and Trade; Sustainability; Environmental Accounts and Accounting; Environmental Equity; Population Growth; **Q58**: Government Policy; Regulation; Public and Private Environmental Agreements; **O13**: Economic Development: Agriculture; Natural Resources; Energy; Environment; Other Primary Products

Keywords: protecting the environment, long-term growth, Sustainable Development Goals (SDGs), Sierra Leone's biodiversity, managing natural resources, policy for the

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environment, development of society and the economy, getting people involved in their community, ecosystem services and climate change, governance of the environment strategies for conservation, rural development and long-term livelihoods

1. Introduction

The complex connection between environmental protection and long-term development goals has gotten a lot of attention in the last few years, especially in developing countries like Sierra Leone. The country has a lot of natural resources, such as beautiful forests, tall mountains, and large bodies of water (Kandeh, 2018). But rapid deforestation, soil erosion, and pollution are putting the country's environment at risk, which has big effects on long-term growth (Bah, 2017).

Sierra Leone is in West Africa, which is one of the most biodiverse places on the planet. The country has a wide range of ecological zones, from coastal mangroves to montane forests in the middle of the country. These ecosystems do important things like control water, stabilize the climate, and keep the soil fertile. The Gola Rainforest National Park is one of the biggest areas of Upper Guinea rainforest that is still standing. There are more than 330 kinds of birds, 49 kinds of mammals, and many kinds of plants in this forest (Conservation International, 2020). The Western Area Peninsula Forest Reserve is also an important watershed for Freetown, providing water to more than one million people. Sierra Leone's development prospects depend on these natural resources. The idea of sustainable development, which came about in the 1980s, stresses the importance of balancing economic growth with social justice and environmental protection (WCED, 1987). In Sierra Leone, the quest for sustainable development is essential due to the nation's history of civil conflict, poverty, and lack of progress (Keen, 2005). Environmental conservation is necessary for sustainable development because it is the basis for economic growth, human well-being, and social fairness (Rockström *et al.*, 2009). The Brundtland Commission said that sustainable development is "*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*." This fits well with what is happening in Sierra Leone right now. The country has to deal with conflicting demands for short-term economic growth and long-term care of the environment. This tension shows up in many different areas. Mining activities, though they add a lot to GDP, often hurt the environment, pollute water, and force people to move. To make sure there is enough food, farmers often move into protected forest areas. Freetown and other cities are growing, but they don't have the right waste management systems in place, which is bad for the environment.

Qualitative research, which focuses on the details of social events, gives us a new way to look at the link between environmental protection and long-term development goals in Sierra Leone. This study aims to find out more about the complicated relationship between local communities, policymakers, and other stakeholders. It also aims to find ways to improve environmental conservation and sustainable development outcomes in Sierra Leone.

Sierra Leone has a lot of different plants and animals, which is important for supporting local livelihoods and promoting sustainable development (Lancaster, 2017). This shows how important it is to protect the environment. Mining, logging, and farming are some of the activities that are causing environmental damage in Sierra Leone. This damage threatens the very foundation of sustainable development (Kandeh, 2018). The loss of biodiversity, soil degradation, and water pollution that come from environmental degradation have big effects on people's health, food security, and economic growth (Bah, 2017).

The extractive industries sector exemplifies this challenge distinctly. Sierra Leone has a lot of minerals, such as diamonds, gold, bauxite, rutile, and iron ore. In recent years, these resources brought in about 90% of the money Sierra Leone made from exports (Statistics Sierra Leone, 2021). But mining companies often don't pay much attention to the environment. Thousands of people in Sierra Leone do artisanal mining, which includes methods like alluvial extraction that disturb river systems and pollute water sources with mercury and other harmful chemicals. Large-scale industrial mining makes huge tailings ponds, moves people out of their homes, and changes the way water flows in the area. The National Minerals Agency says that fewer than 30% of mining companies fully follow the rules for environmental impact assessments (National Minerals Agency, 2020).

Another type of environmental stress comes from farming. According to the FAO (2019), about 60% of Sierra Leone's people rely on farming for their living. Locally known as "shifting cultivation," traditional slash-and-burn farming has become more common because of population growth and shorter fallow periods. When done without enough time to recover, this practice takes nutrients out of the soil, makes erosion worse, and adds to deforestation. According to the FAO (2020), the rate at which farming activities are moving into forested areas is about 0.7% per year. Growing cash crops like cocoa and coffee also leads to the conversion of forests. Farmers often cut down trees in patches of forest to make room for new plantations. They do this because the soil in their old plots is getting worse.

Also, Sierra Leone's history of war, poverty, and lack of development makes it harder to work toward sustainable development (Keen, 2005). The civil war in the country from 1991 to 2002 had terrible effects on the environment, such as widespread deforestation, land degradation, and the forced relocation of local communities (Richards, 2005). Sierra Leone has made a lot of progress in rebuilding its economy and institutions since the end of the war, but protecting the environment and promoting sustainable development are still big problems (Lancaster, 2017).

The civil war's effects on the environment go beyond the destruction of buildings and roads. During the war years, the ability of institutions to manage the environment fell apart. The Sierra Leone Environmental Protection Agency, which was set up in 1990, stopped doing anything useful. Illegal logging and hunting thrived because forest reserves weren't patrolled. As people who had to leave their homes came back to find their old lands occupied, land tenure systems fell apart. This led to ongoing

disagreements that make it harder to carry out current conservation and development projects. The war also made it hard to share knowledge. Traditional ways of taking care of the environment that had been passed down through generations were no longer used because older people died, and young people grew up in refugee camps or cities.

After the war, rebuilding the country focused more on getting the economy back on track and making sure the government was stable than on protecting the environment. International donors and the government put their money into rebuilding infrastructure, bringing back government services, and encouraging investment. The Poverty Reduction Strategy Papers that guided development planning in the 2000s (Government of Sierra Leone, 2005) didn't pay much attention to environmental issues. This trend persisted despite the onset of environmental crises in Sierra Leone. The 2014 Ebola outbreak, which was partly caused by people getting too close to wildlife reservoirs because of forest encroachment, showed how environmental degradation can affect public health (Olivero *et al.*, 2017). The 2017 Regent mudslide, which killed more than 1,000 people, was caused by cutting down too many trees, building homes without planning, and not having enough drainage systems (UNEP, 2017).

This study's goal is to find out how environmental protection and sustainable development goals are connected in Sierra Leone using a qualitative research method. This study aims to find the main problems and opportunities for improving environmental protection and sustainable development in Sierra Leone by talking to local communities, policymakers, and other interested parties. The results of this study will help us better understand the complicated links between protecting the environment, promoting sustainable development, and improving people's health in Sierra Leone. They will also help shape policy and practice in this important area.

1.1 Significance of the Study

The importance of this study is that it helps us understand better how environmental protection and sustainable development goals in Sierra Leone are related to each other. The study's results will give policymakers, practitioners, and researchers useful information that will help them promote sustainable development in Sierra Leone.

First, the study will show how protecting the environment can help Sierra Leone reach its goals for sustainable development. The study will identify the key environmental conservation strategies that can contribute to sustainable development outcomes in Sierra Leone by examining the perspectives of local communities, policymakers, and other stakeholders (Kandeh, 2018). This information will be very important for making decisions about policy and practice in Sierra Leone, where environmental damage and development that isn't sustainable are big problems (Bah, 2017).

The study fills in a big gap in our knowledge about how Sierra Leone can make its development path match up with the United Nations' 2030 Agenda for Sustainable Development. The government has adopted the SDG framework, but there isn't much research on how protecting the environment helps progress toward many of the goals.

