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Gender Related Issues and Ecosystem Service Utilization Within the Volta Basin: Field Level Qualitative Experiences

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Abstract: Ecosystem services are considered as essential factors to determine the quality of the wellbeing of populations. This research paper focuses on establishing the contributions of ecosystem services in ensuring food security and its subsequent impact on the socio-economic wellbeing of both men and women within the Volta Basin and what accounts for unequal access to ecosystem services by men and women. It also identifies the socio-cultural issues on ecosystem utilization within the given area. The approach employed for the gathering of data for this study was multi-disciplinary and local knowledge centered. Focus Group Discussions, household surveys, stakeholder consultative meetings, seminars and workshops and biophysical observations were the methods and tools employed in obtaining the needed data. Communities selected within the Volta Basin comprised Bawku West (Kokori through Aring to Binaba), Namdan District (from Sakote through Pelungu to Damolgo), Jirapa District (from Tuggo through Konzokala to Wulling) and Lawra District (from Dasuuri through Eramon Tangzu to Bompari). Findings from the study revealed that communities within the area of study relied on natural and human modified ecosystems to sustain and maintain human lives. The findings however established that traditional laws often provided land for women, wives, and widows through means other than, for instance, equal land shares on inheritance. Systemic gender biases existed in the form of customs, beliefs, attitudes and laws that confined women to cultivating some type of crops within the study communities. Also, most communities have lost their livestock as a result of theft and some farm fields have been destroyed by cattle grazing, making it difficult to access organic manure for farming resulting in the use of chemical fertilizer. Therefore, to ensure positive contribution of the ecosystems to food security, the study recommends that government should create regulations that strengthen tenure security in the majority of the studied locations. Also, efforts should be made to document and publicize benefits of gender inclusion in ecosystem service utilization. Studies should also be conducted on human attitudes and perceptions regarding ecosystem services as a tool for understanding the complex problems associated with environmental change in the context of cultural landscapes. Promote joint planning and consensus building with Fulani, farmers, decision makers and livestock owners to help solve the issue on livestock theft and over grazing.

Keywords: Gender, Ecosystem, Volta Basin, Field Level Qualitative Experiences

1. Introduction

Natural resource management initiatives have historically been centered on specific uses like crop cultivation, livestock rearing, forestry, and other commercial purposes, leading to distinct governance systems for each use. Ecosystem-based management acknowledges the interdependence of populations of plants, animals, and people as well as how these groups interact with their physical surroundings to form different biological units known as ecosystems. The processes of change within living systems and maintaining the products and services that healthy ecosystems provide are the two main focuses of ecosystem-based management [15]. Men and women have various societal roles to play, and these gender differences are influenced by factors such as ideology, history, religion, ethnicity, economy, and culture [13, 20]. These determinants tend to differently position men and women within the household to have different

responsibilities and control over resources. They frequently have different demands in addition to playing various and shifting roles in society. Both Men and women shoulder the primary responsibility for food security, which they do mostly by making use of their natural environment. In view of this they have a tendency to benefit in a multitude of ways from ecosystems. These ecosystems can be practically defined as a dynamic complex of living (comprising of a community of plants, animals and micro-organisms) and the non-living environment, interacting as a functional unit [6, 12]. Collectively, these benefits are becoming known as ecosystem services. Ecosystem services are the benefits people obtain from ecosystems whch contribute to making human life both possible and worth living [12]. These ecosystems form part of the wealth of communities around the Volta Basin and have a number of benefits to the people, including social, economic and cultural. These benefits, which are common to most ecosystems, are identified and divided into four main categories: provisioning (including food, fruits, fodder, fuel wood, medicinal herbs, thatch fiber, and water), regulating services (including climate regulation, disease control, wind breaks, pollination/seed dispersion), cultural services (including recreation, tourism, atheistic, funeral, and sacred grooves), and supporting services (including soil formation/improvement, nutrient cycling, and water). Many of these services within the Volta Basin are natural capital from wetlands, farmlands, grassland, shrub, woodlot and the forest.

