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# Impact of Conservation Agreements on Livelihoods and Forest Protection in Rural Liberia

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Abstract

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Dissertation Submitted in Partial Fulfillment

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## Abstract

People living near forests in Liberia are facing pressure to protect the forests for conservation while they are struggling for alternative incomes for livelihoods. The purpose of this quantitative correlational study was to assess whether conservation agreements improve rural livelihoods and promote forest conservation by examining the relationship between direct payment of conservation benefits to forest communities and forest protection, and the relationship between direct payment of conservation benefits to forest communities and livelihood improvement in rural Liberia. A total of 150 participants aged 18 and above were surveyed from three regions in Liberia using a precoded questionnaire. The frequency distribution and Chi-square test of association were used to determine the descriptive and inferential statistics derived from the results of the study. Results showed insufficient evidence to link direct benefits of conservation and forest protection in the form of harvesting of materials and conservation efforts. There was no significant difference between persons who received compensation and those who did not. Results also showed insufficient evidence of a relationship between direct payments and income. Findings showed stronger evidence of linkages between direct payment and household amenities and ownership of household assets. Findings may be used to promote equity by allowing all major segments of the community to be engaged in the implementation and enforcement of the conservation agreement with the community leading to positive social change. Support for local communities in the enforcement of forest protection remains the priority of all stakeholders including organizations working to promote conservation and protection of forest resources.

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# Dedication

I would like to dedicate this dissertation to my beloved family. To my parents: Mr. Peter Gayflor Mulbah Sr. (late) and Madam Yarmah Kelleh (Mother). Special dedication goes to most loving and precious children: Peter J. Mulbah, Peejay G. Mulbah, Pep T. Mulbah, and Pyotr T. Mulbah.

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I am highly indebted and sincerely grateful to Mr. and Mrs. Richard F. Ngafuan for their tireless moral and technical support given in the preparation of this work. You taught me to remain strong and steadfast in fulfilling my academic responsibility. No words can express how appreciative I am. Thankful for the kindness.

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# Chapter 1: Introduction to the Study

An inseparable connection exists between rural livelihoods and the conservation of forests in most developing countries, especially those with tropical forest cover like Liberia (WorldBank, 2010). The environmental goods and services these tropical forests provide are progressively perceived as a significant source of income, food, and resources for local communities (Angelsen & Wunder, 2003). In Liberia, forest items represent a reliable source of food and income amid anticipated times of regular and periodic setbacks or peculiar shocks. The forest products have proven to provide guarantee food security and a place where rural individuals who frequently live-in communities with less access social services depend for income generation (Cavendish, 1999). Income earned from the forests has been observed to be equity promoting and poverty alleviating for impoverishing forest dependent families (Cavendish, 1999).

With one third of the world's land covered with forest (Lambin et al., 2001), the emergence of global warming has made forests even more critical in the solution. According to Dietzen, Harrison and Michelsen-Correa (2018) the forest serves as an excellent sink for carbon sequestration and neutralizing of the world temperature. Forest communities in tropical countries are under pressure to keep their forests intact to save the world. To expand on communities' efforts, numerous tools and mechanisms have been introduced as a means of channeling tangible benefits to forest communities and people in exchange for their commitment to protect and conserve the world's forests (Reyes García, et al., 2019). The conservation agreement incentive module is among the tools designed and used to provide direct compensation to forest communities in direct

exchange for behavior change toward forest protection and biodiversity conservation (Hase, Rouget, & Cowling, 2010).

De Koning et al.(2011) argued that conservation agreement incentive module is used based on countries' specific and national policies, laws, and regulations, but may differ from people to people and country to country. Because this form of agreement is voluntary between mostly landowners and conservation organizations for the provision of a long-term protection of specific species and ecosystems, it cannot serve as an instrument of litigation. The landowners or communities agree to take specific actions that promote biodiversity conservation, while the conservation organization provides benefits as incentives, including payment, for actions. The benefits deliveries payment tool has been used in many countries and for several reasons, which might be different in a tropical forest like Liberia.

Milne and Niesten (2009) explained that actions taken to promote conservation are usually designed to mitigate identified threats to biodiversity and the ecosystem. The benefits are given to reduce the threat as the opportunity cost of forgoing activities. Both parties agree to comply with a monitoring framework developed verify compliance and performance by each party (Moon & Cocklin, 2011).

To promote and support efforts and behavior change in favor of forest protection and biodiversity conservation, Conservation International has embarked on several conservation agreement programs in countries around the world under its Conservation Stewardship Program. In Liberia, the conservation agreement programs started in 2012 with six communities and scaled up to 20 communities in 2019 (Niesten, 2015) . The

program has primarily focused on the provision of green jobs as employment opportunities for forest monitoring, education through scholarship, and livelihood through agriculture including vegetable production, rice farming, and animal rearing (Niesten, 2015). The direct financial and social benefits provided have been useful in buttressing community efforts toward biodiversity conservation (Bene et al., 2013). Forest income has aided the collection of riches, but reliance on forest resource extraction has also promoted an increase in the level of poverty (WUNDER, 2001). Besides the tangible monetary functions, forested environments provide a scope of services including carbon storage and sequestration, biodiversity conservation, hydrological services, and landscape beauty, which have proven to be valuable for both on location and off-site recipients (Angelsen & Wunder, 2003).

With most of the poorest Liberians living in proximity to the forest, it is important to highlight the dynamic and challenging advancement of ways to deal with forest protection by both rural improvement and conservation (Wunder, 2001). Since the Rio Earth Summit in 1992, conservation and sustainable development programs have been far from the dominating ideal that provides direction and control of global conservation practices (Jones, et al., 2018) to a more extensive perspective on the job of local communities and coordinated strategies like integrated conservation and development initiatives and economical forest management. However, the accomplishments of the use of different conservation instruments have led to showcasing the practical ways to alleviate poverty (Barrett, Travis, & Partha, 2011).

Although these strategies have demonstrated meager accomplishment in poverty alleviation and conservation, they have been followed by more straightforward conservation approaches aimed at utilizing market- or contract-based components to remunerate local communities for renouncing debasing livelihoods of forest territories, for example payments for environmental services and avoiding emissions from deforestation and forest degradation (Wunder et al., 2008). A conservation agreement is considered by the Coasean hypothesis as the environmental economics approach supported by Wunder (2007). In Liberia, conservation agreement development processes are characterized by thorough discussions and full participation of all actors. The World Bank's BioCarbon Fund and biodiversity offset services have been identified as a classic conservation agreement (Milder et al., 2010). The World Bank's BioCarbon Fund is viewed as a minimal effort and quick device to reduce carbon emissions and can be deciphered as a conservation agreement plot on a global scale, where payments to forest-rich nations can achieve subnational partners in a supposed nested approach (Angelsen & Wunder, 2003). Additionally, the incorporation of social cobenefits in conservation agreements has been the subject of discussion (Campbell & Luckert, 2004).

Coasean ways to deal with conservation agreements are separated according to effectiveness and equity concerns, for example conservation agreements as a component of proficient natural resource management as opposed to poverty alleviation (Pagiola, 2008) where poor people can be focused as long as it does not cause significant productivity losses. The interdependency among equity and effectiveness ought not to be disparaged, and it is from this foundation that I endeavored to examine a variety of

empirical instances of conservation interventions and their impact on rural livelihoods, poverty alleviation, and conservation proficiency. Limited studies have been carried out to assess the impact of these conservation agreements as to whether they can be scaled up as the tool for delivering social and financial benefits to forest fringe communities for protection and production purposes in Liberia.

The scope of conservation interventions as outlined in conservation agreements implemented in Liberia are guided and influenced by existing national policies, laws, and regulations. I considered the reliance of poverty groups in Liberia on forest and nonforest product, using conservation practices, has provided real sources of food and income generations. Additionally, salaries payments to local community as incentive for conservation work provide motivations among rural communities in Liberia. In such instances, proficiency parts of protection address the expenses of executing conservation agreements, including the expenses of paying nearby individuals to ration forests and how various inspirations of policymakers could influence expenses. Under the 3Es+ criteria (effectiveness, efficiency, and equity) system for open arrangement assessments, these papers try to add to strategy dialogues on structuring effective yet impartial mechanisms that accomplish overall conservation and improvement objectives.

## Background

Liberia is located in West Africa and contains the majority of the total forest cover in the Upper Guinea rainforest, constituting approximately 43% of several fauna and flora species (Verschuren, 1983). Studies showed the forest delivers a range of services that are used by Liberia for social, economic, ecological, and cultural purposes

(Reyes García, et al., 2019). Besides these services, the forest of Liberia is globally significant for its rich ecosystems that are key to biodiversity conservation and protections and one of 34 global biodiversity hotspots (Freeman, Dami, & Molokwu-Odozi, 2019). Research showed that most of Liberia's rural population is dependent on forests, and their products and ecosystem services play an essential role as safety nets for vulnerable and marginalized forest-dependent communities (Harwell, 2010).

Understanding the linkages that exist between community forest conservation and protection efforts and the benefits the forest community receives was central to the current study. Promoting sustainable use and community management of forest food resources provides an opportunity to integrate forest management with improved income generation (Bluffstone et al., 2013). The argument that incentivizing forest resources to enable local communities to step up their commitment and motivation is still to be realized in Liberia because no one has determined whether benefits are the real cost for reducing the threats.

## Problem Statement

People living near forest areas in Liberia are facing tremendous pressure to protect the forest for conservation, while they are left to struggle for alternative incomes for livelihoods. Many international and local environmental and conservation organizations have employed mechanisms as a means of delivering services and income for rural livelihood improvement to forest communities as motivation for protecting the forest (Bene, Gamys, & Dufour, 2013). The conservation agreement model has been one of the livelihood delivery mechanism widely used by Conservation International and

dozens of local organizations for almost a decade in Liberia (Gjertsen, et al., 2016). The purpose of the current study was to assess whether livelihoods delivered to local communities through conservation agreements can significantly contribute to forest protection and conservation in Liberia.

The government of Liberia is in a quest to deliver social and economic incentives to forest communities through the Forestry Development Authority (FDA), which is contemplating using an existing and workable mechanism (scheme) through which forest communities can receive payment for conservation actions and environmental services during the third phase of the Liberia Forest Sector Project (LFSP). The LFSP is a national forest conservation initiative intended to increase forest cover and reduce deforestation through a partnership between the government of Liberia and Norway (FDA, 2017). The third phase of the LFSP is regarded as the results-based carbon payment period through which farmers and landowners will receive payment for the emissions reductions and carbon sequestered upon verification. It could make sense for the government to adopt the conservation agreement module currently piloted by Conservation International to deliver social benefits to communities (Wunder, 2007). However, it is still unclear whether the conservation agreement model could be the right tool for delivering social benefits to communities in return for forest protection without assessing its impact over the years. Even though there has been no study commission to assess the conservation agreement program in Liberia, studies conducted in other countries have not indicated that the conservation agreement model is the best and most sustainable mechanism of benefits delivery to forest communities (Milne & Niesten, 2009).

The current study, which was focused on assessing the impacts of the implementation of the conservation agreement model as a tool for providing social benefits and financial support to forest-dependent communities in exchange for direct conservation commitments in Liberia, may inform the government effort in designing a national program (see Pierson, 1993). Pierson (1993) argued that the delivery of benefits through a consolidated process and framework of inclusion and participation could help to achieve conservation agreement objectives. The results of the current study may inform the establishment of a national incentive program around forest protection in Liberia (see Moon & Cocklin, 2011). The results may also help local communities, national organizations, and international partners reframe the way in which local communities receive benefits for conservation services in protected areas in Liberia.

## Purpose of the Study

This quantitative study focused on assessing the impacts of conservation agreement on livelihoods and forest protection in rural Liberia to inform the government of Liberia and stakeholders in their quest to design a national incentive-based payment to forest community and landowners program. The results may be used to recommend a process that should be considered and integrated into the framework of operationalization of the Liberia Conservation Fund, a mechanism to channel direct payments and benefits to local communities for forest protection.

## Research Questions and Hypotheses

The research questions and hypotheses were as follows:

RQ1: What is the relationship between direct payment of conservation benefits to forest communities and forest protection in rural Liberia?

$H_o1$: No statistically significant relationship exists between direct payment of conservation benefits to forest communities and forest protection in rural Liberia.

$H_a1$: A statistically significant relationship exists between direct payment of conservation benefits to forest communities and forest protection in rural Liberia.

RQ2: What is the relationship between direct payment of conservation benefits to forest communities and livelihood improvement in rural Liberia?

$H_o2$: No statistically significant relationship exists between direct payment of conservation benefits to forest communities and livelihood improvement in rural Liberia.

$H_a2$: A statistically significant relationship exists between direct payment of conservation benefits to forest communities and livelihood improvement in rural Liberia.

## Conceptual Framework

The provision of benefits toward livelihoods improvement has proven to increase the community's willingness to increase forest conservation practices. In the current study, the two key concepts were forest conservation and livelihood improvement (see Qorri et al., 2018). Forest conservation refers to the act of providing protection and preservation for forests regarded as natural resources to balance the ecosystem (Angelsen & Wunder, 2003). To achieve this, bargaining or providing an incentive for local communities as custodians of the forest is one of the solutions. Other strategies including formulating legislation to give authority to the central government to exercise protection over a mass land have proven to the most successful (Campbell & Luckert, 2004). In the

contrast, Adhami, Sadeghi and Sheikhmohammady (2018) proposed the institutionalization of comanagement of the forest for protection between forest communities and the central government to provide the most sustainable option for forest conservation. In the current study, I examined communities' responses through the administering of survey questionnaires to understand their roles as responsible citizens and what motivated their actions. I investigated whether a relationship existed between giving direct incentives to the local community and forest protection.