For example, SDG 15 (Life on Land) talks about protecting forests and biodiversity. But environmental factors also affect SDG 1 (No Poverty), SDG 2 (Zero Hunger), SDG 3 (Good Health), SDG 6 (Clean Water and Sanitation), SDG 13 (Climate Action), and other goals. This study shows how these things are connected, giving policymakers a solid foundation for making decisions that take all of them into account.

Second, the study will help people understand the problems and challenges of combining goals for environmental protection and sustainable development in Sierra Leone. By looking at the experiences and opinions of stakeholders, the study will find the main obstacles to protecting the environment and promoting sustainable development in Sierra Leone. It will also look into possible ways to get around these problems (Lancaster, 2017). This information will be very helpful in coming up with good ways to encourage sustainable development in Sierra Leone.

The research provides valuable insights for international development partners working in Sierra Leone. The UNDP, World Bank, African Development Bank, and bilateral donors all put a lot of money into Sierra Leone's development. But these investments can sometimes have bad effects on the environment that weren't planned. Infrastructure projects can break up ecosystems. Agricultural development programs may encourage practices that are not appropriate for the local environment. The results of this study can help design programs that are better for the environment. The research also finds successful integration models that donors can help grow.

Third, the study will show how important local communities are to protecting the environment and promoting sustainable development in Sierra Leone. The study will underscore the significance of community-led initiatives and participatory approaches in advancing environmental conservation and sustainable development in Sierra Leone by examining the perspectives and experiences of local communities (Richards, 2005). This information will be very important for making policies and practices that recognize the power and ability of local communities to promote sustainable development.

Communities have a lot of ecological knowledge that has been passed down through the generations. They know things that formal scientific assessments often miss, like how species behave, how the seasons change, how the soil is, and how resources are available. This traditional ecological knowledge is useful for planning conservation efforts. Communities also have a direct interest in how the environment turns out. Natural resources are what they need to make a living. They see environmental degradation firsthand in the form of lower crop yields, a lack of water, and health problems. On the other hand, they could directly benefit from successful conservation by getting better ecosystem services, having access to resources that last, and possibly making money from ecotourism.

Fourth, the study will help us learn more about how protecting the environment, developing in a way that lasts, and making people happy are all connected in Sierra Leone. By looking at how environmental conservation and sustainable development goals are connected, the study will show how important it is to take a holistic approach to development that takes into account how environmental, social, and economic

outcomes are all linked (Rockström *et al.*, 2009). This information will be important for pushing a sustainable development agenda that puts human health and environmental health first.

The study looks at human well-being in more ways than just income or economic growth. It looks at health outcomes, chances for education, keeping culture alive, social cohesion, and mental health. All of these areas are affected by environmental degradation. Burning biomass releases pollutants into the air that can cause respiratory diseases. Waterborne diseases spread through dirty water. Depleting the soil makes food crops less nutritious. Climate change makes extreme weather events more likely, which causes stress and trauma. On the other hand, protecting the environment can make people feel better. Protected forests are places where people can practice their culture and find spiritual renewal. Clean water sources lower the number of diseases and the amount of time women spend getting water. Sustainable fisheries make sure there is always protein available.

Finally, the study will show how useful qualitative research is for looking into complicated social and environmental issues in Sierra Leone. The study will offer in-depth, contextualized insights into the experiences and perceptions of stakeholders through a solely qualitative methodology, emphasizing the significance of qualitative research in shaping policy and practice in Sierra Leone (Creswell, 2014).

Qualitative methods are great at getting at the heart of things, including their complexity, context, and meaning. They enable researchers to investigate how individuals comprehend and engage with environmental and developmental challenges. For Sierra Leone, numbers on deforestation rates, species populations, or economic indicators are useful, but they don't tell the whole story. Qualitative research shows why deforestation happens, how communities feel about conservation efforts, what stops people from using sustainable practices, and what chances there are for good change. These insights are very important for making interventions that work with, not against, the way things are in the area.

1.2 Objectives of the Study

1) To identify the key environmental conservation strategies that can support the achievement of sustainable development objectives in Sierra Leone:
2) To explore the challenges and opportunities for integrating environmental conservation and sustainable development objectives in Sierra Leone:
3) To investigate the role of local communities in environmental conservation and sustainable development in Sierra Leone:
4) To examine the institutional and governance frameworks that shape environmental conservation and sustainable development outcomes in Sierra Leone
5) To assess how traditional knowledge and practices contribute to environmental conservation and sustainable development

1.2 Research Questions

1) What are the key environmental conservation strategies that can support the achievement of sustainable development objectives in Sierra Leone?
2) What are the key challenges facing the integration of environmental conservation and sustainable development objectives in Sierra Leone?
3) What are the perspectives and experiences of local communities in environmental conservation and sustainable development in Sierra Leone?
4) How do existing institutional and governance structures enable or constrain environmental conservation and sustainable development in Sierra Leone?
5) In what ways can traditional ecological knowledge and practices enhance contemporary conservation and development efforts?

2. Materials and Research Methods

2.1 Review of Existing Literature on the Connection between Environmental Conservation and Sustainable Development in Sierra Leone

There is a lot of research on the link between protecting the environment and sustainable development (World Commission on Environment and Development, 1987). A lot of people in Sierra Leone also know that these two ideas are related (Alhassan, 2017). Nevertheless, the existing literature on this subject in Sierra Leone is scarce, necessitating additional research to comprehend the particular context and challenges of environmental conservation and sustainable development within the nation.

The global conversation about the environment and development has changed a lot since the Brundtland Report came out in 1987. The 1992 Rio Earth Summit came up with Agenda 21, a complete plan for how to make development last. The Johannesburg Summit in 2002 focused on partnerships and making things happen. The idea of a green economy came up at the Rio+20 Conference in 2012. The SDGs, which were adopted in 2015, included environmental sustainability in a number of development goals. Sierra Leone has taken part in these international processes by signing important agreements and using global frameworks in its own planning. But it is still hard to turn global promises into action at home.

Most of the academic writing about Sierra Leone's environment has been about specific problems or areas. Studies look at the causes and effects of deforestation (Munro *et al.*, 2015), mining (Maconachie & Hilson, 2011), urban environmental problems (Macarthy *et al.*, 2018), and climate vulnerability (Faye *et al.*, 2021). Sustainable development research also tends to focus on specific areas, looking at things like the potential for renewable energy (Pedersen, 2016), how to make agriculture more sustainable (Moyer-Lee & Prowse, 2015), and how to reduce poverty (Jackson, 2007). There aren't many studies that look at the connection between environmental protection and sustainable development as two separate ideas.

Deforestation, soil erosion, and water pollution are some of the biggest problems Sierra Leone faces when it comes to its natural resources (Sierra Leone Environment

Protection Agency, 2019). This has big effects on sustainable development because the country's economy and people's lives depend a lot on agriculture and natural resources (World Bank, 2019). To solve this problem, we need to take an integrated approach to environmental protection and sustainable development that includes many different groups and sectors (International Union for Conservation of Nature, 2019).

Sierra Leone loses about 60,000 hectares of forest every year, which is one of the highest rates of deforestation in West Africa (FAO, 2020). There are a lot of things that are putting pressure on this loss. About half of the forest conversion is due to subsistence farming. Another 20% comes from legal and illegal logging for business. Urban energy demand drives charcoal production, which takes up another 15%. The rest of the money comes from mining, building infrastructure, and expanding cities (EPA Sierra Leone, 2019). The effects go beyond carbon emissions and loss of biodiversity. Watersheds get worse, which makes water less available and less clean. Soil erosion gets worse, leaving sediment in rivers and along the coast. Microclimates change, which affects how much rain falls and how much food is grown.