Culture and tradition are long standing phenomena that have greatly affected the way these services are used. Both men and women will make judgments based on the value systems promoted in their own societies and influenced by their belief systems. Having accurate knowledge of the current state and trends of ecosystems, as well as the economic, political, social, and cultural ramifications of various action options, is necessary for making the right decisions. In line with this, the author sets out to achieve two main objectives in this research paper. The first is to identify the overall contributions of ecosystem services to ensuring food security and its subsequent impact on the social and economic wellbeing of both men and women within the Volta Basin and what accounts for unequal access to ecosystem services by men and women. The second objective is to understand the socio-cultural issues on ecosystem utilization. The rationale of this research paper is to provide useful information to policy makers and other relevant stakeholders to enable them understand farmers' challenges and the possible policy directions for addressing some of these challenges.

The ecosystem is made up of the advantages nature offers to humans, which helps to highlight the connection between humans and the natural world as well as the interdependence of human life on ecosystem-based processes that produce goods required for daily living.

Figure 1. *Picture of Volta Basin Ecosystem.*

2. Methodology

The approach employed for gathering of data for this research paper was multi-disciplinary and local knowledge centered. The term "multidisciplinary approach" refers to a method in which resources from several disciplines and sciences are employed to discover a solution to the problem being investigated [3, 14]. This approach was aimed at capturing multiple perspectives by engaging with different stakeholders; farmers (women, youth and men), traditional rulers; development workers; planners; decision makers at district, regional and national levels. Specifically, Focus Group Discussions, Household surveys, stakeholder consultative meetings, seminars and workshops with livelihood groups, participatory tools and biophysical observations were employed to obtain the needed information for this write-up. These different tools were meant to capture multiple perspectives [4]. Communities selected within the volta basin comprised of Bawku west (Kokori through Aring to Binaba), Namdan District (from Sakote through Pelungu to Damolgo), Jirapa District (from Tuggo through Konzokala to Wulling) and Lawra District (from Dasuuri through Eramon Tangzu to Bompari).

Figure 2. *Farmers gathering stones to Prepare Contours and Terraces.*

3. Findings and Discussions

The key findings and discussions on gender and ecosystem service as used in the study districts within the Volta Basin are presented in themes as follows.

3.1. Equitable Access to Resources and Land Use Rights

Equitable access to resource is a central issue because it is a crucial asset for sourcing ecosystem services. According to MacNeil, M., "there is an internal conflict between the rights to property and the rights of persons to a fair share of the resources that ensure the basics of existence [11]". The study is aware of this reality and, in light of it, seeks to identify the main gender-related problems relating to fair access to and utilization of resources from the volta basin ecosystem. Evidence from the data shows that traditional laws often provide land for women, wives, and widows through means other than, for instance, equal land shares on inheritance. Law and community decision as to who to be given priority to limited land impede women's access to land in Wulling.

An elderly women participant made this comment:

I have been into farming since I got married and now became a widow but I have been given land to farm through my elder son. The men are the only ones in this community allowed by tradition to own land. (FGD, 20th May 2017).

This situation tends to limit women within the study districts from having equal access to ecosystem services which could have eventually enhanced their social and economic well-being. This situation fails to acknowledge the increasing global demand for food, calling for a multifaceted and comprehensive efforts to ensuring sustainable and equitable food security. Strategies to boost yields through better land rights security will be needed to support the initiatives. According to the studies, secured land titles encourage farmers to make investments in their land, borrow money for agricultural inputs, or make improvements to their land. According to research, people who have their property rights protected are better stewards of their surroundings and their natural resource base [10, 18].

Figure 3. *Female Farmer inspecting a maize farm.*

3.2. Ecosystem Services and Gender Related Crops

Both men and women within the Volta Basin do not cultivate some particular crops. Financial incapability, labour requirements, and cultural implications were some of the reasons accounting for this trend. The energy involved in making mounds prevented women from cultivating yam because it was labour intensive and the men would mostly not cultivate rice because it was time consuming. Also, in Tuggo where rice fields were not many, women were rather encouraged to cultivate rice for small scale production. Women within the basin mostly preferred the bush farms because the compound farms were not sufficient for men. The men cropped on the compound farms and did not have enough to share with women.