The fact that most local communities around forest areas are vulnerable, marginalized, and living in poor conditions suggests that forest protection can never succeed without improving their living conditions and well-being. Erbaugh and Oldekop (2018) summarized the favorable conditions and supports that improve the well-being and lifestyle of local communities and their livelihoods. The argument remains whether the basic necessities essential to everyday life are engines through which forest protection can be achieved. The current study addressed this argument through examination of the relationship between direct payment of conservation benefits to forest communities and livelihood improvement. MacKinnon et al. (2018) asserted that there is no one size fits all for delivering livelihood benefits to local communities. Direct payment to individuals might be prudent especially when massive forest land is owned by private individuals, however the provision of social services for the general benefits of all mostly seen to be a better approach (Scheba & Mustalahti, 2015).

## Nature of the Study

I utilized a quantitative approach to examine a mechanism through which local communities receive benefits for conservation services around forest areas in Liberia. A descriptive research method allows quantitative data to be gathered through administering questionnaires (Creswell, 2013). The research method entailed the collection of primary data through the administering of questionnaires and the reviewing of existing literature.

The population used for this study included communities in which the conservation agreement model has been implemented in Liberia. The target population of the study was men and women age 18 years and above who were involved in the implementation of conservation agreement. In Liberia, individuals below 18 years of age do not fall in the consent age group and are not considered economically active or disposed for labor force participation. Furthermore, 18 is the legal age for political participation and, by extension, participation in community-level decision making.

A quantitative survey design method was used to determine the minimum sample size for the study. The survey design included a concise procedure that is scientific for presenting generalizations on a group of people or populations accurately from a sample (Creswell, 2013). In this case, a total of 150 participants were surveyed during the field exercise in three sample regions in Liberia. The research instrument used was a structured and a precoded questionnaire. Respondents provided responses in the questionnaire. The precoded questionnaire was pretested to determine its validity and reliability. The collected data were entered into data analysis software for further analysis (see Singh, 2009). Three levels of analysis were conducted: univariate, bivariate, and multivariate.

## Definitions

*Agreement*: A negotiated and legally binding arrangement between parties as to a course of action (Gjertsen, et al., 2016).

*Biodiversity*: The differences among living organisms from terrestrial, marine, and other ecosystems. Biodiversity includes variability at the genetic, species, and ecosystem levels.

*Community*: Barrett ( 2015) define community as people who reside in the same location with common features like norms, ethnicity, altitude, goals, and others.

*Food security*: The physical and economic availability, accessibility utilization, and stabilization to food for a healthy life (WHO, 2019).

*Forest conservation*: The act of planting and maintaining forested areas for the benefit and sustainability of future generations (Pawar & Rothkar, 2015).

*Forest-dependent people*: People living within or around forest areas who depend on the forest for a living.

*Livelihood*: Support, subsistence, occupation, or employment; means of living especially of earning enough money to feed oneself.

*National forest*: A vast expanse of forest that is protected by a government and may be harvested or hunted only in under controlled conditions.

*Social benefits*: The total benefit to society from producing or consuming a service.

*Threat*: A person or thing likely to cause damage or danger.

## Assumptions

In the assessment of the impact of conservation agreements on livelihoods and forest protection in rural Liberia, the following assumptions characterized the study:

- Individuals who participated in the physical administering of the survey questionnaires were above 18 years of age and demonstrated knowledge of household information.
- The respondents understood the benefits of sharing activities currently executed in their community related to forest protection.
- No respondent were interviewed more than once.
- The respondents understood the concepts of forest conservation and benefit sharing.
- The respondents provided honest answers regarding their knowledge.

## Scope and Delimitations

The scope of this study was limited to the use of primary data that were collected from communities located around a forest area in which the conservation agreement model had been either implemented or not in Liberia. The study was limited to the household member above the age of 18 who had resided in the targeted communities for over 2 years and had knowledge of forest protection and benefit-sharing initiatives.

## Limitations

The surveys can be used to generalize results only if the sample is large enough and has sufficient representation. Also, surveys require a certain level of literacy and

participation of respondents to ensure that accurate and adequate information is collected (Grisé et al., 2019).

## Significance

This study assessing the impact of conservation agreements as a tool for social benefit deliveries to forest-dependent local communities in Liberia was significant and innovative, and it may promote direct beneficiaries of the conservation agreement project. The results of this study may be relevant in bridging the gaps and redesigning benefits packages because the government intends to scale this approach in developing Liberia's Conservation Fund. I considered this study as laying the foundation through which the lifestyle and livelihoods of local communities could be improved while encouraging conservation priorities. I am committed to sharing the results of the study with government ministries, forestry agencies, and environmental institutions with whom I work in the hope that the results will provide information that will contribute to the ongoing national forest sector project.

## Social Change Implications

Forestry is important in most African countries, especially those in South-Sahara Africa (WorldBank, 2010). The inhabitants, most of whom live in local communities, see the forest as the only means through which their lives can be improved and to overcome poverty. Forest resources are used for social, economic, and political reasons including sources of food, clothing, housing, medicine, and income generation (Ibrahim et al., 2018). However, the realities are different, and the visible appearance of these forested communities present a different story as to whether the inhabitants are receiving the

necessary social and economic benefits. A study that addressed the impact of implementing conservation agreements and other incentive-based activities on local communities' livelihoods as they protect the forest was significant to understand the situation associated with community benefits received from the extractions of forest resources (see Welter & Jalonen, 2019). My intent was to use the findings to inform policymakers, local leaders, and national government officials on the current state of existing community benefits-sharing mechanisms and processes that are related to forest resources. The viability of the type of benefits-sharing methods and processes is useful to ensure that the community benefits are delivered to support social services for the betterment of all (De Royer et al., 2018).

## Summary

Based on in-depth knowledge and understanding of the research topic, the research results will be used to recommend actions and interventions that are designed in the conservation agreements to be taken from existing national laws and regulations on forest protections to increase community participation. When this happens, it reduces marginalization and discrimination of vulnerable groups and community dwelling around forest areas (Sapkota, Keenan, & Ojha, 2018). The positive impact of the study by suggesting policy alignment may promote positive social change in favor of local people residing in forest communities (see Pretty & Ward, 2001).

# Chapter 2: Literature Review

This chapter focuses on a wide range of literature and national policy documents that address issues regarding community benefits-sharing mechanisms, conservation agreements, community-based management, results-based payments, and compliance monitoring systems. Chapter 2 commences with the literature search strategy and is followed by the theoretical framework, which focuses on the application of the policy feedback and social capital theories. After that, literature is reviewed to focus on the following topics: the importance of forest governance as a key component of natural resource management, improving resource management for livelihoods and forest conservation, revisiting community-based natural resource management (CBNRM) compatibility with livelihoods and forest conservation, effectiveness of direct payments for conservation efforts, forest conservation and poverty alleviation, effectiveness of voluntary conservation agreements, cash values of forest resources in protected areas, and contribution to household asset accumulation. Additional effort is made to relate the reviewed literature to the aim of the current study. Lastly, the gaps in these pieces of the literature review are also highlighted.

## Literature Search Strategy

Considering the previous research and current discussions on forestry and local communities' rights to equitable livelihoods improvement, I sought to expand knowledge on the subject matter by exploring several peer-reviewed scholarly studies. The literature was sourced electronically through several online databases in the Walden University library, including ProQuest, AJOL, JSTOR, EBSCO, SAGE Premier, and Science Direct.

I also reviewed other professional journals, articles, and publications that addressed forest protection, biodiversity conservation, local communities' benefits-sharing mechanism, and strategies for delivering livelihoods to forested communities in Africa. I reviewed academic and scholarly journals, articles, and other research published between 2015 and 2019.

## Theoretical Foundation

The foundation of this study was based on the social capital theory and policy feedback theory (see Stanton-Salazar, 2016). The social capital theory states that social relationships are resources that can lead to the development and accumulation of human capital (Lin, 2017). The policy feedback theory guides the analysis and the deconstruction of national and international policy documents that explain or link to conservation and incentive-based payment in forest communities (Pierson, 1993).

### Policy Feedback Theory

The policy feedback theory enables a researcher to investigate policies regarding how the design and implementation modalities advantage or disadvantage the impact of the political systems, especially administrators, governmental institutions, and the most vulnerable (Larsen, 2019). Research has shown that the use of policy feedback theory generates a visible understanding of how the design and application of different policies affect each other and emerging politics (Prato, 2018). Béland and Ridde (2016) extensive literature review showed the relationship between policy formulation and policy implementation, which differ based on location, stakeholders' type, and governing regime. It is prudent to assess the policy implications and feedback on beneficiaries'

behaviors participating in the conservation agreement model or other community benefit delivery mechanisms' implementation at the local community level. Campbell and Luckert (2004) explained that most decisions on those who benefit, sources of benefits, and distribution processes of benefits in local communities are characterized by the political decision and elite influences. Policy feedback theory provides researchers with the tool to understand to what extent those political attitudes and behaviors influence the general public.

**Social Capital Theory**

The use of social capital theory in research relative to local communities has been shown to be one of the many systematic means through which a broader understanding of local communities regarding a specific topic can be achieved. Rouxel et al. (2015) asserted that the concept of social capital deals with networking and expanding the nature of relationships within and between groups of people or institutions. Based on the circumstances, a researcher might consent to consider the application of one of the common differentiated types of social capital (Lin, 2017). For the purpose of assessing the impacts of forest protection on benefits that communities receive for livelihood purposes, the application of the social capital theory was relevant.

In most developing forested counties in Africa, the key issues of benefit sharing are the different hierarchical levels that exist in national and local governments. There are several pieces of evidence that equitable management and distribution resources generated from forestry activities leave the vulnerable people weak (Wei, 2018). One party bears the burden to protect and deprive itself while the other enjoys most of the end

product, making trust a crucial factor in social capital advancement. Social capital is the engine through which local communities enter into social agreements with individuals and institutions that are characterized by the exchanges for goods and services (Pinkerton, 2018). The latter may have been applicable to the purpose of the current study, but an additional collection of primary data was needed to satisfy the burden of evidence.

## Literature Review

### Forest Governance: A Key Component of Natural Resource Management

Forest governance encompasses different on-screen characters, procedures, and instruments to shape the realities and impact basic leadership qualities identified with forests, forest resources, forest-dependent communities, and landowners. Lemos and Agrawal (2006) described forest governance as tracking the interventions going for changes in condition-related motivating forces, information, establishments, basic leadership, and practices the arrangement of administrative procedures. Forest governance is conceived as a system of associations through which on-screen political characters impact ecological activities and results (Lemos & Agrawal, 2006).

In this section, pieces of literature provide a discussion on the application of community forestry institutional governance processes and its connection to livelihoods and Forest Conservation are review. Several studies have shown Community-Based Natural Resource Management (CBNRM) as the widely use governance system in forested countries including Liberia. According to Störmer, Weaver, Stuart-Hill, Diggle and Naidoo (2019), the CBNRM provides enormous benefits for the Community Forestry

program and unequivocally addresses livelihoods and forest conservation through its basis of decentralization of capacity and the co-management decision to communities.

Ameyaw, Arts, and Wals, (2016) study on forest governance in Ghana provide contributions that position CBNRM as the robust model for forest governance in Africa but outlining its specific challenges. The article highlighted a massive culture of corruption and elite power struggles as the key two challenges facing responsible forest governance, and the development of a non- technical capacities for local leaders and building professional foresters to take leadership positions in both academic and government institutions as the remedies to overcome the challenges. The study further supports the relevance of using the CBNRM as the key instrument to explore in discuss forest protection and local communities' livelihoods delivery and improvement in Liberia.

To conclude, Fletcher (2010) suggests that in moving forward that the implementation of CBNRM should be determined at the national, local and intermediate levels. The levels will require adjustment in require policies and legislative framework so as to make CBRNM attractive and interest to both parties including local communities. Similarly, promoting the concept decentralization of power to make the decision of natural resource management clear and concise roles and responsibilities is a recipe for good governance and a successful co-management regime.

**Improving Resource Management for Livelihoods and Forest Conservation**

Scholars have diverse opinions on the relationship that outline the CBNRM and the social capital theory. As one of the diverse opinions is that forest community people

as of now have the social resources to execute a decentralized approach for forest governance. Agrawal (2003) advance that it is essential to comprehend social capital procedures and the conditions for potent aggregate activity.

The second issue focus on getting individual and aggregate basic leadership attributes procedures and includes looking at the scope of components, perhaps affecting basic leadership. Agrawal (2003) has accumulated all variables into three classifications (asset attributes, nature of the gathering, subtleties of the institutional routine) to help comprehend basic leadership settings and designs. Different scholars are distracted with understanding support by and inquire about fruitful investment typologies for viable CBNRM. Dyer et al. (2014) have accumulated an assortment of participatory basic leadership factors and arrange these variables into procedure based and result in based components with the end goal of plan and appraisal. Agarwal, (2001) correspondingly delivers typologies to evaluate dimensions of support in basic leadership.

Understanding the complexities of environmental issues to give adequate arrangements, Ostrom and Cox (2010) contend that to give adequate arrangements, specific attention should be placed on the apparatuses that have the ability to catch the unpredictability of natural issues. The arguer built up an interdisciplinary diagnostics system, which tries to disaggregate ecological issues, recognizing components of individual issues that are useful from a critical thinking point of view and achieving decisions essential to addressing every component (Ostrom & Cox, 2010).

Another discussion is concerned with the developing accord around the requirement for institutional decent variety and adaptability concerning CBNRM.