According to the Ministry of Agriculture (2020), soil degradation affects about 80% of Sierra Leone's farmland. Soil fertility is lost when crops are grown continuously without enough nutrients being added back. Taking away plants from the ground makes it more likely to erode. Water doesn't soak in as well when machinery and animals compact the ground. Using chemical fertilizers makes the soil more acidic, which changes its chemistry. These steps make a cycle that keeps going. Farmers clear new forest areas to make room for more degradation as yields go down on degraded lands. To stop soil degradation, we need to invest in long-term soil conservation methods like terracing, cover cropping, agroforestry, and organic amendments. But farmers who don't have enough resources often can't put these steps into action.

There are many things that can cause water pollution. Mining operations release heavy metals and sediment into rivers and lakes. Cities let out sewage and solid waste that hasn't been treated. Pesticides and fertilizers are carried by runoff from farms. There aren't many industrial facilities, but they do release different kinds of waste. The EPA checks the quality of water at certain locations and has found high levels of fecal coliform bacteria, suspended solids, and heavy metals like mercury, lead, and cadmium in many bodies of water (EPA Sierra Leone, 2019). These pollutants are very bad for your health. Cholera, typhoid, and dysentery are still common waterborne diseases. Long-term exposure to heavy metals harms the nervous system, causes developmental problems in kids, and raises the risk of cancer.

Numerous studies have underscored the significance of community-based strategies for environmental conservation and sustainable development in Sierra Leone (Fofana, 2019; Agbola, 2018). These methods acknowledge the essential function of local communities in the stewardship and preservation of natural resources, incorporating them into decision-making and project execution (World Wildlife Fund, 2019). But community-based approaches also have problems, such as a lack of resources, capacity, and political support (Alhassan, 2017).

Community-based natural resource management (CBNRM) has become a popular way to protect the environment around the world. The model acknowledges that communities residing in proximity to natural resources possess both a significant interest in their sustainable utilization and essential expertise regarding their management. There are a number of CBNRM projects going on in Sierra Leone. The Gola Forest Program helps communities around Gola Rainforest National Park protect the forest, find other ways to make a living, and share the benefits of the program. The Tacugama Chimpanzee Sanctuary works with nearby villages to protect the forest and teach people about the environment. Community forestry programs give local groups the right to manage certain forest areas.

But CBNRM has a lot of problems in Sierra Leone. A lot of communities don't have secure land tenure, which makes it hard to plan for long-term resource management. Customary land ownership systems acknowledge community rights but frequently centralize decision-making power in paramount chiefs and elders, potentially marginalizing women and youth. Communities usually don't have easy access to markets for sustainably harvested goods, technical expertise, or money. Support from NGOs or government agencies from the outside is often unreliable, and projects often end when funding cycles end. Political interference can sometimes weaken community management structures. This happens when officials give out resources or make deals without talking to the communities that will be affected.

The government of Sierra Leone has made policies and plans to deal with these problems because it knows how important it is to protect the environment and promote sustainable development (Government of Sierra Leone, 2018). The National Environmental Policy (Sierra Leone Environment Protection Agency, 2019) and the National Sustainable Development Strategy (Government of Sierra Leone, 2018) are two important documents that explain how the country plans to protect the environment and develop in a way that is good for the future. But these policies and plans are often hard to put into action because of a lack of resources, capacity, and political support (World Bank, 2019).

Since the Environmental Protection Agency was set up in 1990, Sierra Leone's environmental policy framework has changed. The EPA Act (which was changed in 2008 and 2010) gives the agency the power to set standards, monitor the environment, and enforce them. The National Environmental Policy (2019) says things like the precautionary approach and the principle that polluters should pay. Other policies deal with issues that are specific to certain sectors, as well as biodiversity and climate change. Implementation is still weak. The EPA only gets less than 0.1% of the national budget (EPA Annual Report, 2020), which makes it harder for them to inspect and enforce rules. In 2020, the agency had about 50 professional staff members (EPA Sierra Leone, 2020) in charge of managing the environment across the country. Monitoring is harder when there isn't enough equipment.

It is hard for government agencies to work together. A lot of different ministries are responsible for the environment, but they don't always work together well. Policies

can be at odds with each other. For example, promoting mining can hurt environmental protection, while expanding agriculture can hurt forest conservation. Interagency committees don't meet on a regular basis and don't have the power to make decisions. Local government councils have even less power than national agencies.

2.2 Population and Sampling

The study population comprises stakeholders engaged in environmental conservation and sustainable development initiatives in Sierra Leone. The sampling frame consists of government officials, representatives from non-governmental organizations (NGOs), community leaders, and private sector representatives. A purposive sampling method was employed to choose 30 participants from the aforementioned categories.

The research employed purposive sampling to choose 30 participants from various stakeholder groups and geographical areas. Eight government officials from different agencies, from the Environmental Protection Agency to district councils, were there. They ranged from directors to field officers. There were ten NGO representatives from groups like the Conservation Society of Sierra Leone, the Tacugama Chimpanzee Sanctuary, and the Environmental Foundation for Africa. They all had different ways of working and sizes of operations. There were eight community leaders, including paramount chiefs, section chiefs, and leaders of women's and youth groups from the Western Area, Bo, Kenema, and Koinadugu Districts. Mining, logging, or farming expansion put pressure on the environment in these communities. There were four private sector representatives from mining, agriculture, and ecotourism who gave business perspectives. This was the smallest group because they didn't interact much.

2.3 Data Collection Methods

The data for this study were gathered via semi-structured interviews. The interviews were done in person and lasted 30 to 60 minutes. The interview schedule had open-ended questions that let people talk about their thoughts and experiences on the link between protecting the environment and sustainable development in Sierra Leone. The questions addressed subjects including the significance of environmental conservation, the function of sustainable development in fulfilling environmental objectives, and the obstacles and prospects for amalgamating environmental conservation and sustainable development.

Interviews were held in government buildings, NGO buildings, community spaces, and natural areas. The researcher was flexible and followed the interests of the participants while covering four topics: what environmental conservation and sustainable development mean, what people have done in the past, and what challenges and opportunities they see.

The questions looked at things like protecting the environment in Sierra Leone, how environmental conditions affect development, good strategies, and problems with integration, missed chances, working together with stakeholders, and using traditional knowledge in environmental management.

Interviews were done in English or Krio, and when necessary, local helpers translated Mende, Temne, or other languages. With permission, all sessions were recorded on audio. The researcher wrote down non-verbal cues and context in notes, then made field notes that described the situation, new themes, and thoughts on the methods used.

2.4 Data Analysis

We used a qualitative content analysis method to look at the data we got from the interviews. NVivo software was used to code and sort the data. The coding scheme was created based on the goals of the research and the main ideas that came up in the data. We then looked at the coded data to find patterns, themes, and links between the data.
The researcher wrote down more than 250 pages of audio recordings, paying attention to pauses, emphasis, and vocal characteristics. After reading it several times, coding started with both inductive and deductive methods. The research goals for sustainable development, such as "conservation strategies" and "community participation," led to the creation of deductive codes. Participants' answers, like "traditional authority structures" and "donor project cycles," led to the development of inductive codes.

The second cycle put codes in order of importance. Codes that are similar, like "forest management" and "soil conservation," are grouped together under "conservation practices." Each code had clear definitions, criteria for inclusion, and example quotes.

Pattern analysis showed how the codes were related to each other. When people talked about "traditional knowledge," they often brought up "community cohesion" and "sustainable practices," which suggests that there are strong links between the two. The researcher looked at negative cases where expected patterns didn't show important details.

Thematic analysis brought together coded data into main themes by repeatedly refining the codes, raw data, and interpretations. Analytical memos kept track of how people thought and what they decided to mean.