Institutional assorted variety and adaptability through a staggered or polycentric governance system allude to empowering clients to create principles and associations at many dimensions. In view of logical examinations survey, Ostrom and Cox (2010) battle that polycentric game plans that empower clients to create principles and associations at various dimensions can work successfully. Polycentric governance supported by Berkes (2007), Lemos & Agrawal (2006) and Ostrom & Cox (2010), focuses on a developing agreement around assorted institutional variety and the requirement for numerous entertainers to an interface. Different perspectives persuade the move towards vertical and even mix of institutional layers. Ostrom and Cox (2010) also asserted that unadulterated governance routines are deficient in addressing global issues and that coping with all our present ecological issues will likely require polycentric administration courses of action crosswise over geographic scales. Explanations behind vertical and even institutional decent variety are complicated, promote the culture that governance units impact one another. For example, the local level government is mostly influenced by national arrangement, while the top-down centralized methodologies without nearby dimension contribution hinder local level help, a portrayal of nearby interests, and even undermine local clients.

Berkes (2007) argues for new association governance models, vertical and level combination to utilize the different partner points of view, rather than outline approaches and the intercessions that come from such a solitary partner approach. Lemos and Agrawal (2006) term this call for assorted institutional variety as the hybrid forms of governance; and recognize three institutional game plans. These plans are co-the

executives among community and state, open private organizations among state and market, and private-social associations among community and market. Ostrom and Cox (2010) call this polycentric governance course of action.

**Revisiting CBNRM Compatibility with Livelihoods and Forest Conservation**

Agrawal (2003) asserted that institutional arrangements for allocating resources are best viewed as an expression of an idealized status quo. While debates the argue leaving an unchallenged authenticity of CBNRM establishments as acknowledging CBNRM standards, similarly, see CBNRM foundations as a lot of enforceable principles, an opportunity for organizations to become progressively viable. There is likewise a strand of literature fundamentally inspecting the job of CBNRM foundations as far as propelling interests and domineering viewpoints on what comprises feasible assets, interests, and points of view which not generally line up with the CBNRM goals of Livelihoods and Forest Conservation (Agrawal, 2003) . Agrawal (2003) explained that power is not precisely what arranging and the board endeavor to prohibit.

Instead, power and legislative issues instill the procedure of the board entirely and unavoidable. The executives are not just about giving specific answers to target issues of improvement and ecological preservation. It might be essential to think about that these issues and their answers may themselves be a piece of an administrative procedure. Without regard to the governmental issues that create underdevelopment and natural debasement as widespread issues, it might be challenging to address neediness, underdevelopment, and ecological corruption viably. Therefore, the privilege to profit natural in CBNRM does not generally prompt the capacity to profit (Ribot & Peluso,

2003). Flemmer and Schilling Vacaflor (2016) additionally allude to this capacity to profit concerning participatory basic leadership forms in Peru through which they accompany their architects, geologists, and their specialized talks are overpowering. In these spaces, participants are subject to discursive disclosure, otherworldly knowledge systems, and reframing of ontologies.

CBNRM does not prompt empowering neighborhood individuals to receive rewards because the institutional change is probably going to happen when significant political on-screen characters see gains from institutional change (Agrawal, 2003). Scholar's recommendation has diverted with driving the CBNRM, as well in their distraction with efficient administration and active foundations. These may have disregarded the likelihood that all fruitful implementation organizations are additionally coercive, and the weight of pressure will in general fall unequally on the less amazing individuals. To ensure that establishments are the result of informed choices of explicit people and gatherings, the same number of hall scholars contend, at that point, it might likewise be sensible to assume that institutional decisions made by ground-breaking bunches intentionally plan to burden minor and less amazing gatherings. The opposite side of the coin of institutional supportability at that point ends up being an unequal distribution of advantages from usually overseen assets not as a side-effect but rather as an essential outcome (Agrawal, 2003).

Larson & Soto (2008) contend that CBNRM's plan to redistribute control towards nearby individuals for livelihoods and forest conservation is unattainable, for the techniques, procedures, strategies and hidden presumptions are in a general sense

opposing to CBNRM goals. Lund (2015) in his exploration depicts such conflicting CBNRM forms, by problematization of the specialized and logical attitude required for neighborhood individuals to be incorporated and take part in significant popularity based participatory basic leadership forms. CBNRM standards are, in this way, clashing with CBNRM procedures negating these beliefs.

The comprehension of CBNRM structures as oppressive, coercive, and clashing with beliefs of livelihoods and forest conservation, additionally asks another perspective of inspecting office through small scale governmental issues. Agrawal (2003) argued that endeavors at control and guideline are tested by individuals who are exposed to control. Issues of organization, the commonly gainful connection among control and obstruction, and the formation of institutional game plans can be seen uniquely with more prominent regard for miniaturized scale legislative issues.

Another way to deal with CBNRM establishments is in some way makes human subjectivities. It tends to the connection among timberlands, and the people possessing these back forests, and goes past the effect of changes in forests administration on people as compelling and met with either acknowledgment or obstruction. Woodland administration change and moves in institutional routines empower the formation of new human subjectivities and demeanors of different conditions and ecological activities. The essence to recognize how these strategies and their effects on flows of power shape human subjects, their interests, and their agency by focusing on these strategies as the means through which individuals become different kinds of subjects. The significance of inspecting human subjectivities lies in the achievement of institutional changes in inciting

better use and the administration of natural assets may depend significantly on changes in human subjectivities (Agrawal, 2003).

The conceptualization of institutional courses of action as clashing with CBNRM beliefs additionally has suggestions for grant intending to improve CBNRM from a beginning stage of establishments as an enforceable arrangement of principles. Agrawal (2003) explained that by not analyzing the inside separated nature of networks center, researchers accept that individuals from these networks are comparatively responsive to thoughts of advancement and useful asset the executives, advancement, and modernization. However, the procedures of advancement and modernization and endeavors to make the utilization and the board of hall progressively productive can finish up expanding state abilities to control and mediate in nearby undertakings. By concentrating on how essential assets can be overseen, researchers of center become enmeshed in a similar rationale of more noteworthy profitability that is privatization ideas (Agrawal, 2003). In this way, CPR grant through research encourages biopower through professional setting and expecting communities' requirements for outside help with deciphering and rethinking their interests as an approach to legitimize specific interests not lined continuously up with CBNRM beliefs of livelihoods and forest conservation.

In furtherance, the post-structuralist way to deal with CBNRM contends that CBNRM organizations and models case to build livelihoods and forest conservation and cooperation for neighborhood individuals, yet practically speaking neutralizes those beliefs (Agrawal, 2003). CBNRM foundations through deliberately built procedures and techniques, speak to specific interests and embracing points of view frequently not lined

up with livelihoods and forest conservation but reach similar expectations and arrangements concerning ecological activities and result. In executing institutional plans and mediations on the ground, the forest-dependent people have the power and organization to reshape designed, coercive, and conscious intercessions by outside operators and change the result.

**Effectiveness of Direct Payments for Conservation Efforts**

Direct payments to forest-dependent people and local has over the decade become the highlights of discussion in the conservation communities, most especially payment to marginalize and impoverish countries and communities. Even though the economic variables shifting the income level are predictable in countries with high income, specific eyes have been on countries with tropical forests and requested to keep their forest intact through conservation actions (Milne & Niesten, 2009). Milne and Niesten's (2009) explained that the trend and principal incentive payments for conservation actions have become intellectually prudent among all stakeholders with more attention placed on understanding the cost for forgoing business- as- usual activities to promote conservation. The article further clarifies that the opportunity cost of biodiversity conservation values for local communities and forest dwellers are readily determined concisely in developed or high- income countries due to the policies and system sophistication. In countries with weak economic systems, most of the actual cost determination extrapolated is based on experiences. Milne and Niesten (2009) propose three possible ways through which direct payment to local communities for action to protect biodiversity conservation can be realistic as follow:

- A payment that presents an explicit define conservation action against proposed benefits.
- Execution of the conservation agreement that incorporates all parties engagement and participation, and rights of local communities; and
- A long- term financial viability strategy which includes social responsibility for effective implementation.

Milne and Niesten (2009) assert that an innovative tool for channeling biodiversity investment to local forest-dependent communities can be done through the development of a robust direct payment scheme.

Green, et al. (2018) also assert that most conservation agreements do not state the real cost of forgoing bad conservation practices, while benefits earmarks are mostly underfunded. The study further explores the gaps that exist in current spending by several organizations on forest conservation activities that involve local communities and argued that the provision of sustained funding and financial rewards to communities without community commitment to conservation makes the deal unfair. In contrast, De Koning et al. (2011) argue that since conservation agreements are usually not cast in stone, parties should have the opportunities to adjust benefits, but conservation actions must remain the same as time progresses. The study further asserted that landowners or communities must agree to take actions taken that promote good biodiversity conservation by landowners or communities except otherwise subjected to legal requirements based on existing national laws, policies, and regulations. On the other hand, the links between supports and incentives provided in return for the actions must meet all parties' consent and approval.

Wunder (2007) advances Milne and Niesten (2009) argument that the three levels of inclusive payment for ecosystem services methods are the best user-friendly ways of promoting conservation initiatives involving community supports. Wunder (2007) explain that in addressing the trade-offs that compete against community interest helps to bridge the perceived misconception advanced by external actors. A voluntary and conditional tool for compensation payment to reduce probable biodiversity threat cause by local communities is prudent but could generate significant challenges of limitation to those willing to pay for the services (Wunder, 2007). However, the scaling of such a compensation scheme must demonstrate an understanding of the opportunity cost and the incremental conservation effects to be derived.

De Koning et al. (2011) present that voluntary conservation agreement and specific species protection can be useful in achieving conservation goals. Gibbons et al., (2011) and Wiley et al. (2008) discussed that there are real opportunities when all parties understand the optimal design of such schemes design. Clements et al. (2010) use the example of a landscape program in Cambodia to disclose challenges associated with not putting all of the right mechanisms in place for delivering conservation agreement benefits to local communities. Most of the problems, according to Clements et al. (2010), were due to the unclear governance structure, weak land tenure, and benefit distribution systems. The article further alluded that the empowerment of local institution and community motivation are the recipe for a sustainable conservation agreement scheme.

All of the studies reviewed in this section have conclusively addressed the effectiveness of direct payments for conservation efforts, but none shows the impacts of

implementing conservation agreements that would qualify it to be proposed as the national tool in reducing the threat of delivering livelihoods and forest protection in rural Liberia.

**Forest Conservation and Poverty Alleviation**

The Ecuadorian Socio Bosque program as practical examples of how the government has used conservation agreement as a national program of delivering social benefits to forest landowners (De Koning, et al., 2011). Private landowners and indigenous people received direct financial incentives based on the number of hectares of land. De Koning et al. (2011) disclosed that over 60,000 community landowners and forest-dependent people have benefitted from this voluntary conservation agreement and are equally involved in compliance monitoring. Lessons learned from the Socio Bosque program provide real examples that should be considered when intending to scale- up conservation agreement to a national program. Successes are on good governance, enforceable government policy, link biodiversity conservation with alternative livelihoods generation, transparency and accountability, and the free participation of private landowners and indigenous people (Moon & Cocklin, 2011).

The characteristics of Socio Bosque make it an excellent example of a national conservation agreement scheme that provides useful lessons for replications. Some of these lessons include building a transparent government policy, inclusive ecosystem conservation, and poverty alleviation strategies, and incentivizes and monitors plans for local socio-economic investment. The transparent and straightforward forward nature of this program has generated nation-wide participation of local and indigenous

communities and farmer households (Krause & Loft, 2013). The program is not clear on whether tools and instruments develop are also available, useable, and accessible to local and vulnerable forest communities as parties. Ferraro (2008) present several arguments on the rationale of establishing a comprehensive conservation policy that restricts access to resources. A key argument is the issues of evaluation of conservation performance and interventions, which push for the adoption of the state-of-the-art program evaluation methods. The study explained that most conservation agreement projects aims are to increase conservation objective through monitoring and evaluation system but neglect to determine the appropriate financial resources required.

Fraser (1995) discussed that the forces in bargaining are never equal and the side with the higher power and strength usually depict the provision of the deal or agreement. The study uses theoretical framework analysis to bargain management agreement of the between Coasian farmer and English Nature. Fraser (1995) proved that the bargaining strength of the farmer was based on the level of information they possess, which they used to trade in exchange for economic gains.

All of the studies reviewed in this section have conclusively addressed the forest conservation and poverty alleviation, but none shows the impacts of implementing conservation agreement that would qualify it to be proposed as the national tools in reducing the threat, delivering livelihoods and forest protection in rural Liberia.

**Effectiveness of Voluntary Conservation Agreements**

An environmentally market-based approach to biodiversity conservation is an approach that hatches sustainable forest management is explained by Niesten and Rice

(2004) as an alternative system of payment. The study uses the timber industry to illustrated activities that pose natural and economic obstacles to achieving forest management using a payment scheme. Milne and Niesten (2009) presented several arguments and ideas around direct payments of a local community for biodiversity conservation efforts in developing countries. Even though the payments scheme that is based on nature conservation has been used as an economic engine for developing countries, the development does not feel the impact as much as they are required to keep their resources intact. The study builds its argument on experiences working with developing countries to apply the concept of direct payments and extensive review of Conservation International programs and interventions around the globe. Moon and Cocklin (2011) based their assertion on a landholder- based approach to design a private land conservation incentive scheme program. The study explained that the responsibility lies in all parties to encourage landholders to conserve primary forest resources which are located on only private land. Nonetheless, Moon and Cocklin (2011) agreed that obtaining the appropriate capacity is very relevant in the designing and implementation of conservation initiatives, especially when achieving outcomes are reliance on the collective efforts of rural landowners.

Ferraro (2001) explained the global factors that drive support for forest conservation in local communities and tropical forested developing countries. Advances have been made to push and channel these supports through development initiatives and interventions design to encourage ecosystem protection. The Ferraro (2001) explains that the economics of these activities does not provide a similar balance system of trade, thus

making implementation complex than perceived. However, the study argued that conservation agreement or contracting based on the delivery of benefits and commitments through a consolidated process and framework of inclusion and participation help to achieved conservation goals. Considering the different trade-offs that should be considered when bridging competing interests of multiple landholders and local communities, Wunder (2007) explained that a compensation scheme for a local community should regard the payment of influential external actors with a specific interest. The study outlines several steps through which payments for environmental services can be designed to avoid rising in supply, while demand remains very low and insignificant for a market.

All the studies reviewed in this section have exhaustively addressed the effectiveness of voluntary conservation agreements, but none shows the impacts of implementing conservation agreements that would qualify it to be proposed as the national tools in reducing the threat, delivering livelihoods and forest protection in rural Liberia.

Samii et al. (2014) study audit the proof about the influences of Decentralized Forest Management on deforestation just as the welfare of the host community. The process intended to evaluate the proof on the impacts of intercessions of Decentralized Forest Management on poverty along with deforestation results in the middle as well as low-income nations. The study included eight effect assessments of eight distinct projects within seven nations (Uganda, Bolivia, Ethiopia, India, Kenya, Malawi as well as Nepal). No examinations evaluated the impact of Decentralized Forest Management on both

forests spread as well as human welfare results. The majority of the examinations utilized semi test strategies. Five investigations analyzed the impacts of programs of Decentralized Forest Management on yearly forests spread alteration rate.

Samii et al. (2014) conducted another review which included 11 studies assessing the impacts of 6 distinctive Payment for Environmental Services programs in Costa Rica, China, Mexico, and Mozambique. The proof Suggests that Environmental Services Payment has a little impact on deforestation. Just two investigations evaluate the consequences for family salary, and they propose a modest improvement in pay. Nine investigations of four Payment for Environmental Services programs within Mexico as well as Costa Rica surveyed the impact on forest spread. The impact is more significant for forest spread alteration, which included proportions of both forests' misfortune and forest increase. Two investigations surveyed the impact of Payment for Environmental Services on human welfare results. The investigation found that Payment for Environmental Services improves taking an interest in family units' income by15% in China and 5% in Mozambique. The examination in Mozambique discovers impacts significantly inferior to low-income family units. An examination of the Mexican Payment for Environmental Services program found that forest conservation impacts were more regrettable in more unfortunate zones.

**Transient Nature of Poverty When Examining Forest Dependence Wealth**

A lot of studies on the relationships amid poverty along with nature within developing nations have been started below the PEN (Poverty Environment Network) composed by the Center for International Forestry Research (PEN, 2007). The worldwide

overview within 25 nations, including around 30 foundations as well as 50 professionals and academia, centers around domestic income generated from forests as well as the earth outside forests. Most of the exploration done within this field utilizes income like a proportion of household poverty (Cavendish, 1999). Researchers differ that the methodology used does neglect to discuss how poverty could be associated with factors that push local households might agree to unreasonable benefits. The significance of advantage riches has for a long time been recognized as an aspect of financial development (Carter & May, 2001) yet seems to have been to a great extent disregarded in the poverty condition under review.

**Contributions of Cash Values of Forest Resources in a Protected Area to Household Assets**

Forests are perceived as a huge wellspring of nourishment, income in addition to assets for local societies within developing nations, particularly amid hardship (Angelsen & Wunder, 2003) and contribute to over 20% of forest household income (CIFOR, 2011). Forest and ecological income can lessen imbalance and establishes a significant income source, especially for less fortunate households (Cavendish, 1999). Forest items can nourish in the midst of stuns, and access to money forest income can moderate hazard for rustic individuals living in minor regions with high dangers of yield disappointment, low access to credit, and next to zero formal wellbeing nets (McSweeney, 2004). Even though money income from forest items may add to the gathering of riches, its ability to haul individuals out of poverty is far from being true (Wunder, 2007). Accumulation of non-timber forest products is available and alluring to the poor because of low capital and

aptitude necessity, yet these qualities additionally encourage extraction by wealthier households, including non-neighborhood specialists. As their qualities increment, assets reaping is regularly strengthened, bringing about for example consumption of the asset base, with negative consequences for the vocations of the forests subordinate poor (Angelsen & Wunder, 2003).

Two significant and strongly abused forest items are bushmeat along with eru, whose subsistence utilization and exchange add to sustenance security and vocations of households within forest communities. Bushmeat happens to be a substantial wellspring of protein as well as income in rustic Central Africa (Wilkie & Carpenter, 1999) yet it is likewise a multi-million dollar exchange providing urban eateries, what's more, extravagance showcases to the extent Europe (Milner-Gulland & Bennett, 2003). Lamentably, bushmeat chasing is likewise viewed as a noteworthy risk to protection of biodiversity within humid forests (Chaber, Allebone□Webb, Lignereux, Cunningham, & Marcus Rowcliffe, 2010), with 60 percent of chased creatures within the Congo basin being misused at an untenable level (Fa, Juste, Burn, & Broad, 2002) and various well-evolved creature species indicating predictable decrease and nearby extirpation (Walsh, et al., 2003). Urban populaces in African nations regularly incline toward bushmeat over residential meat because of taste inclinations and social qualities (Fa, Juste, Burn, & Broad, 2002). Expanding requests from developing urban populaces, simpler access to remote territories, and improved chasing advances is impelling commercialization of the exchange (Milner-Gulland & Bennett, 2003). Moreover, high incentive to weight proportions and dried bushmeat's low perishability makes the exchange bushmeat more

productive than capricious and sporadic income work (van Vliet, Nebesse, Gambalemoke, Akaibe, & Nasi, 2012) or elective employment alternatives that essentially might not exist in local communities (Coad, et al., 2010). Notwithstanding, consumption of untamed life may be at last effect the country poor to whom bushmeat is a significant wellspring of protein along with income (Fa, Juste, Burn, & Broad, 2002).

**From a Review of the Literature to the Research Aim**

The Community Forestry Program in Liberia is a Community-Based Natural Resource Management (CBNRM) model for back forests administration. As the CBNRM or community-based model, it is generally utilized inside back forests administration around the world. The CBNRM has been essential to think about inside its verifiable setting, to comprehend its ascent, focal premises and its development versus different models. Several studies have seen how CBNRM organizations plan to accomplish livelihoods and forest conservation, which incorporate two unmistakable methodologies, namely:

- The specialized methodology to analyses issues enough and give setting based, adaptable and versatile arrangements;
- The post-basic methodology which gets the foundations and endeavors to characterize those establishments as characteristically political and propelling specific authoritative interests to the detriment of the weak and their interests, and contradictory with livelihoods and forest conservation.

Further investigation on the second way to deal with CBNRM foundations and livelihoods and forest conservation, Fletcher's (2010) hypothesis were chosen to dissect

the Community Forestry Program as far as their plan theory and their planned attribution to livelihoods and forest conservation.

While the motivating forces, standards, rules, truth environmentalities by configuration neutralize livelihoods and forest conservation for neighborhood individuals, Fletcher (2010) contends that freedom environmentality makes space for nearby individuals. The environmentalities hypothesis alludes to and illuminates the structure molding human conduct versus their condition. Notwithstanding, a standing discussion inside sociology is the connection between structure and organization informing human conduct. While environmentalities may expect to shape human activities and results, the people subject to these game plans have the organization to make decisions and openings moderately free of structures and top-down, administrative goals and plans. Hence, environmentalities allude to how researchers and CBNRM professionals would need natural activities and results to occur; however, execution regularly does not pursue a vision, as the usage procedure infers an intervention of aim, vision, and plan, through the office of the nearby individuals.

While the hypothetical system including the environmentalities hypothesis (Fletcher, 2010) accordingly gives us a focal point to translate vision and belief systems behind intercessions, the hands-on work will enable us to inspect the disparity among vision and execution. This examination is expected to investigate best ways to encourage livelihoods and forest conservation inside CBNRM. Though the Community Forestry program is intended to encourage this, the degree at which livelihoods and forest

conservation can be accomplished through show direct connection to the concept of environmentalities.

# Chapter 3: Research Method

The purpose of this study was to assess the impacts of conservation agreements on livelihoods and forest protection in rural Liberia to inform and contribute to the ongoing national debate between the government of Liberia and stakeholders regarding the design of a suitable national incentive-based payment scheme through which benefits can be channeled to forest community and landowners. This chapter presents the research questions and explains the rationale for the selected research method and design. Chapter 3 also includes a description of the population, sample and sampling technique, procedures for recruitment, procedures for participation, procedures for data collection, role of the researcher, data analysis plan, threats to the validity of the study, trustworthiness, and ethical procedures.

## Research Tradition and Rationale

### Research Tradition

I adopted a quantitative approach with a survey design to assess a mechanism through which local communities receive benefits for conservation services around forest areas in Liberia. The research questions served as the guide to inform and determine the design and methodology. Specific attention was given to the survey design of the quantitative method because this design allows quantitative data to be gathered and analyzed using quantitative data analysis techniques (Creswell, 2013). This research design entailed the collection of primary data through the administering of the appropriate instruments and the reviewing of existing literature.

The chosen quantitative methodology was a nonexperimental design that included correlational analysis to evaluate the potential relationship between conservation agreements and improved livelihood in Liberia. An evaluation was conducted to examine the potential relationship between conservation agreements and protection forest in Liberia. I also examined this relationship between the control and predictor variables (see Shoss et al., 2018).

**Rationale for Choosing the Research Tradition**

The quantitative research methodology with a nonexperimental design was appropriate to determine the potential relationships between the control and predictor variables. I used a survey design to collect primary data to reinforce the accuracy of the research results and provide recommendations for future improvements. The purpose of a nonexperimental design was to determine the potential relationship between conservation agreements and improve livelihood and forest protection in Liberia to understand the degree of relationship that exists between the variables. The application of a nonexperimental design could result in the use of correlational research (Kelley-Quon, 2018). Bryman (2017) explained that the use of the correlational design helps researchers assess the statistical relationship the variables outlined in the study. The current research questions were developed in accordance with the research design to address the hypotheses and the problem under study.

**Research Questions and Hypotheses**

The research questions and hypotheses were as follows:

RQ1: What is the relationship between direct payment of conservation benefits to forest communities and forest protection in rural Liberia?

$H_o1$: No statistically significant relationship exists between direct payment of conservation benefits to forest communities and forest protection in rural Liberia.

$H_a1$: A statistically significant relationship exists between direct payment of conservation benefits to forest communities and forest protection in rural Liberia.

RQ2: What is the relationship between direct payment of conservation benefits to forest communities and livelihood improvement in rural Liberia?

$H_o2$: No statistically significant relationship exists between direct payment of conservation benefits to forest communities and livelihood improvement in rural Liberia.

$H_a2$: A statistically significant relationship exists between direct payment of conservation benefits to forest communities and livelihood improvement in rural Liberia.

**Role of the Researcher**

According to Guo (2015), the purpose of quantitative research is to provide information on social issues affecting individuals or groups of people within a specific geographical area. Bass and Milosevic (2018) asserted that in conducting research, the researcher must be ethical, professional, and objective. The researcher must make every effort to recognize and avoid personal biases and clearly articulate their personal position and subjectivities. This will allow the readers to better understand the manner in which questions were administered, data were collected and analyzed, and findings were interpreted (Bass & Milosevic, 2018). Even though bias and subjectivity in most instances cannot be avoided in research, they must be described in a way that helps the

reader understand the research findings (Christiansen et al., 2015). As a current employee of Conservation International, an organization implementing conservation agreements in local communities, I demonstrated to participants that their responses would not prejudice or impact their agreements.

## Methodology

### Participant Selection

The population used for this study included communities in which the conservation agreement model has been implemented in Liberia. The estimated total population of the selected communities piloting conservation agreements depends on the value presented to the researcher by Conservation International and other local organizations. The target population of the study included men and women age 18 years and above who were involved in the implementation of conservation agreements. In Liberia, individuals younger than 18 years do not fall in the consent age group and are considered not economically active and not eligible for labor force participation. Furthermore, 18 is the legal age for political participation and participation in community-level decision making.

A survey design was used to derive the sample size for the research. The survey design is a concise procedure that is scientific for presenting generalizations on a group of people or populations accurately from a sample (Creswell, 2013). In the current study, 150 participants were surveyed during the field exercise in three sample regions. The research instrument adopted for the study was a structured and a precoded closed ended questionnaire. Respondents were interviewed, and their responses were provided in the

survey questionnaire. Prior to the administering of the questionnaire to the targeted participants, I pretested the questionnaire to determine whether the questions were design appropriate to suit local context in generating responses that are valid and reliable. After the pretesting, the questionnaire was proven to be applicable to the research questions so there was no need for additional revision of modification. After the collection of the data, the data were entered into data entry software for analysis (see Singh, 2009).

**Data Collection**

The data collection process lasted for 3 weeks in the survey communities. Only persons 18 years and older were eligible to be interviewed. The study included households with members receiving conservation benefits and those without members receiving benefits. All the communities that were included (Grand Bassa, Grand Cape Mount, and Nimba Counties) were implementing the conservation agreement. To gain community entry and the approval of the community leaders, I sent an introductory letter before the period of data collection. The letter addressed the issues of confidentiality of each respondent.

**Procedures for Recruitment**

The study was approved by the Institutional Review Board (IRB) of Walden University (approval number 06-03-20-0568036) to primary data using the researcher pre-coded closed-ended questionnaire. The recruitment process considered the mainstreaming of respondents by gender and an alternating selection pattern of males and females 18 years and over. Respondents were selected from communities that had an ongoing forest conservation agreement. Two types of households were sampled:

households with household members actively participating in the conservation agreement project, and by extension, received forest conservation benefits, Alternatively, households with members who did not benefit from the forest conservation agreement were selected. A formal letter was sent to participating communities' leaders and people of interest in providing research background and data collection methods. Specific emphasis was placed on protecting the privacy and confidentiality of respondents while ensuring that the respondents understand the purpose for which data was collected. To ensure respondents are informed about the research outcomes, the researcher intends sharing the preliminary finding or results of the research with respective communities for the information prior to submitting to Walden University.