2.5 Data Quality and Trustworthiness

To make sure the data was good and reliable, a number of steps were taken. First, the researcher made sure that the people who were going to be interviewed knew what the study was about and what its goals were, and that they were okay with the interview process. Second, the researcher wrote down everything that was said during the interviews and made audio recordings with the participants' permission. Third, two researchers looked at the data separately to make sure it was consistent and reliable. Lastly, the results were confirmed through member checking, which gave participants a chance to look over the data and make sure it was correct.

The study used a number of different methods to improve credibility, transferability, dependability, and confirmability. These methods were based on Lincoln and Guba's (1985) trustworthiness criteria for qualitative research. Long-term involvement, constant observation, and triangulation were used to address credibility,

which is similar to internal validity in quantitative research. The researcher spent three months in the field getting to know participants and communities and doing follow-up interviews when the first answers needed more explanation. We were able to compare the views of government, NGOs, communities, and the private sector on the same issues by triangulating participant perspectives across stakeholder groups.

Thick description improved transferability, which is similar to external validity. The researcher supplied comprehensive contextual information regarding participants, settings, and processes. This lets readers think about how the results might be useful in other situations. The study doesn't say that the results are statistically generalizable, but the detailed description allows for analytical generalization, which means that what we learn from Sierra Leone can help us understand similar situations in other places.

Dependability, akin to reliability, was ensured through clear documentation of research methodologies. The researcher kept detailed notes on the choices made about sampling, how data were collected, how codes were created, and how analyses were done. This audit trail shows other people how the conclusions were reached. Using NVivo software made another audit trail that kept track of all coding decisions.

Confirmability, akin to objectivity, was sought through reflexivity. The researcher kept a journal during the research process to record their thoughts, feelings, and possible biases. Being aware of oneself helped find and set aside any ideas that could change how something is understood. The co-coding process, in which a second researcher coded a part of the data on their own, was another way to check for interpretive bias.

2.6 Computer-Assisted Qualitative Data Analysis (CAQDAS)

NVivo software was used to make it easier to analyze the data. This software made it easy to organize, code, and sort the data in a clear and systematic way. The coding scheme was made using NVivo's coding framework, which let the researcher give codes to the data and make themes and sub-themes.

NVivo 12 Plus made it easier to do a number of analysis tasks besides basic coding. The software's query functions let the researcher look at code co-occurrence, which is when two or more concepts show up together in participant narratives. Matrix coding queries looked at how different groups of stakeholders talked about certain topics. This showed where they agreed and disagreed. For instance, matrix queries revealed that community leaders prioritized land tenure issues more often than government officials, whereas NGO representatives frequently addressed donor funding cycles.

The framework matrix function sorted data by case and code, which made it easy to compare participants in a systematic way. This helped us find patterns and differences. The researcher could look at how all government officials talked about putting policies into action and then compare this to how NGO representatives or community leaders talked about the same thing.

The memo and annotation features in NVivo helped with the analysis. The researcher made memos to write down new ideas, questions for more research, and links between different parts of the dataset. Annotations on certain parts of the text recorded

immediate responses and initial interpretations. These tools helped qualitative analysis be iterative and self-reflective.

NVivo's visual models helped show how different ideas are connected. The researcher created concept maps that showed how different codes were related to each other. These maps changed as the analysis went on. These pictures helped explain the results and helped create the three main themes that were shown in the results.

2.7 Combining Information from Different Sources

The interview data were cross-checked with data from secondary sources, such as government reports, academic studies, and documents from non-governmental organizations (NGOs). Combining data from different sources made the results more valid and reliable.

Documentary analysis looked at more than 50 documents, such as national policies, laws, strategic plans, project reports, academic papers, and gray literature. Important documents were the National Environmental Policy (2019), the National Biodiversity Strategy and Action Plan (2019), the Third National Development Plan (2018), the Voluntary National Review of SDG implementation (2019), EPA annual reports, forestry sector reviews, mining sector reports, and evaluations of projects funded by donors.

This documentary evidence had a number of uses. It first gave background information about the environmental and development situation in Sierra Leone. Second, it made it possible to compare official policy positions with what participants said about how things really worked. Analytically, discrepancies were useful because they showed the difference between what people said they would do and what they actually did. Third, the documents provided quantitative data that added to the qualitative data from the interviews. Statistics about forest cover, protected areas, mining activities, and other indicators gave participants a clear frame of reference for their stories.

The researcher used NVivo to systematically code relevant documents and interview transcripts. This made it possible to compare themes directly between data sources. For example, government documents focused on policy frameworks and institutional structures, while the people who were interviewed were more concerned with implementation problems and informal practices. The differences between these points of view helped us understand why policies don't always have the effects we want them to.

2.8 Member Checking

Member checking was used to make sure that the findings were correct and that the data accurately showed how the participants felt and what they thought. This meant giving the participants the results and asking them to check that the data was correct and useful. The researcher used two ways to check with members. First, participants were sent summary documents of the preliminary findings by email or in hard copy, depending on what they wanted. Participants gave feedback on how accurate the information was and

added more information. Fifteen people answered, and some of them made points that weren't clear, and two of them suggested new connections between the themes. This feedback improved the final analysis.

Second, twelve people from stakeholder groups met for a validation workshop. The researcher talked about the main themes, and the people who were there talked about how the results matched their own experiences. People who attended the workshop gave examples and talked about what the policy might mean. Different groups of stakeholders sometimes disagreed on what things meant, but they all agreed that they were correct overall. One researcher said that the discussions at the workshop "*deepened understanding of the findings and gave more quotes and examples that were used in the final write-up*."

2.9 Ethical Considerations

The study was carried out in compliance with the tenets of informed consent and confidentiality. The participants were told what the study was for and what it was trying to accomplish, and they signed a form saying they agreed to be interviewed. To protect the participants' identities, the data was stored safely and made anonymous.

Before the interviews, the researcher got informed consent from all of the people who would be taking part. The consent process used simple language to explain the study's goals, methods, risks, and benefits. Participants learned that they could leave the study at any time without any problems. They learned how to use, store, and protect data.

The researcher was very careful when talking about power dynamics, stressing that participation was voluntary and that there were no rewards or punishments. There were consent forms in English and Krio, and when necessary, they were translated into local languages.

Some of the ways to protect privacy were password-protected storage, using fake names in transcripts, and reporting methods that made it impossible to identify individuals. Reports show stakeholder categories, but they don't say which positions and organizations are involved unless the participants gave their permission.

The study had very few risks. But sometimes, environmental talks brought up politically charged issues like corruption and bad government. People could refuse to answer questions, and sensitive information was handled with care. The researcher didn't include "off the record" information in the formal analysis.

When asked, the researcher shared information about conservation and programs, linking participants to useful resources.

2.10 Limitations

There are a few things about this study that should be noted. First, the sample size was small, and the participants were chosen based on a certain set of rules. Consequently, the results may not be applicable to the larger population of stakeholders engaged in environmental conservation and sustainable development in Sierra Leone. Second, the

study used self-reported data, which could have biases and problems. Third, the study was conducted in a particular context, and the results may not be generalizable to other contexts.

The three-month fieldwork period did not allow for the observation of seasonal changes that affect farming and the availability of resources in Sierra Leone's wet and dry seasons. A more extended study covering several seasons would provide deeper insights into these dynamics.

Even though it covered four districts, it didn't cover places like Northern Province, where communities have different environmental problems than those in the south or east. The problems that come from the coast are different from those that come from the land. The results indicate more general trends, but they might not show all the differences in each area.

Focusing on stakeholders who are actively involved in conservation leads to selection bias. Communities not involved with these issues are still not well represented, but their views on not getting involved would be useful. Even though people tried to translate, language barriers still existed. It was sometimes hard to get across subtle meanings and cultural references, which could have lost some of their meaning.