**Procedures for Participation**

After the identification of respondents, the researcher presented the consent form as the first visible document for signature by each respondent. Contents of the consent form included brief study purpose and potential benefits, samples of the survey questionnaires, an assurance of confidentiality, and information about the voluntary nature of the study. The consent form included the contact information of both the researcher and Walden's IRB, if the participants wanted to seek further clarification on the survey. The survey questionnaire was administered to all participants that selected "yes" as voluntarily willingness to participate in the survey and decline on those participating that might select "no."

**Data Analysis**

To collect responses regarding the research questions, the research instrument was a structured and pre-coded questionnaire. Respondents were interviewed, and their responses were filled into the survey questionnaire. The research instrument was pretested and to access its validity and reliability. After the collection of the data, the data was analyzed using the SPSS version 25.0 software.

The researcher carried out proper data preparation immediately after administering the survey questionnaires to ensure that the appropriate data was collected, cleaned up and consolidated in a central dataset within the SPSS software to be used for conducting all the analysis. The researcher also considered building on Schuff's (2018) proposal for data preparation which included access data, improving data quality by cleaning up, data blending and reconciliation, data transformation and reformatting, data exportation and data connectivity. The usefulness of exploring these exercises was to ensure that unexpected error that occurred during data collection process did not significantly impact the data analysis findings (Schuff, 2018).

To answer the question presented in Chapter One of the study, that is" to what extent does a conservation agreement help improve rural livelihood and protect forest conservation in Liberia?", the research used both descriptive and inferential statistics. Frequency distribution tables ang charts were used to present the descriptive statistics; while the Chi-square test of association was used to analyze the inferential statistics derived from the results of the study. As earlier stated in the Chapter Three, both the

descriptive statistics and the Chi-square test of association fall under two levels of analysis: univariate and bivariate levels.

***Univariate Analysis***

Univariate analysis of the results of the study dealt with description of a single variable through the presentation of descriptive statistics. The descriptive statistical analysis was conducted to describe the respondent population characteristics. In SPSS, a descriptive analysis helps to design the frequency statistic which provides measure measures of central tendency including mean, mode, and median. The Frequency distributions were later used to run analysis and present findings in the form of a, bars charts, tables, and graphs. The researcher presented descriptive statistics for each of the independent variables of the study.

***Bivariate Analysis***

Bivariate analysis of the results of the study focused on describing the relationship between two variables through the presentation of crosstabulation. Apart from the describing the relationship between two or more variables through cross-tabulations, the bivariate analysis of the results also included the Chi-square test of association. As the name depicts, the Chi-square test of association investigated the level of association between the categorical variables of interest. For each Chi-square test conducted, the results were tested at the 95% confidence limit or the 0.05 level of significance.

***Test Variables***

The Chi- test of association was employed to test the association between direct payment of conservation benefits and the following:

1. Livelihood improvement, which includes access to household amenities, ownership of household assets, and income.
2. Harvesting from the protected forest, and
3. Hunting for animals in protected forest

## Issues of Trustworthiness

The study was geared towards determining whether conservation agreements affect the protection of forest resources and transform the socio-economic livelihood of the forest community. Besides, the study focused on assessing the effect of community actions on the protection of forest resources, analyzing the effect of conservation Agreement benefits on local livelihoods and determining the effect of sanctions and coordination mechanisms on the implementation of conservation agreements. Even though the practices of conservation agreements might differ across the region, the research attempted to maintain data collection focus on conservation agreements as it relates to forest protection.

Considering the sensitive nature of the topic, data collected and analyzed were scrutinized to ensure trustworthiness. The use of triangulation was applied to increase credibility and confidence in data collected and findings. (Krefting, 1991) The researcher ensured that methods used to collect and analyze data was transferable to other forest communities in Liberia through the use of thick description (Rolfe, 2006). Before publishing the research result, the draft research was circulated to professionals and practitioners as a peer-review process. The intent was to establish neutrality and eliminate the slightest possibility of biases in the interpretation of the research finding and results to

confirm with rationale procedure and decisions of general research principles (Morrow, 2005). Finally, the research was not only focused on all aspects of conservation agreement in the forest community, but the researcher intended to provide recommendations that could be appropriate and used for follow- up research.

## Ethical Concerns

Based on experiences working with rural forested communities in Liberia, the two ethical issues that came out in the process of data collection were the informed consent and the respect for anonymity and confidentiality of respondents. Given that the targeted communities were implementing conservation agreement, and enjoying the luxury of donor funding, information regarding the intent and objective of the research was shared with communities in advance. Respondents had the opportunity to demonstrate their consent to participate in the signing of a consent form. To ensure that respect for anonymity and confidentiality of respondents is corrected, the survey questionnaire required respondents to pronounce the name or identifiable information.

## Summary

Chapter 3 presented a discussion of the research method and the design that was used for the study. The researcher used the quantitative research methodology, specifically the non-experimental design, to determine the potential relationships between conservation agreements and improved livelihood and forest protection in Liberia to help understand the degree of relationship that exists between more than one variable. The chapter also included a description of the targeted research population that focused on community members that were located around a national forest or protected areas in

Liberia. A correlational design and analysis were conducted to examine the statistical relationship between the variables outlined in the research.

The chapter included the research questions that was developed in accordance with the research design to respond to the different hypotheses aligned with the problem under study. Other topics discussed in this chapter were the sample and sampling technique, procedures for recruitment, procedures for participation, procedures for data collection, role of the researcher, data analysis plan, threats of the validity of the study, trustworthiness, and ethical procedures.

# Chapter 4: Results

This chapter includes an analysis of the primary data collected in three communities across three counties in Liberia. From each sample community, 50 respondents were selected. This chapter focuses on analyzing the extent to which conservation agreements tend to improve rural livelihood and protect forest conservation in Liberia. I sought to ascertain the relationship between direct payments of conservation benefits to forest communities and forest protection in rural Liberia. I also endeavored to determine the relationship between direct payment of conservation benefits to forest communities and livelihood improvement in rural Liberia. Before answers to the research questions are provided, the socioeconomic characteristics of the study population are presented using descriptive statistics presented in frequency distribution tables, charts, and graphs. I attempted to determine the relationship between conservation agreements and direct payment on the one hand and forest protection on the other hand using the chi-square test of association.

## Research Setting

The research was conducted in three separate counties: Grand Cape Mount, Grand Bassa, and Nimba. In Grand Cape Mount, the data collection was conducted in the Tawor District Community around the Lake Piso multiple use protected area. In Nimba County, the survey setting was the Sanniquellie-Mahn District community around the East Nimba Nature Reserve. In Grand Bassa County, the study was conducted in Barcoline around the Barcoline Community forest, in District Two.

## Demographics

Ordinary community members composed the bulk of the sample population (78.7%). The gender disaggregation of respondents indicated the percentage of women (52.7%) was slightly higher than men (47.3%). Also, the data revealed that persons between 35 and 44 years of age accounted for 28.7% of the study population. The results also showed that the overall education level of respondents was low. Roughly 43% of the persons who were interviewed were illiterate.

This pattern was consistent with the low literacy status of persons in rural Liberia (LIGIS, 2017). The 2016 Household Income and Expenditure Survey placed rural literacy at 47.0% compared to 78.1% in urban areas (LIGIS, 2017). Table 1 also shows that about half of the respondents were married (50.7%), while 38.0% were never married.

**Table 1**

*Social Demographic Characteristics of Respondents*

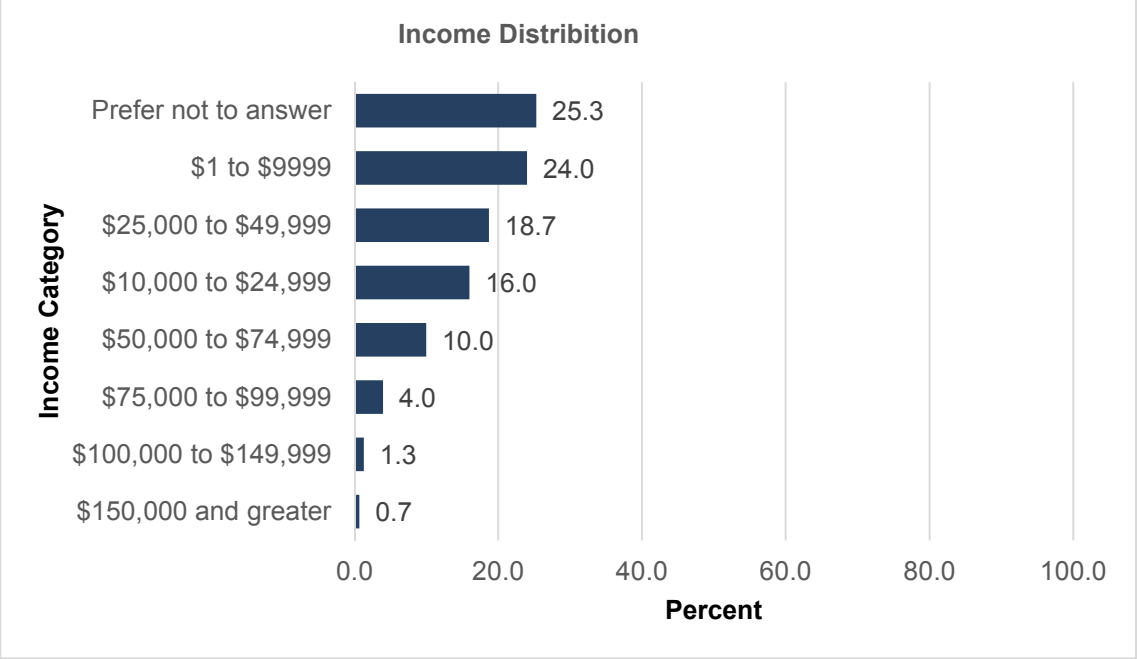
| | Percentage | Frequency |
|---|---|---|
| Position in community | | |
| Community leader | 11.3 | 17 |
| Conservation agreement project member | 10.0 | 15 |
| Ordinary community member | 78.7 | 118 |
| Total | 100.0 | 150 |
| Gender | | |
| Female | 52.7 | 79 |
| Male | 47.3 | 71 |
| Total | 100.0 | 150 |
| Respondents by age group | | |
| 18-24 | 17.3 | 26 |
| 25-34 | 22.7 | 34 |
| 35-44 | 28.7 | 43 |
| 45-54 | 12.7 | 19 |
| 55-64 | 10.7 | 16 |
| 65+ | 8.0 | 12 |
| Total | 100.0 | 150 |
| Educational level | | |
| No education | 43.3 | 65 |
| Primary | 5.3 | 8 |
| Elementary | 18.7 | 28 |
| Junior high | 13.3 | 20 |
| Senior secondary | 13.3 | 20 |
| Vocational/technical | 3.3 | 5 |
| University education | 2.7 | 4 |
| Total | 100.0 | 150 |
| Marital status | | |
| Divorced/separated | 2.7 | 4 |
| Married monogamous | 50.7 | 76 |
| Married polygamous | 6.0 | 9 |
| Never married | 38.0 | 57 |
| Widowed | 2.7 | 4 |
| Total | 100.0 | 150 |

**Income Distribution**

Figure 1 presents the distribution of the income of respondents in Liberian dollars. The results showed that about a quarter of the respondents preferred to not answer the income question. Because most of the respondents lived in agrarian communities where monetary transactions are considerably limited, providing income-related information could have been problematic. However, slightly less than a quarter of the respondents (24.0%) earned between a dollar and $9,999.

**Figure 1**

*Percent Distribution of Respondents' Income in Liberian Dollars*




Gender disaggregation of income suggested that more men were in the lower income category compared to women. Although 47.0% of men had income lower than 25,000 Liberian dollars, only 34.0% of women were found to be in the same income bracket.

Table 2 shows that 31.0% of men had income below 10,000 Liberian dollars; however, an identical percentage of women preferred not to provide answers to the question. Another feature of the data in Table 2 is that a larger percentage of women had income equivalent to 100,000 Liberian dollars and above, while only 25.4% of men were in the highest income bracket.

**Table 2**

*Distribution of Income by Gender*

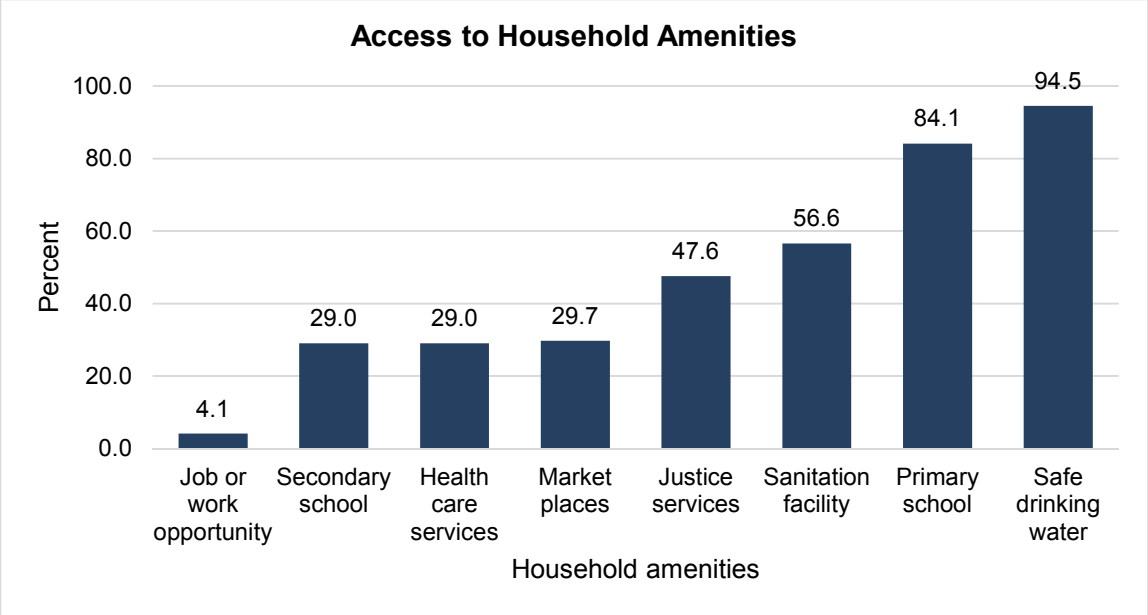
| | Gender | | Total | |
|---|---|---|---|---|
| | Female Percentage | Male Percentage | Frequency | Frequency |
| Which of these describes your income last year | | | | |
| $1 to $9999 | 17.7 | 31.0 | 24.0 | 36.0 |
| $10,000 to $24,999 | 16.5 | 15.5 | 16.0 | 24.0 |
| $25,000 to $49,999 | 2.5 | 5.6 | 4.0 | 6.0 |
| $50,000 to $74,999 | 0.0 | 2.8 | 1.3 | 2.0 |
| $75,000 to $99,999 | 0.0 | 1.4 | 0.7 | 1.0 |
| $100,000 to $149,999 | 22.8 | 14.1 | 18.7 | 28.0 |
| $150,000 and greater | 8.9 | 11.3 | 10.0 | 15.0 |
| Prefer not to answer | 31.6 | 18.3 | 25.3 | 38.0 |
| Total | 100.0 | 100.0 | 100.0 | 150.0 |

**Access to Household Amenities**

Access to household amenities across the sample communities was derived by finding the percentage of the chosen responses for each of the household amenities listed in the survey questionnaire. Access to household amenities ranged from 94.5% for safe drinking water to 4.1% for access to job or work opportunities (see Figure 2).

**Figure 2**

*Percent Distribution of Access to Household Amenities*




Access to household amenities also tends to describe the socio-economic condition of the household. The data show that, in Grand Cape Mount County, access to secondary school was the highest (54.8%), followed by access to primary school (41.0%). In Grand Bassa, access to health care services appeared to be the highest (81.0%), with access to safe drinking water becoming the distant second. In Nimba County, however, the highest fraction of persons had access to job or work opportunity (83.3%), followed by access to marketplaces (81.4%).

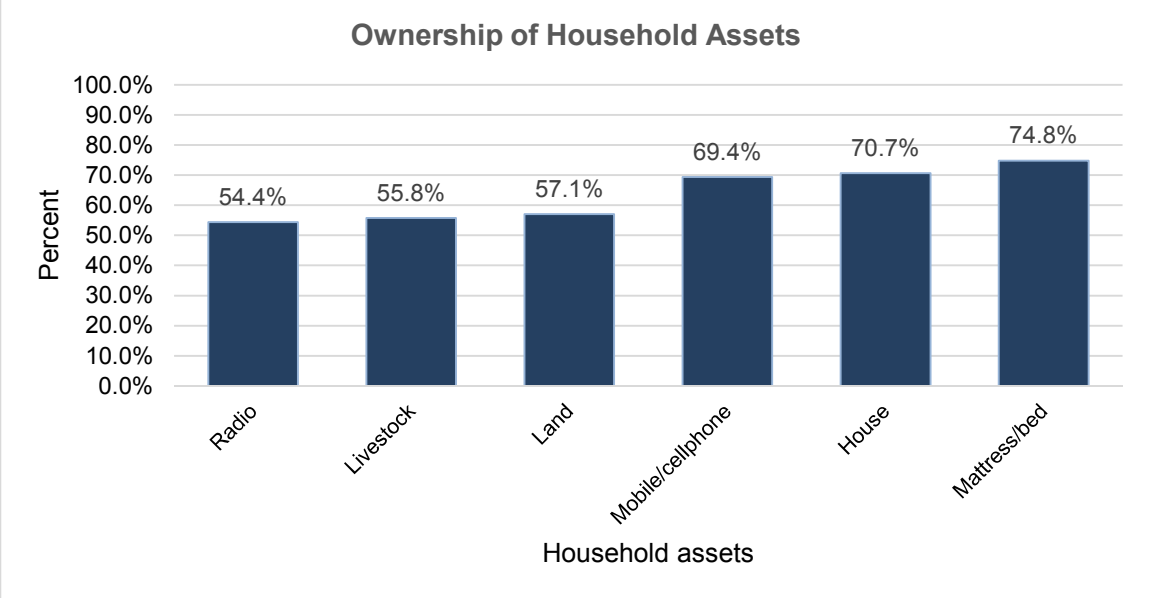
**Ownership of Household Assets**

Figure 3 shows the percent distribution of respondents by ownership of Household Assets. Ownership of household assets also depicts the extent of deprivation of segments of the population, especially communities around protected forest areas.

Unlike household amenities that showed greater variation in the percentage distribution across the sample communities, the gap in ownership of household assets was a bit narrow.

**Figure 3**

*Percent Distribution of Respondents by Ownership of Household Assets*




For instance, ownership of household assets ranged from 54.4% for radio to 74.8% for mattresses or bed. It is important to emphasize here that the quality of mattresses or bed is not specified here. In rural Liberia, mattresses might be made of rice straw or grass. Interestingly, the percentage of respondents by ownership of livestock (55.8%) was slightly over the lowest category of household assets, that is radio. This shows that even though the various communities were agrarian in nature, the rearing of livestock was generally low among the various forest communities that were covered during the survey. The level of land ownership (57.1%) is not quite surprising because in

most parts of rural Liberia, most of the land is owned by the community rather than by individuals.

**Ownership of Household Assets by County**

Table 3 shows the percent distribution of access to household amenities and ownership of household assets by county. Disaggregating ownership of household assets by county, it appeared that ownership of household assets was highest in Nimba for all the household assets listed, except for housing. House ownership was slightly higher in the protected forest community of Grand Bassa (35.6%) than in Nimba County (34.6%).

**Table 3**

*Percent Distribution of Access to Household Amenities and Ownership of Household Assets by county*

| | County | | | Total | |
|---|---|---|---|---|---|
| | Cape Mount | Grand Bassa | Nimba | | |
| | Row N % | Row N % | Row N % | Row N % | Count |
| Access to Household Amenities | | | | | |
| Safe drinking water | 35.0 | 30.7 | 34.3 | 100.0 | 137 |
| Sanitation facility | 34.1 | 28.0 | 37.8 | 100.0 | 82 |
| Market places | 9.3 | 9.3 | 81.4 | 100.0 | 43 |
| Job or work opportunity | 0.0 | 16.7 | 83.3 | 100.0 | 6 |
| Primary school | 41.0 | 29.5 | 29.5 | 100.0 | 122 |
| Secondary school | 54.8 | 11.9 | 33.3 | 100.0 | 42 |
| Health care services | 0.0 | 81.0 | 19.0 | 100.0 | 42 |
| Justice services | 26.1 | 1.4 | 72.5 | 100.0 | 69 |
| Ownership of Household Assets | | | | | |
| Radio | 26.3 | 23.8 | 50.0 | 100.0 | 80 |
| Mobile/cellphone | 30.4 | 28.4 | 41.2 | 100.0 | 102 |
| Mattress/bed | 22.7 | 33.6 | 43.6 | 100.0 | 110 |
| Livestock | 22.0 | 26.8 | 51.2 | 100.0 | 82 |
| Land | 33.3 | 20.2 | 46.4 | 100.0 | 84 |
| House | 29.8 | 35.6 | 34.6 | 100.0 | 104 |

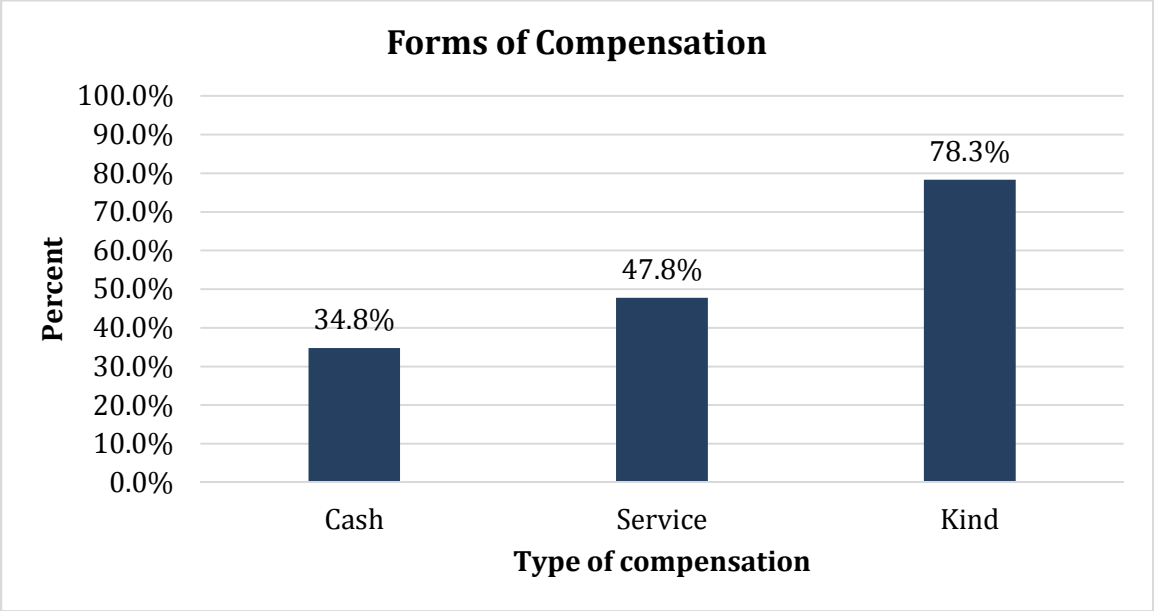
**Forms of Compensation as Benefit for Forest Protection**

Figure 4 shows the form of compensation received as benefit for forest protection. Among the 150 respondents who were selected for the interview, 46.0% had received some form of compensation or benefits for protecting the forest. When the 69 persons who had received direct benefits for forest protection were asked to choose (from three set of multiple response questions) the forms of compensation they had received, the

study revealed that 78.3% had received compensation in kind, 47.8% in the form of services and 34.8% in cash.

**Figure 4**

*Form of Compensation Received as Benefit for Forest Protection*




**Knowledge and Perception of Forest Protection**

In this section, the extent of forest protection was assessed through an investigation of the respondents' perception of the actions taken by the community to protect the forest and the level of knowledge among persons dwelling in communities with protected forest. Even though the perception of respondents on forest protection was qualitative in nature, the study endeavored to measure perception through respondent' the ranking of how respondents' felt about the actions taken by the community to protect the forest. Similarly, the knowledge and attitude of community members on forest protection were measured using a set of binary options that respondents could choose from. Since

the study took a quantitative approach, gathering further qualitative insights into the knowledge, attitude and perception of forest protection and conservation among community members using focus group discussion and other qualitative techniques was not possible.

**Perception of Forest Protection**

Table 4 shows the percent distribution of respondents' perception of actions taken to protect the forest by county. In order quantify respondents' perception of the actions taken by their community to protect the forest, a single measure was generated with the same Likert Scale options ranging from poor to excellent. The composite measure of respondent's perception was derived using the seven questions from the section of the survey questionnaire on forest protection. Each one of the seven questions was divided into five categories ranging from poor to excellent. Deriving the single measure of respondent's perception meant combining the seven questions into one, with the same options contained in the individual questions.

The data showed that roughly 32.0% of all respondents who were interviewed considered the actions taken by the community to protect the forest to be poor. On the contrary, a lower proportion (28.3%) considered communities' actions taken to protect the forest to excellent. These two options represented the two extremes of respondents' opinion on the actions taken by the community to protect the forest. Further analysis when the responses were disaggregated by county revealed that respondents from Cape Mount County generally considered the actions taken by their community to be poor (75.0%). In Grand Bassa County, the disparity between the various responses was not

very large. Even though 24.6% of the responses rated the community's action to protect the forest to be very good (24.5%), this was followed by 22.0% who stated that the community's action was good and 21.4% who thought that the action of the community was excellent. Of the three counties, respondents from Nimba had a more favorable perception about the community's action towards forest protection. The data from Table 4 shows that slightly more than half (52.3%) of the respondents considered their community's action toward forest protection to be excellent.

**Table 4**

*Percent Distribution of Respondents' Perception of Actions Taken to Protect the Forest by County*

| | Actions taken by Community to Protect the forest | | | | | |
|---|---|---|---|---|---|---|
| | Options | | | | | |
| County | Poor | Fair | Good | Very good | Excellent | Total |
| Cape Mount | 75.7 | 9.7 | 2.6 | 0.9 | 11.1 | 350 |
| Grand Bassa | 18.9 | 13.1 | 22.0 | 24.6 | 21.4 | 350 |
| Nimba | 1.4 | 10.0 | 9.1 | 27.1 | 52.3 | 350 |
| Total | 32.0 | 11.0 | 11.2 | 17.5 | 28.3 | 1050 |

* The totals here represent the total number of responses and not the total number of respondents

Looking at the individual questions asked to respondents on the actions taken by the community to protect the forest in their community, a proportionally higher number of respondents rated the communities' tendency to forego non-timber forest product extraction in the restricted forest as poor (42.7%). In terms of whether the community forego hunting in the restricted forest area, a higher percentage of respondents either

considered this as poor (28.7%) or fair (24.0%). Foregoing hunting of protected species around the surrounding forests was considered as largely excellent (32.7%). Respondents considered the actions taken by the community to forego fishing (37.3%), farming or other agricultural activities (37.3%) forest, and making fire in the restricted forest (39.3%) to be generally poor given that a larger percentage of the responses fell in this category. On the other hand, documenting and reporting every problem and violation encountered to FDA during monitoring was considered as mainly excellent by the respondents (49.3%).