The researcher's identity as an educated, English-speaking academic connected to universities and NGOs influenced how participants interacted with each other. Some respondents may have customized their answers to align with perceived expectations or funding prospects. There is still a problem with social desirability bias.

The research reflects the conditions of 2023-2024. Policies and stakeholder viewpoints are continually changing, which means that these results are only a snapshot and not a permanent state**.**

3. Outcomes/Discoveries

This study investigated the relationship between environmental conservation and sustainable development goals in Sierra Leone, employing a solely qualitative methodology. The results of this study are delineated in the subsequent sections.

There were a number of cross-cutting sub-themes that came up across these three main themes. Institutional capacity became a major issue that affected all areas of environmental protection and sustainable development. Participants frequently mentioned resource limitations, whether they were financial, human, or technical. The conflict between short-term economic needs and long-term sustainability goals came up in many of the topics we talked about. Another common pattern was the gap between policy frameworks and how things actually work. Traditional knowledge and practices emerged as an underutilized resource and a prospective basis for more culturally appropriate conservation strategies.

The three main themes do not represent completely separate areas; instead, they are all parts of a complicated reality that are connected to each other. Environmental protection is a must for sustainable development, which is why integration is important.

The challenges and opportunities in achieving sustainable development delineate the limitations and prospects confronting that integration. Community involvement and participation can help bring about integration. The themes together give a full picture of the current state and future potential of protecting the environment and developing sustainably in Sierra Leone.

3.1 Thematic Analysis

The thematic analysis of the interview data identified three principal themes:

1) Environmental Conservation as a Prerequisite for Sustainable Development,
2) Challenges and Opportunities in Attaining Sustainable Development, and
3) Community Engagement and Participation in Environmental Conservation.

3.2 Theme 1: Environmental Conservation as a Prerequisite for Sustainable Development

The people who answered the survey stressed how important it is to protect the environment for Sierra Leone's long-term development. They said that environmental degradation is a big problem for sustainable development and that conservation efforts are needed to fix it. One person said, *"Protecting the environment is not only a moral duty, but it is also an economic necessity*." "*We won't have a sustainable future if we don't take care of our environment*" (Government Official, Interview).

Participants recognized environmental conservation as vital for development in various aspects. Twenty-eight of the thirty participants said that agricultural productivity is important for their livelihoods. This depends directly on the health of the soil, the availability of water, and ecosystem services. "*When farmers keep planting without letting the land rest, the soil gets worse, and the yields go down year after year*," said one agricultural extension officer. Then they cut down trees in the forest to find good land. "*This cycle can't go on forever*" (Government Official, Interview).

Water security became another important link. A leader from the Western Area community talked about how watershed degradation affects the availability and quality of water: "*Twenty years ago, our stream had clean water all year round*." "*Now it dries up in the dry season, and even when it rains, the water is brown with soil*" (Community Leader, Interview). An official from the EPA said that Freetown's water supply depends on the Western Area Peninsula Forest Reserve. They said, "*If we lose that forest cover, we lose our water supply*." "*Environmental conservation is not a luxury; it's about survival*" (Government Official, Interview).

Environmental conditions have a direct effect on health outcomes. A health worker from an NGO said, "*We treat the diseases, but the root cause is the environment*." Cholera and typhoid spread through dirty water. Mosquitoes breed in water that doesn't flow well. "*We'll keep treating the same illnesses forever if we don't deal with environmental causes*" (NGO Representative, Interview). A lot of thought went into the economy. A private sector representative said, "*Tourists come to Sierra Leone to see our beaches,*

rainforests, and animals." "*We lose this business opportunity if we ruin these attractions by not taking care of the environment*" (Private Sector Representative, Interview).

Climate change came up in a lot of conversations as both a problem for the environment and a problem for development. A district council official said, "*Climate change is not a problem for the future; it's happening right now*." Because the seasons have changed, farmers don't know when to plant anymore. "*We can't adapt to these changes without protecting the environmental systems that give us strength*" (Government Official, Interview).

3.3 Theme 2: Problems and Chances for Reaching Sustainable Development

The people who answered the survey said that there were both problems and chances for Sierra Leone to reach sustainable development. There were problems like not having enough money, not having enough infrastructure, and corruption. One person said, "*We need more resources to reach sustainable development, but we also need to deal with the problem of corruption*." "*Without addressing corruption, we won't be able to use resources well*" (NGO Representative, Interview).

On the other hand, the people who answered also saw a number of ways to achieve sustainable development, such as the use of renewable energy and the importance of getting people involved in their communities. One person said, "*We have a lot of potential for renewable energy in Sierra Leone, and if we can use this potential, we can become less dependent on fossil fuels and reach sustainable development*" (Environmental Expert, Interview).

The biggest problem was a lack of resources, with all 30 participants saying their budgets were too small. The EPA is in charge of protecting the environment across the country, but it gets less money than many single ministries. One person from the EPA said, "*We only have about 50 professional staff for the whole country*." We need to look over every application for mining, logging, and big construction projects. We need to keep an eye on compliance. We need to punish people who break the rules. We need to teach people about the environment. "*We can barely handle a small part of these responsibilities with the resources we have no*w" (Government Official, Interview).

These resource problems get worse when institutions don't work together well. Different agencies with overlapping duties are in charge of different environmental tasks. A high-ranking government official said, "*The Ministry of Agriculture wants to grow farming*." The Ministry of Lands wants to give out land. The Ministry of Mines wants to encourage mining. The EPA wants to keep the environment safe. We all have different things that are important to us, and we don't work well together. "*We work at cross-purposes*" (Government Official, Interview).

Twenty people said that corruption hurts environmental governance. Bribes are given to officials so they can approve bad permits. People who are connected get better access to resources. One community leader said, "*Sometimes we see mining happening where it shouldn't be allowed*." How did they get the okay? We sometimes see trees being cut

down when they should be protected. Who is getting the most out of this? "*Connected people make money while regular people suffer"* (Community Leader, Interview).

Thinking only about the short term makes it harder to protect the environment. Farmers care more about growing crops quickly than keeping the soil healthy. Instead of making long-term investments in the environment, politicians focus on quick, visible projects. A district official said, "*Politicians want to show results before the next election*." Environmental protection takes years, not just election cycles, to show results. "*Conservation is not a top priority*" (Government Official, Interview).

Tenure insecurity deters conservation investment. In traditional systems, paramount chiefs and families decide who gets what land. A farmer said, "*If I plant trees, they take 10 to 20 years to grow*." But I don't know if this land will still belong to me in ten years. The chief could move it to a different place. So, why should I put money into the future? (Community Leader, Interview).

Weak enforcement means that people who break the law don't get punished. People skip Environmental Impact Assessments. People don't follow the rules of their permits. A lawyer for an NGO said, "*There are laws, but they aren't enforced well*." Companies figure that the benefits of breaking the rules are greater than the small chance of getting in trouble. "*Compliance stays low until enforcement gets better*" (NGO Representative, Interview). Conservation efforts are limited by gaps in knowledge. Farmers don't know much about how to use sustainable methods. Not everyone can get practical help from extension services.

Even though there were problems, participants found a lot of good things that could happen. Sierra Leone still has important forests, water sources, biodiversity, and farming potential. One scientist said, "*We've lost a lot, but not everything*." "*We still have chances to get this right if we act now*," said an NGO representative in an interview.

The potential for renewable energy is a big chance. Solar power is possible because there is a lot of sunshine. A lot of rain helps hydropower. A government official said, "*We have a lot of potential for renewable energy*." If we work on it, we can get clean, cheap energy for growth while having as little effect on the environment as possible. "*Now is a great time to jump ahead of dirty energy sources*" (Government Official, Interview).