**Table 5**

*Perception of Actions Taken by the Community to Protect the Forest*

| | Options | | | | | |
|---|---|---|---|---|---|---|
| | Poor | Fair | Good | Very good | Excellent | Total |
| Forego Non-timber forest product extraction in the restricted forest | 42.7 | 8.0 | 11.3 | 17.3 | 20.7 | 100.0 |
| Forego hunting in the restricted forest | 28.7 | 24.0 | 10.7 | 15.3 | 21.3 | 100.0 |
| Forego hunting of protected species around the surrounding forests | 18.0 | 14.6 | 16.0 | 18.7 | 32.7 | 100.0 |
| Forego fishing in the restricted forest | 37.3 | 11.3 | 12.0 | 18.7 | 20.7 | 100.0 |
| Forego farming or other agricultural activities in the restricted forest | 37.3 | 6.7 | 11.3 | 19.3 | 25.4 | 100.0 |
| Forego making fire in the restricted forest | 39.3 | 6.7 | 10.0 | 16.0 | 28.0 | 100.0 |
| Document and report every problem and violation encounter to FDA during monitoring | 20.7 | 5.4 | 7.3 | 17.3 | 49.3 | 100.0 |

**Knowledge and Attitude of Forest Protection and Conservation**

Table 6 shows the knowledge and attitude of forest protection and conservation. On the overall, respondents' knowledge of the protected forest (97.3%) and the surrounding forest (98.0%) was generally high. However, only 2.7% of the respondents

knew about people who harvested materials from the protected forest and just 2.0% knew about people who hunted animals in the protected forest.

**Table 6**

*Knowledge and Attitude of Forest Protection and Conservation*

| | Responses | Percent |
|---|---|---|
| Knowledge of Forest Protection | | |
| Do you know about protected forest around your community? | 146 | 97.3 |
| Do you know about surrounding forest around your community? | 147 | 98.0 |
| Do you know anyone in your community that harvest materials from the protected forest? | 4 | 2.7 |
| Do you know anyone in your community that hunt for animals from the protected forest? | 3 | 2.0 |
| Attitude toward forest protection | | |
| Do you go to harvest materials from the protected forest? | 2 | 1.5 |
| Do you harvest materials from the surrounding forest? | 128 | 95.5 |
| Do you hunt for animals in protected forest? | 5 | 3.7 |
| Do you hunt for animals in other surrounding forest? | 96 | 71.6 |

*The percentages here represent the number of "Yes" responses from the total of 150

Gauging respondents' attitude towards forest protection and conservation, the data from Table 6 shows that respondents generally did not harvest materials and hunt for animals in the protected forest. Only 1.5% of the total number of respondents stated that they harvested materials from the protected forest, while 3.7% claimed that they usually hunt for animals in the protected forest. The scenario became different when considering the surrounding forest. Of the total of 150 respondents, 95.5% harvested materials from the surrounding forest and 71.6% hunted for animals in the surrounding forest area.

**Livelihood Benefits**

This section analyzes the direct and indirect benefits received by residents from the protected forest community. The direct benefits are assistance received by direct

beneficiaries of the forest protection agreement, while indirect benefits are general benefits received by the community.

***Direct Benefits***

Table 7 shows the percent distribution of direct benefits received for forest conservation by county. From the multiple response set of questions asked on the direct benefits received in line with the forest conservation agreement, the larger percentage of respondents had received training on forest management (81.6%), followed by direct payment for forest monitoring (73.7%). The result from the three counties also mirrors the aggregate results obtained from the three counties combined. In these three counties, the larger proportion of persons who were interviewed considered Training on forest management as the major direct benefits received.

**Table 7**

*Percent Distribution of Direct Benefits Received for Forest Conservation by County*

| | County | | | | |
|---|---|---|---|---|---|
| | Cape Mount | Grand Bassa | Nimba | Total | |
| | Percent | Percent | Percent | Percent | Count |
| Direct livelihood benefits | | | | | |
| Direct payment for forest monitoring | 87.9 | 91.7 | 51.6 | 73.7 | 56 |
| Direct payment for casual labor | 66.7 | 0.0 | 25.8 | 39.5 | 30 |
| Swamp rice development | 3.0 | 0.0 | 32.3 | 14.5 | 11 |
| Pig rearing | 0.0 | 0.0 | 48.4 | 19.7 | 15 |
| Community health service | 0.0 | 66.7 | 16.1 | 17.1 | 13 |
| Training on forest management | 90.9 | 100.0 | 64.5 | 81.6 | 62 |
| Increase in income | 75.8 | 0.0 | 16.1 | 39.5 | 30 |
| Food for household | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| The building of pig pens | 0.0 | 0.0 | 41.9 | 17.1 | 13 |
| Building of warehouses | 0.0 | 0.0 | 0.0 | 0.0 | 0 |

### *Indirect Benefits*

Table 8 shows the percent distribution of indirect benefits received for forest conservation by county. The results shown in Table 8 suggest that the largest portion of the survey population who did not receive direct benefits had indirectly benefited from direct payment for casual labor (84.5%). This result also remained consistent for across the three counties.

**Table 8**

*Percent Distribution of Indirect Benefits Received for Forest Conservation by County*

| | County | | | | |
|---|---|---|---|---|---|
| | Cape Mount | Grand Bassa | Nimba | Total | |
| | Percent | Percent | Percent | Percent | Count |
| Indirect livelihood benefits | | | | | |
| Direct payment for forest monitoring | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| Direct payment for casual labor | 70.0 | 83.3 | 100.0 | 84.5 | 125 |
| Swamp rice development | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| Pig rearing | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| Community health service | 0.0 | 12.5 | 0.0 | 4.1 | 6 |
| Training on forest management | 20.0 | 16.7 | 0.0 | 12.2 | 18 |
| Increase in income | 30.0 | 0.0 | 0.0 | 10.1 | 15 |
| Food for household | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| The building of pig pens | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| Building of warehouses | 0.0 | 2.1 | 0.0 | 0.7 | 1 |

### Relationship Between Direct Payment and Hunting for Animals from the Protected Forest

Table 9 shows the test of association between direct benefits and hunting in the protected forest. The crosstabulation between direct payment and hunting for materials in the protected forest revealed that only 1.3% of the population who received direct

payments had harvested materials from the protected forest. The results from the Chi-square test of association from Table 9 shows that the initial Pearson Chi-Square test could not fit the model as the count from some cells were less than 5. Under this condition, the Fisher's Exact Test was used to test the relationship between direct payments and hunting for materials in the protected forest. The result from the Fisher's Exact Test shows that there was insufficient evidence to suggest a relationship between direct payments and hunting in the protected forest ($X^2 = 0.003$,*df*=1, *p*=0.731).

**Table 9**

*Test of Association Between Direct Benefits and Hunting in the Protected Forest*

| | | Do you hunt for animals in protected forest? | | |
|---|---|---|---|---|
| | | No | Yes | Total |
| Did you or any of your household members benefit directly from the conservation agreement | | | | |
| | No | 98.6 | 1.4 | 100.0 |
| | Yes | 98.7 | 1.3 | 100.0 |
| | Total | 98.7 | 1.3 | 100.0 |

| Chi-Square Tests | | | | | |
|---|---|---|---|---|---|
| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
| Pearson Chi-Square | .003(a) | 1 | 0.955 | | |
| Continuity Correction(b) | 0.000 | 1 | 1 | | |
| Likelihood Ratio | 0.003 | 1 | 0.955 | | |
| Fisher's Exact Test | | | | 1 | 0.731 |
| Linear-by-Linear Association | 0.003 | 1 | 0.955 | | |
| N of Valid Cases | 150 | | | | |

2 cells (50.0%) have expected count less than 5. The minimum expected count is .96.
b Computed only for a 2x2table

**Relationship Between Direct Payment and Hunting for Animals from the Protected Forest**

Table 10 shows that there was little difference in the proportion between persons who had received direct benefits and those who did not receive direct benefits in terms of hunting for animals from the protected forest.

**Table 10**

*Test of Association Between Direct Benefits and Hunting for Animals in Protected Forest*

| | | Do you go to harvest materials from the protected forest? | | |
|---|---|---|---|---|
| | | No | Yes | Total |
| Did you or any of your household members benefit directly from the conservation agreement | | | | |
| | No | 97.2 | 2.8 | 100.0 |
| | Yes | 96.2 | 3.8 | 100.0 |
| | Total | 96.7 | 3.3 | 100.0 |

| Chi-Square Tests | | | | | |
|---|---|---|---|---|---|
| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
| Pearson Chi-Square | .133a | 1 | 0.716 | | |
| Continuity Correction | 0.000 | 1 | 1 | | |
| Likelihood Ratio | 0.134 | 1 | 0.715 | | |
| Fisher's Exact Test | | | | 1 | 0.538 |
| Linear-by-Linear Association | 0.132 | 1 | 0.717 | | |
| N of Valid Cases | 150 | | | | |

2 cells (50.0%) have expected count less than 5. The minimum expected count is .96.
b Computed only for a 2x2 table

While only 3.8% of the persons who had receive direct benefits for forest conservation had hunted for animals from the protected forest, it was also observed that barely 2.8% of the persons who did not receive direct benefits for forest conservation had

hunted for animals in the protected forest. This result suggests that receipt of direct benefits for forest conservation was not statistically associated with hunting for animals in the protected forest, as the p-value of the Fisher's Exact Test suggests ($X^2 = 0.133$,*df*=1, *p*=0.538).

**Relationship Between Direct Payment of Conservation Benefits and Livelihood Improvement**

Table 11 shows the Chi-Square Test of Association Between Direct Payment and Livelihood Improvement. Three major variables were considered to measure livelihood improvement: that is income, access to household amenities, and ownership of household assets. Apart from access to a job or work opportunity and access to secondary school that showed higher percentages for persons who had not received direct payments, the results in Table 11 generally indicate that for most of the categories of persons who had received direct benefits were more likely to have higher access. The result from the Chi-square test of association tend to corroborate this assertion that there is significant evidence that suggests a relationship between direct payment for forest conservation and access to household amenities ($X^2 = 43.72$,df=8, p<0.0001).

Analysis of direct benefits for forest conservation and ownership of household assets indicates that for all categories of household assets, the proportion was higher for persons who had received direct benefits for forest conservation compared to those who had not received. The data emanating from the Chi-square test of association suggests

that direct payment for forest conservation was significantly associated with ownership of household assets ($X^2 = 36.75$,*df*=6, *p*<0.0001).

**Table 11**

*Chi-Square Test of Association Between Direct Payment and Livelihood Improvement*

| | Direct benefit for forest conservation | | | | | | |
|---|---|---|---|---|---|---|---|
| | No | Yes | Total | | Chi-square Test | | |
| | Row N % | Row N % | Row N % | Count | $X^2$ | df | Sig. |
| Access to Household Amenities | | | | | | | |
| | | | | | 43.72 | 8 | 0.000 |
| Safe drinking water | 26.7 | 73.3 | 100.0 | 75 | | | |
| Sanitation facility | 26.4 | 73.6 | 100.0 | 53 | | | |
| Market places | 48.0 | 52.0 | 100.0 | 25 | | | |
| Job or work opportunity | 75.0 | 25.0 | 100.0 | 4 | | | |
| Primary school | 22.5 | 77.5 | 100.0 | 71 | | | |
| Secondary school | 58.3 | 41.7 | 100.0 | 12 | | | |
| Health care services | 27.8 | 72.2 | 100.0 | 18 | | | |
| Justice services | 47.1 | 52.9 | 100.0 | 34 | | | |
| Ownership of Household Assets | | | | | | | |
| | | | | | 36.75 | 6 | 0.000 |
| Radio | 37.5 | 62.5 | 100.0 | 80 | | | |
| Mobile/cellphone | 42.2 | 57.8 | 100.0 | 102 | | | |
| Mattress/bed | 41.8 | 58.2 | 100.0 | 110 | | | |
| Livestock | 37.8 | 62.2 | 100.0 | 82 | | | |
| Land | 34.5 | 65.5 | 100.0 | 84 | | | |
| House | 41.3 | 58.7 | 100.0 | 104 | | | |
| Income of Respondents | | | | | | | |
| | | | | | 3.10 | 1 | 0.078 |
| <LD$25,000.00 | 55.9 | 44.1 | 100.0 | 68 | | | |
| LD$75,000.00 and above | 41.5 | 58.5 | 100.0 | 82 | | | |

In terms of income and receipt of direct benefit for forest conservation, the data shows that the higher percentage of persons who received direct benefits for forest conservation were in the higher income bracket of LD$75,000.00 and above (58.5%), while the majority of the persons who did not receive direct benefits were in the lowest

income category. Despite these results, the data shows that income and receipt of direct payment for forest conservation were not significantly associated within the 95% confidence limit ($X^2 = 3.10$*df*=1, *p*<0.078).