The fact that young people care about the environment is a good sign. Younger people are more aware of the environment because of school clubs, tree planting, and social media campaigns. One youth leader said, "*My generation knows that if we don't change our ways, we will leave a worse environment for the next generation." We are pushing for change and asking the government and businesses to be responsible for the environment*" (Community Leader, Interview).

Traditional knowledge systems have potential that isn't being used enough. Taboos, sacred groves, and systems for rotating use were some of the ways that communities used resources in a sustainable way in the past. "*Our ancestors lived with nature for hundreds of years without harming it*," one elder said. They knew when to pick crops, where not to farm, and how to share resources. We are forgetting this wisdom, but it is still around in some places. "*We should learn from it*" (Community Leader, Interview).

Successful conservation models show that they can work. The Gola Forest Program helped the community and cut down on deforestation. Co-management of community fisheries helped fish stocks grow. "*We have proof that it can work*," said one program manager. "*These successful models should be studied, changed, and made bigger*" (NGO Representative, Interview). On the other hand, the people who answered also saw a number of ways to achieve

3.4 Theme 3: Getting People Involved in Protecting the Environment and Working Together

The people who answered the question stressed how important it is for people in the community to be involved in protecting the environment. They said that for conservation efforts to be successful, people in the community need to be involved, and that people in the community should have a say in what happens. One person said, "*Community involvement and participation are necessary for environmental conservation to work*." "We won't be able to reach our goals if we don't include local communities in the decision-making process" (Community Leader, Interview).

Community involvement is not just a formality; it is essential for conservation success. Participants delineated three principal justifications for this emphasis.

First, communities have a lot of local knowledge about ecosystems, species, seasonal patterns, and resource dynamics that have been passed down through generations. A conservation biologist said, "*People in the community can tell you where it floods when it rains, where animals gather during the dry season, which plants have medicinal value, and how forests have changed over the years*." "*This information is very useful for planning conservation*" (NGO Representative, Interview).

Second, communities make daily choices and do things that affect who can use resources. Communities decide whether or not to follow rules set by outside authorities. A chief said, "*The government can make laws in Freetown, but what happens in my chiefdom depends on my people*. *People will support conservation if they think it will help them. If they think it's something that's being forced on them that hurts them, they'll fight it"* (Community Leader, Interview).

Third, communities have to pay for conservation. Protected areas make it harder for communities to get to the land and resources they used to use. "*It's really about fairness and rights*," said a representative from an NGO. People are being asked to give up things for the sake of conservation that helps everyone. "*They should have a say in how conservation happens and should get something out of it*" (NGO Representative, Interview).

Participants delineated mechanisms varying from superficial consultation to authentic collaborative decision-making. The most important participation happened in community-led natural resource management projects. One member of the committee said, "*We are in charge of this forest now*." We decide where people can farm, what kinds of trees can be cut down, and how to settle disagreements. "*Government and NGOs help us, but we make the decisions*" (Community Leader, Interview).

But there are problems. Power structures in communities can sometimes make existing inequalities worse. One leader of a women's group said, "*They say community participation, but it's always the same old men who make the decisions at meetings*." "*Women who depend on forest products every day don't get a voice*" (Community Leader, Interview).

Capacity constraints inhibit substantive engagement. Communities might not have the technical know-how to figure out complicated problems. A specialist from an NGO said, "*Participation works when communities have the skills and information they need to be involved in a meaningful way*." If not, it's just a way to check off a box (NGO Representative, Interview).

Sharing benefits is very important for getting support from the community. If communities give up access to resources, they expect to be paid back in some way. Successful programs include hiring park rangers, sharing profits, giving people priority access to programs that help them make a living, and making improvements to infrastructure.

But benefit-sharing doesn't always work out. "*We were told the park would help us, but we've seen little*," said one person from the community. Some jobs were made, but they went to people from other places. We don't see the money that was supposed to help our community. "*We can't farm where our grandparents farmed*" (Community Leader, Interview).

To participate effectively, you need enough time. You can't rush meaningful consultation. A project manager for an NGO said, "*We know that proper participation takes time, but we have to meet donor deadlines, report requirements, and political pressure to show quick progress*." The incentive structure doesn't support processes that are slow, careful, and truly participatory" (NGO Representative, Interview).

The integration of traditional knowledge has become a distinct aspect of participation. Participants talked about useful practices like sacred groves, taboos that protect species during breeding seasons, rotational farming systems, and rules for how to harvest crops. One elder said, "*Our ancestors were conservationists, but they didn't use that word*." They knew that we should only take what we need, that nature should be respected, and that some places are sacred and should not be disturbed (Community Leader, Interview).

Youth engagement has both problems and chances. More and more young people are moving to cities, which means that rural areas are getting older. But young people bring energy, knowledge, and tech skills that are useful for conservation. One young person said, "*We young people are the future, but we often don't get to make decisions*." "*We have an education, we know how to use technology, and we care about the environment because we'll have to deal with the effects longer than our elders*" (Community Leader, Interview).

3.5 Analyzing Documents

The documentary analysis of pertinent policies, legislation, and reports yielded several significant findings. The National Environmental Action Plan (NEAP) and the Sustainable Development Goals (SDGs) are two of the Sierra Leone Government's

policies and laws that aim to protect the environment and promote sustainable development. The respondents, however, said that these rules and policies aren't always followed, and that there needs to be more enforcement and monitoring.

Sierra Leone has signed important environmental treaties like the Convention on Biological Diversity, the UN Framework Convention on Climate Change, the UN Convention to Combat Desertification, the Convention on International Trade in Endangered Species, and the Ramsar Convention on Wetlands.

The National Environmental Policy (2019) sets out the ideas of sustainable development, the precautionary principle, the polluter pays principle, public participation, and integrating environmental issues across different sectors. It sets goals for land management, waste management, governance, biodiversity, air quality, and water quality.

The National Biodiversity Strategy and Action Plan (2019) puts a lot of emphasis on protecting endangered species, controlling invasive species, reducing deforestation, promoting sustainable agriculture, managing fisheries, and expanding protected areas. The targets are in line with the Aichi Biodiversity Targets and stress the importance of community involvement.

One of the eight clusters in Sierra Leone's Third National Development Plan (2018–2023) is environmental sustainability. Some of the strategies are to expand protected areas, cut down on deforestation, improve waste management, develop renewable energy, and make environmental governance stronger.

The Voluntary National Review (2019) says that deforestation is still going on and that many environmental goals won't be met without faster action. The review calls for more resources, stronger institutions, better monitoring, and better coordination.

The Environmental Protection Agency Act (2008, amended 2010), the Wildlife Conservation Act (1972), the Forestry Act (1988), and other rules are all part of the law. Participants consistently pointed out that enforcement was weak.

The Gola Forest Programme is an example of a project that protects biodiversity, fights climate change, and helps people make a living. The Tacugama Chimpanzee Sanctuary gets people involved in protecting forests. Strong community involvement, ongoing funding, capable implementation, and flexible management are all things that successful projects have in common.

One policy review says, "*Sierra Leone has policies that deal with environmental protection and sustainable development." "Implementation remains the critical challenge*" (Environmental Policy Review, 2020). Monitoring systems are still weak, and sometimes donor priorities mess up environmental agendas.

This study investigated the relationship between environmental conservation and sustainable development goals in Sierra Leone, employing a solely qualitative methodology. The results of this study indicate that environmental conservation is a prerequisite for sustainable development and that community involvement and participation are crucial for the efficacy of conservation initiatives. The study also talks about the problems and challenges that Sierra Leone faces in trying to achieve sustainable

development. For example, it says that more resources are needed and that corruption needs to be dealt with.

3.6 Suggestions

Based on what this study found, the following suggestions are made:

1) The government of Sierra Leone should make protecting the environment and promoting sustainable development top priorities. These goals should be included in all plans and policies for development. This means putting environmental issues higher up in the political and bureaucratic hierarchies. Environmental agencies should get the right amount of money based on what they do. All major development projects should have environmental impact assessments, and they should be strictly reviewed and enforced. Regular reporting and accountability systems should help cabinet members pay more attention to environmental issues. Development planning should consistently evaluate environmental impacts and recognize synergies between conservation and development goals.
2) There should be more community involvement and participation in efforts to protect the environment, and local communities should have a say in the decisions that are made. This necessitates the establishment of authentic participatory mechanisms instead of superficial consultation. Conservation and development projects that affect communities should follow the rules of free, prior, and informed consent. People in communities should get information in languages and formats that are easy for them to understand. Participation processes should include a wide range of voices, such as those of women, young people, and people who are not in the mainstream. People should respect traditional knowledge and use it when it makes sense. Decision-making power should be given to communities whenever possible, so that they can have a real say in the outcomes that affect them.
3) The government should give more money to environmental protection and sustainable development, and make sure that resources are used well to reach these goals. To carry out their duties, environmental agencies need large budget increases. The EPA, protected area authorities, the forestry division, and other environmental groups need enough staff, equipment, and money to run their programs. But better management systems must go along with better resource allocation to make sure that resources are used effectively. Transparent procurement, hiring based on merit, performance management, and regular audits can all help make better use of resources. To help government budgets, new ways to pay for things like environmental fees, payment for ecosystem services, and green bonds should be looked into. The government should deal with corruption and make sure that resources are used well to reach sustainable development goals. This needs many different kinds of anti-corruption work. It is important to make oversight institutions stronger, such as the Anti-Corruption Commission, the Audit Service, and the parliamentary oversight committees. The

process for getting environmental permits and approvals should be open and clear, with clear rules, public access to applications and decisions, and ways to appeal. Officials who work with natural resources can be less likely to be corrupt if they have to declare their assets. It is important to support civil society groups that keep an eye on environmental governance. There should be stronger protections for whistleblowers. Most importantly, there needs to be visible enforcement with punishments for corrupt people in order to change the incentives.

4) The government should encourage the use of renewable energy sources and cut back on the use of fossil fuels. There are chances for sustainable development in Sierra Leone's energy sector. Policies should focus on developing renewable energy by using feed-in tariffs, tax breaks, faster permitting, and public investment. We should work on developing the potential of solar, small-scale hydro, and biomass energy. Off-grid renewable solutions can make it easier for people in rural areas to get electricity at a lower cost than extending the grid. Programs that help people use less energy can slow down the growth of demand. Ending fossil fuel subsidies and giving targeted help to low-income families can make the playing field more even for renewable energy sources. Regional power trade can make energy security better and help the growth of renewable energy.
5) The area covered by protected areas and how they are managed should be bigger. The Convention on Biological Diversity says that Sierra Leone should protect 17% of its land area, but it only protects about 4% right now. Additional areas that are home to important biodiversity or provide important ecosystem services should be protected. Also, the management of current protected areas should get better with the right amount of money, staff, equipment, and partnerships with the community. Authorities in protected areas should use adaptive management methods and data from monitoring to improve practices better.
6) Extension services, farmer training, demonstration plots, input subsidies, and market support should all be used to promote sustainable farming practices. Agroforestry, conservation agriculture, integrated pest management, crop rotation, and organic soil amendments are some of the methods that can boost productivity while having less of an effect on the environment. Agricultural research ought to cultivate locally suitable sustainable methodologies. To give more farmers useful advice, extension systems need to be made much stronger.
7) To encourage long-term investment in sustainable land management, land tenure security should be improved. This may necessitate modifications to customary tenure systems while honoring traditional authority and cultural practices. Better security can come from having written records of land rights, ways to settle disputes, and protection against being taken away from your property without cause. In many places, community land registration that recognizes collective tenure may be a good idea.

8) Schools, communities, and professional training should all do more to teach people about the environment. Environmental issues, with a focus on local ecosystems, conservation challenges, and sustainable practices, should be part of the national curriculum. Training teachers should help them teach about the environment better. Community environmental education programs should use local languages and ways for people to get involved. Professional development for government workers, NGO workers, and private sector workers should include information about the environment that is important to their jobs.

3.7 Implications

The results of this study have important consequences for policymakers, practitioners, and researchers. The study underscores the significance of environmental conservation and sustainable development in Sierra Leone and stresses the necessity for enhanced community involvement and participation in environmental preservation initiatives. The research indicates that sustainable development in Sierra Leone relies on the efficient execution of policies and legislation, necessitating increased resources to attain these goals.

The research shows that policymakers need to combine environmental protection and sustainable development instead of treating them as separate issues. Plans for development and decisions about investments should always take into account how they will affect the environment. Short-term economic benefits from harmful actions often come with long-term costs that are greater than the benefits. Policies should show this by protecting the environment and encouraging people to use sustainable methods. But just making policies isn't enough. Outcomes are determined by implementation capacity, resource allocation, institutional coordination, and political commitment.

The research shows that there are urgent problems with governance. Policies that are well thought out don't work when there is weak enforcement, corruption, institutional fragmentation, and not enough resources. To make environmental governance stronger, agencies need to be better at their jobs, work together better, have clear processes, and be held accountable. Efforts to fight corruption should also include managing natural resources.

For practitioners, the findings underscore the significance of community engagement. Top-down initiatives that don't get communities involved in a meaningful way are likely to fail or have bad effects. Professionals ought to commit to authentic participatory processes, acknowledging communities as collaborators. Traditional knowledge should be honored and incorporated. Benefit-sharing agreements need to be clear and fair.

The research emphasizes the necessity for international development partners to synchronize their assistance with national priorities. Sometimes, donor-driven agendas can cause problems when they aren't in line with government plans and local needs. Development partners should help Sierra Leone reach its goals. Funding methods should

allow for long-term programming that fits with the timeframes for managing the environment.

Lastly, everyone needs to do something to protect the environment. The results are based on the choices that each person makes about how to use resources and deal with waste. It is important to raise public awareness and change people's behavior.

3.8 Future Research Directions

This study presents multiple avenues for subsequent research. Subsequent research may investigate the correlation between environmental conservation and sustainable development in various nations. Future research may also investigate the influence of community engagement and participation on environmental conservation initiatives. Future research may also examine the efficacy of policies and legislation designed to advance environmental conservation and sustainable development.

Comparative studies on environmental conservation and sustainable development in other West African nations may reveal regional trends and context-specific determinants. Ghana, Liberia, Guinea, and Senegal all deal with similar problems, but they have taken different paths to solve them. Comparing strategies across countries could help people learn from each other's mistakes by showing which ones work best in which situations.

Research that looks specifically at how traditional ecological knowledge can be used with modern conservation science could help improve practice. How can these ways of knowing work together? What kinds of institutional arrangements help integration? How can the intellectual property rights of people who hold knowledge be protected? Successful integration case studies could serve as templates.

Research in political economy that looks at the interests, incentives, and power dynamics that shape environmental governance could help with reform plans. Who benefits from the way things are set up now? Who pays for what? What groups might back change? How do political processes affect the environment? To answer these questions, we need to use research methods like stakeholder mapping, network analysis, and process tracing.

Research investigating the gender aspects of environmental conservation and sustainable development could address a topic that has received insufficient attention in this study. How do changes in the environment affect women and men in different ways? How does gender influence involvement in conservation efforts? What knowledge exists about resource management that is specific to each gender? Research that takes gender into account can help make policies and programs more fair.

Investigations into youth perspectives and roles in environmental conservation and sustainable development may examine generational aspects. What are the differences between how young people and older generations think and act when it comes to the environment? What things keep young people from getting involved? What chances are there for young people to take action on the environment? Young people are the future, and they need more research attention.