**Results of the Hypotheses**

The first hypothesis was meant to test the null condition that there was no relationship between direct payment of conservation benefits to forest communities and forest protection in rural Liberia against the alternative hypothesis that there was existed a significant relationship. Using hunting for animals from the forest as a factor of forest conservation, the results indicates that we cannot reject the null hypothesis that there was no significant relationship between direct payment and forest conservation ($X^2 = 0.003$,*df*=1, *p*=0.731). In order words, we failed to accept the alternative hypothesis. Furthermore, second test of hypothesis was meant to ascertained whether a statistically significant relationship existed between direct payment and harvesting materials from the protected forest. The latter was considered as a element of forest protection. Like in the case of hunting for materials from the protected forest, the result indicates that we cannot reject the null hypothesis that there was no significant relationship between direct payment and forest protection, when considering harvesting materials from the forest as one of the factors of forest protection ($X^2 = 0.133$,*df*=1, *p*=0.538). However, it is important to stress that we did not reject the null hypothesis.

For the second set of hypotheses, the null hypothesis that there was no statistically significant relationship between direct payment of conservation benefits to forest communities and livelihood improvement was tested against the alternative hypothesis.

Under livelihood improvement, the data shows that we failed to accept the null hypothesis that there was no significant relationship between direct payment for forest conservation and access to household amenities ($X^2 = 43.72$,*df*=8, *p*<0.0001). In similar vein, we rejected the null hypothesis but accepted the alternative hypothesis that direct payment for forest conservation was significantly associated with ownership of household assets ($X^2 = 36.75$,*df*=6, *p*<0.0001). However, we failed to reject the null hypothesis that income and receipt of direct payment for forest conservation were not significantly associated within the 95% confidence limit (X2=3.10df=1, p<0.078).

# Chapter 5: Discussion, Conclusions, and Recommendations

The primary aim of the study was to assess the impacts of conservation agreement on livelihoods and forest protection in rural Liberia to inform the government of Liberia and stakeholders in their quest to design a national incentive-based payment program to forest community and landowners. To achieve this objective, I used descriptive statistics as such as frequency distribution tables and charts or graphs. Additionally, inferential statistics with the chi-square test of association were used.

## Interpretation of the Findings

### Direct Benefits and Forest Conservation and Protection

An initial assessment of the research findings indicated that there was insufficient evidence to link direct benefits of conservation and forest protection in the form of harvest of materials and conservation efforts. This suggested that even though providing compensation to the forest community helps to alleviate poverty and could serve as an indirect deterrent for people compelled to harvest materials from the harvest, there appeared to be no real difference between people who received compensation and those who did not. This means that apart from compensation, other factors might have played a role in preventing people from exploiting forest resources. The same conclusion was reached when investigating the relationship between direct payments for forest conservation and hunting in the protected forest. Although both persons who had received compensation and those who were not covered by the program stated that they did not hunt for animals in the protected forest, it was hard to find statistical evidence to establish a link between compensation and forest protection.

The statistical evidence establishing a link between compensation and forest protection has been addressed in previous research. Ostrom (2010, as cited in Forsyth & Johnson, 2014) asserted that there are separate behaviors that might influence individuals' or communities' action regarding the use of natural resources. Forsyth and Johnson (2014) argued that collective community choice for representative decision making and actions that are constitutional regulate social behavior toward activities that provide economic benefits. Ostrom (2010, as cited in Forsyth & Johnson, 2014) explained that individuals' willingness to protect common goods like forests is predicated on how informed they are regarding the credibility and reliability of the opportunity based on the costs and benefits. This general conception seems to be applicable especially when the communities have different information and perceptions about the economic values against payment directly from resource protections. In the current study, more than half of the respondents reported owning livestock, which indicates that further study because persons without livestock could resort to hunting for animals in the protected forest to satisfy their protein needs. This issue was relevant in Nimba County, but the other communities selected for the survey in Cape Mount and Grand Bassa were fishing communities.

**Direct Benefits and Livelihood Improvements**

Of the three variables that were selected for livelihood improvements, income showed insufficient evidence of having a direct relationship with direct payments. In rural areas where money is not a real factor in the attribution of wealth, income becomes a weak tool to measure and analyze livelihood improvement. The results showed stronger

evidence of linkages between direct payment and household amenities and ownership of household assets. This result appears logical because direct payments in forest communities could increase household ownership of assets and could also improve access and availability of amenities in the forest communities. According to the United Nations Development Programme (2017), improvement in economic livelihood of the forest community is crucial in determining the extent to which the forest will be protected and developed.

## Limitations of the Study

I recognized potential limitations in the administering of the survey and findings in this study that could be addressed in future studies. First, the sample population of the study was not large enough to generalize the results to all communities that undertook forest protection through conservation agreement activities in Liberia. Second, surveys were administered during a global health pandemic that might have impacted the views of respondents participating in this study.

## Recommendations

Given the analysis of the data and the conclusions that have been rendered thus far, it will be relevant for key stakeholders such as Conservation International to continue giving support for the enforcement of forest protection. Despite the indeterminate linkages between forest protection and direct payments, it will be relevant to support forest communities with compensation, community awareness and training, and enforcement of forest protection. This means that key stakeholders should adopt an integrated approach in curbing the pillaging of materials and killing of animals from the

protected forest. This integrated approach will also entail promoting equity by allowing all major segments of the community to be engaged in the implementation and enforcement of the conservation agreement with the community. Given the inadequate nature of the study in answering questions regarding the impact of economic livelihoods on forest protection, a new avenue of research has been opened that focuses on determining whether the socioeconomic status of the community residents affects their actions taken to protect the forest.

## Conclusion

In designing programs to ensure that protected forest areas are kept secured, direct payments of benefits are essential because they could improve economic livelihoods by amplifying access to amenities that are essential to the well-being of the household and by increasing overall household ownership assets. This could help to reduce poverty, especially if the compensation provided were consistent over a period of time. Because the current study did not provide significant results regarding the relationship between economic livelihood and forest protection, it is impractical to render assumptions about whether improving people's economic conditions could encourage them to refrain from exploiting resources in protected forest areas. Other factors could affect forest protection, such as cultural norms and practices, level of community awareness, and strictness of the law on forest protection in the community. The current study did not establish any firm evidence to show that direct payment of livelihood benefits affects forest protection.

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Annex

## Annex 1: Survey questionnaires

**Assessing the impacts of conservation agreement on livelihoods and forest protection in rural Liberia**
**Survey Questionnaire**

| **Survey info** | | |
|---|---|---|
| 1. Surveyed Code: | | |
| | | |
| 3. Date: _____ | 2. questionnaires No._____ | |
| Surveyed Community | 1. _____ | ☐ |
| Position in Community | 1. Community Leader<br>2. Conservation Agreement Project member<br>3. Ordinary Community member | ☐ |

**A. PAYMENT (CIRCLE THE CORRECT NUMBER)**

| NO. | QUESTION | | |
|---|---|---|---|
| A1 | Have you received any form of compensation as benefit for protecting the forest? | Yes……1<br>No……..0 | GO TO A2<br>GO TO C1 |
| A2 | Form of compensation | Cash…….1<br>Kind……..2<br>Service…….3 | GO TO A3<br>GO TO A4<br>GO TO A5 |
| A3 | How much did you receive in US $ dollars | *Kindly write here* | |
| A4 | What did you receive? | Livestock……1<br>Medicine……2<br>Vegetable…….....3<br>Swamp rice……...4<br>Hand pump……...5<br>Ecostove……6 | |

| | | | |
|---|---|---|---|
| | | Canoe……7<br>Others……8 | |
| A5 | What type of service did you receive? | Training of community leaders..1<br>Carpentry support……2<br>Masonry…….3<br>Veterinary……..4<br>Agricultural extension……..5 | |

**B. FOREST PROTECTION**

We will now ask you some questions on the actions your community is taking to protect the forest. Kindly rank your impressions on the scale of 1-5 on the effectiveness of the following actions in your community.

| NO | QUESTION | 1= poor | 2= Fair | 3= Good | 4= Very good | 5= Excellent |
|---|---|---|---|---|---|---|
| B1 | Forego Non-timber forest product extraction in the restricted forest | | ☐ | | | |
| B2 | Forego hunting in the restricted forest | | ☐ | | | |
| B3 | Forego hunting of protected species around the surrounding forests | | ☐ | | | |
| B4 | Forego fishing in the restricted forest | | ☐ | | | |
| B5 | Forego farming or other agricultural activities in the restricted forest | | ☐ | | | |
| B6 | Forego making fire in the restricted forest | | ☐ | | | |
| B7 | Document and report every problem and violation encounter to FDA during monitoring | | ☐ | | | |

**C. LIVELIHOOD BENEFITS**

We will start will telling you the meaning of *Conservation Agreement. Conservation Agreement* is the agreement signed between a local community for the purpose of conserving the forest resources in exchange for livelihoods benefits.

| NO. | QUESTION | OPTIONS | |
|---|---|---|---|

| | | | |
|---|---|---|---|
| C1 | Did you or any of your household members benefit directly from the conservation agreement? | Yes……1<br>No……..0 | If NO GO TO C3 ☐ |
| C2 | If yes , which type of benefit do you or any member of your household personally receives?<br>***You can choose as many of the options provided as possible*** | Direct payment for forest monitoring | ☐ |
| | | Direct payment for casual labor | ☐ |
| | | Swamp rice development | ☐ |
| | | Pig rearing | ☐ |
| | | Community health service | ☐ |
| | | Training on forest management | ☐ |
| | | Increase in income | ☐ |
| | | Food for household | ☐ |
| | | The building of pig pens | ☐ |
| | | Building of warehouses | ☐ |
| ***D3 should be answered by all respondents*** | | | |
| C3 | If no, did your community receive all the benefits as stated in the agreement? | Yes……1<br>No…….0 | ☐ |
| C4 | If yes, what were the type of benefits received by your community?<br>***You can choose as many of the options provided as possible*** | Direct payment for forest monitoring | ☐ |
| | | Direct payment for Casual labor | ☐ |
| | | Swamp rice development<br>Pig rearing | ☐ |
| | | Community health service | ☐ |
| | | Training on forest management | ☐ |
| | | Increase in income | ☐ |

| | | | |
|---|---|---|---|
| | | | |
| | | Food for household | ☐ |
| | | The building of pig pens | ☐ |
| | | Building of warehouses | ☐ |

**D. FOREST PROTECTION OR CONSERVATION**

We will start will telling you the meaning of protected and surrounding forest. A protected forest is a forest that the government restrict people from extracting anything from in it, while the surrounding forest are those that have no government restriction.

| NO. | QUESTION | OPTIONS | |
|---|---|---|---|
| D1 | Do you know about protected forest around your community? | Yes……..1<br>No……0 | ☐ |
| D2 | Do you know about surrounding forest around your community? | Yes……..1<br>No……0 | ☐ |
| D3 | Do you go to harvest materials from the protected forest? | Yes……..1<br>No……0 | ☐ |
| D4 | Do you harvest materials from the surrounding forest? | Yes……..1<br>No……0 | ☐ |
| D5 | Do you hunt for animals in protected forest? | Yes……..1<br>No……0 | ☐ |
| D6 | Do you hunt for animals in other surrounding forest? | Yes……..1<br>No……0 | ☐ |
| D7 | Do you know anyone in your community that harvest materials from the protected forest? | Yes……..1<br>No……0 | ☐ |
| D8 | Do you know anyone in your community that hunt for animals from the protected forest? | Yes……..1<br>No……0 | ☐ |
| D9 | Do you think the protected forest is protected by your community? | Yes……..1<br>No……0 | ☐ |
| D10 | If yes, to what extent is the protected forest is protected? | Strongly Protected……1<br>Moderately protected…….2<br>Weakly protected...3 | ☐ |

| | | | |
|---|---|---|---|
| D11 | How important do you think it is to protect forest near your community? | Not at all important..1<br>Slightly Important ……2<br>Important……..3<br>Fairly Important……4<br>Very Important….5 | |

## E. SOCIO-DEMOGRAPHIC AND ECONOMIC VARIABLES

| NO. | | | |
|---|---|---|---|
| | Respondent category | 1.Ordinary citizen<br>2. Community leader | |
| E1 | Gender | 1.Male<br>2. Female | |
| E2 | What is your age | | |
| E3 | Educational level | 1.No education<br>2.Primary<br>3.Elementary<br>4.Junior Secondary<br>5.Senior Secondary<br>6.Vocational/ Technical<br>7.University education | |
| E4 | Marital status | 1. Never married<br>2. Married monogamous<br>3. Married Polygamous<br>4. Divorced/separated<br>5. Widowed | |
| E5 | What is your relationship to the head of the household? | 1.Head<br>2.Wife/spouse<br>3.Son/daughter<br>4.Parent<br>5.Grandchild<br>6.Other relative<br>7.Non relative | |
| **Household Income Distribution** | | | |
| E6 | *Which of these describes your income last year?* | *$1 to $9 999 …… 0*<br>*$10 000 to $24 999 …… 1*<br>*$25 000 to 49 999 ……2*<br>*$50 000 to 74 999 ……3*<br>*$75 000 to 99 999* | |

| | | | |
|---|---|---|---|
| | | *……..4*<br>*$100 000 to 149 999……..5*<br>*$150 000 and greater ……6*<br>*Prefer not to answer ……..7* | |
| **Access to Household Amenities** | | | |
| E7 | Does your household have access to…?<br><br>*You can choose as many of the options provided as possible* | Safe drinking water | ☐ |
| | | Sanitation facility | ☐ |
| | | Market places | ☐ |
| | | Job or work opportunity | ☐ |
| | | Primary school | ☐ |
| | | Secondary school | ☐ |
| | | Health care services | ☐ |
| | | Justice services | ☐ |
| **Ownership of Household Access** | | | |
| A8 | Do you or your household own the following? | Radio | ☐ |
| | | Mobile/ cellphone | ☐ |
| | | Mattress/bed | ☐ |
| | | Livestock | ☐ |
| | | Land | ☐ |
| | | House | ☐ |