Research examining the efficacy of various community-based natural resource management models could elucidate optimal practices. What kinds of governance structures work best? How should benefits be split? What kind of technical help do communities need? What factors facilitate or hinder the success of CBNRM? These questions could be answered by comparative case study research.

Lastly, action research that collaborates with communities, government entities, or NGOs to formulate and evaluate novel strategies for integrating environmental conservation and sustainable development could yield both pragmatic solutions and academic insights. Participatory action research that involves stakeholders in defining problems, designing solutions, implementing them, and evaluating them can create interventions that are appropriate for the situation while also building local capacity.

4. Conversations and Conclusions

4.1 Conversations

The qualitative findings of this study underscore the complex interplay between environmental conservation and sustainable development goals in Sierra Leone. The data indicated that environmental conservation is an essential component of sustainable development in the country, as it is intricately connected to the welfare of the environment, economy, and society.

The study demonstrates that environmental conservation and sustainable development are not opposing goals but rather complementary necessities. Environmental systems are what make economic activity and human health possible. Degrading these systems makes it less likely that development will happen, which leads to a downward spiral of worse health, lower productivity, and more poverty. On the other hand, environmental conservation can help development by providing resources over time, keeping ecosystem services going, and creating new business opportunities when done right.

Nonetheless, the research indicates considerable conflicts between conservation and development in practice. Some of these tensions come from real trade-offs, where using resources for one thing means not being able to use them for another. More often than not, tensions are caused by policy failures, market distortions, unfair distribution of costs and benefits, and short-term thinking. To solve these problems, we need to use integrated approaches that recognize complexity instead of simple either-or framing.

4.2 Environmental Conservation and Sustainable Development:

The study's results back up the idea that protecting the environment is an important part of Sierra Leone's sustainable development (World Bank, 2019). The data indicated that environmental degradation constitutes a substantial impediment to sustainable development, necessitating conservation efforts to mitigate this challenge (Government Official, Interview). This aligns with prior research that has underscored the significance of environmental conservation for sustainable development (UNDP, 2018).

The study shows clear links between the state of the environment and the outcomes of development in Sierra Leone. Most Sierra Leoneans depend on agriculture for their livelihoods and food security. The health of the soil, the amount of water available, and the climate all have an effect on agricultural productivity. Watershed integrity is important for making sure that there is enough water for drinking, sanitation, and productive uses. Air pollution, waterborne diseases, and vector-borne illnesses are all examples of how the environment affects health. Sustainable environmental management is important for economic opportunities in areas like tourism, fishing, and forestry.

The study also shows how environmental damage can lead to cycles of poverty. Natural resources are often very important for poor communities to make a living. Poor families are hit the hardest when environmental damage makes resources less available and less productive. They might respond with coping strategies like increased exploitation, which makes resources even worse and creates vicious cycles. To break these cycles, we need to use a combination of methods that focus on both restoring the environment and diversifying people's sources of income.

4.3 Community Engagement and Participation

The study underscores the significance of community involvement and participation in environmental conservation initiatives in Sierra Leone. The data showed that local communities need to be part of the decision-making process and that their involvement is important for making conservation efforts work (Community Leader, Interview). This aligns with the results of prior research that has highlighted the significance of community involvement and participation in environmental conservation (Bryant & Wilson, 2018).

The results support the community-based natural resource management model, which is known around the world as a good way to protect the environment (Berkes, 2004). CBNRM understands that communities that live near natural resources have both the right to have a say in decisions that affect them and the ability to make important contributions. Communities have local knowledge, control who can use resources, and see the effects of conservation firsthand. Their involvement is not only desirable from a rights or equity standpoint but also pragmatically necessary for efficacy.

But the research also shows that getting people involved in the community isn't the answer to everything. Participation can be superficial or deceptive, legitimizing preordained choices instead of authentically integrating community feedback. In communities, power dynamics can lead to elite capture, where already privileged groups get more benefits. Some communities may not have the resources to deal with complicated legal or technical issues. External supporters might not be committed to keeping participatory processes going over time.

The study also shows how traditional knowledge and institutions could help protect the environment. Before colonization and modernization, the people of Sierra Leone used traditional systems to manage resources that had been passed down from

generation to generation. These systems have gotten weaker, but they are still around. Reviving and changing traditional practices can help protect cultural heritage while also improving conservation outcomes. But this needs to be done with care to avoid romanticizing the past or forcing old ways of doing things on new situations.

4.4 Problems and Chances

The study's results show that there are chances for improvement, even though Sierra Leone has a lot of problems when it comes to sustainable development. The information showed that the country has a lot of natural resources, such as renewable energy sources, which could be used to support sustainable development (Environmental Expert, Interview). The study's results also show that community-based conservation projects could work, getting people involved and helping the environment (Mugo, 2017).

The challenges identified in this research, including resource constraints, institutional weaknesses, corruption, and short-term pressures, are formidable. They should not be minimized or dismissed as easily solvable. These challenges reflect deep structural conditions, including poverty, weak governance, limited state capacity, and political economy dynamics where powerful actors benefit from environmental exploitation. Overcoming these challenges requires sustained effort, political will, significant resources, and fundamental reforms.

Yet the research also demonstrates that change is possible. Successful conservation and development initiatives operating in Sierra Leone prove that positive outcomes can be achieved despite difficult conditions. Renewable energy potential offers pathways to sustainable development. Growing environmental awareness, particularly among youth, creates constituencies for change. International support provides resources and expertise. Traditional knowledge offers culturally grounded approaches. These opportunities should be seized.

The trajectory Sierra Leone follows depends on choices made now. Continued degradation is not inevitable, nor is sustainable development automatic. Deliberate action informed by evidence and guided by principles of sustainability, equity, and participation can bend the curve toward better outcomes. The alternative is allowing current trends to continue toward ecological collapse, with catastrophic consequences for development and human wellbeing.

4.5 Conclusion

This qualitative study has investigated the relationship between environmental conservation and sustainable development goals in Sierra Leone. The results indicate that environmental conservation is a crucial component of sustainable development in the country, and that community involvement and engagement are necessary for the efficacy of conservation initiatives. The study's results also show the problems and chances that Sierra Leone has in reaching sustainable development. They also stress the need for good laws and policies that encourage environmental protection and sustainable development.

The study shows that protecting the environment and developing in a way that doesn't harm it are closely related in Sierra Leone. Environmental degradation negatively affects development in many ways, such as agriculture, water, health, and livelihoods. On the other hand, environmental conservation can help sustainable development when it is done through integrated strategies that involve communities and address issues of fairness. The difficulty is not in deciding between development and the environment, but in finding ways to support both at the same time.

To make this integration happen, we need to get past some big problems. We need to make institutions stronger. Resources must be gathered and used in the right way. We must fight against corruption. We need to stop thinking about the short term and start thinking about the long term. Policies need to be put into action instead of just being written down.

The study's results add to both academic knowledge and real-world action. Academically, the research contributes to the expanding body of literature on environment-development relationships in developing countries, offering contextualized insights from Sierra Leone. The study shows how useful qualitative methods can be for learning about complicated social-ecological systems. In practical terms, the results help shape policies, programs, and ways to get stakeholders involved.

Sierra Leone is at a very important point in its future. The choices made in the next few years about how to manage natural resources, how to develop, and how to change the way government works will have effects on the environment and development for many years to come. The country can keep going in the same direction, which will lead to more damage to the environment and slower development. Or it can take a different path toward sustainable development and environmental protection. We have the knowledge, tools, and skills to follow the second path. To make it happen, we need political will, collective action, and a long-term commitment.

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Author Contributions

OCOH: Developed the concept, literature survey, and manuscript review; JMC: Developed the concept, design, literature survey, and manuscript review.

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