3.3. Socio-Cultural Issues on the Utilization of Ecosystem Services

Systemic gender biases existed in the form of customs, beliefs and attitudes that confined women to cultivating some type of crops within the study communities. The reason for this categorization was that most of the crops men cultivated required more land which women of this community were not privileged to have. Instances when the value of such crops increased as a result of external investments and market demands, women get marginalized in the process, and risk losing former benefits. For example, groundnut that used to be women's crop is now taken over by men because of unintended valuable effect that this crop now has in terms of its market value. Some authors supported the claim that rural women are confronted with several difficulties as farmers and have few opportunities to work in well-paying occupations [2, 5, 8]. Asadullah, M. N., & Kamhampati, U., further ascribed this to "the feminization of agriculture," where many women operate as small-scale, subsistence farmers due to family income diversification [1]. Women could not cultivate guinea corn because it was a traditional crop with cultural implications for them to cultivate. Understanding the difficulties confronting women in these communities as farmers may open up new avenues for the transfer of information throughout the entire research areas. Removing these barriers makes sense in terms of boosting and maintaining women's production. It is not intended to imply that women would always opt to engage completely in commercial farming. Women could, if given equal resources, compete with men with ease. Rather, the qualitative findings show that women's farming tends toward community models not readily compatible in promoting women industrial farming. Therefore, the goal of this study is to create the opportunity for future chances. According to the qualitative research, women's farming tends to base more on community models, which are challenging for industrial farming to support women farmers. The terminology, 'livelihood', means more than just income generation but to include other broader factors such as; equity, justice, and rights that support quality of life. Other authors contend that the feminization of agriculture may make women even more susceptible to poverty and risk their access to adequate nutrition [1, 7, 9, 17].

3.4. Contribution of Ecosystem Services to Ensuring Food Security

Communities within the area of study relied on natural and

human modified ecosystems to sustain and fulfill human lives. For the past twenty (20) or so years, most communities within the Volta basin had no problem with food but this situation has changed and within the past 10-15 years many communities are finding it more difficult to meet the food security needs of their families. The women in particular augmented the food security needs by engaging in ecosystem activities such as sale of fuel wood, charcoal burning, Shea picking and Dawadawa processing. These human interventions have the potential to increase some services at the expense of others. It was realized that both organic manure and inorganic fertilizer are applied to augment the fertility level of the soil. Both men and women engage in stone and earth bunds, mulching, residue incorporation, compost, and fertilizer application as measures to improving land and fertility related issues. Thus, human interventions have dramatically increased food provisioning services through soil amendment methods. Although this has resulted in changes to other services, there is a decline in the numbers of trees particularly indigenous trees. The use of chemical fertilizer for mining and farming has destroyed toads leading to their extinction.

3.5. Challenges Confronting Men and Women in Using Ecosystem Services

Evidently there are serious constraints which militate against the effective utilization of ecosystem services in the Volta Basin. Patriarchal modes, age-old traditions, beliefs and practices motivated by cultural interpretations of sanctions hinder women's freedom to opt for various choices of ecosystem assert. Secondly, communities were challenged with uncontrolled grazing and the theft of animals which affects their sustainable land management options in addressing soil fertility problems. Famers also lack knowledge regarding the correct application of fertilizer and other inputs and this causes pollution. Knowledge dissemination on poor application of pesticides/herbicides continue to be a constraint for farmers. The continuous use of fertilizer and other crop related inputs has impacted on lands, thereby making them unable to support the cultivation of indigenous crops and making farmers adopt high yield crops which require the use of fertilizer and herbicides. Another important challenge hindering farmers' utilization of ecosystem services has been the unavailability and or the expensiveness of inputs (e.g., seeds, fertilizer).

3.6. Ecosystem Experiences from the Volta Basin

Most communities have lost their livestock as a result of theft and some farm fields have been destroyed by cattle grazing, making it difficult to access organic manure for farming resulting to the use of chemical fertilizer. The use of this alternative soil amendment has changed the cropping systems of farmers within the Volta Basin. Most communities now cultivate maize instead of guinea corn. Secondly the people living close to natural ecosystems have considerable knowledge of the ecosystem and know the relevance of the ecosystem in addressing their local context problems. What farmers adopted was what was compactible or fitted to their location context situations. For example, farmers considered the nature of their land and the local materials available before deciding on the type of land management practice. Subsequently, what drives farmers' decision is not money but what involves minimum investment. Social norms, myths, perceptions affected unequal access to ecosystem services for women.

4. Conclusion and Recommendations

The way decisions are made about ecosystem use in the Volta Basin depended on the system of value endorsed, conceptual tools, information and methods available at the disposal of each of the study communities. It is worth noting that, building on the experiences and local knowledge of rural people in designing interventions enhances the acceptability and ownership of projects and its outcomes even where the project exit. This is because, communities are confronted with important choices on how to manage ecosystems affecting their conditions and the services they provide and thus ultimately their human well-being depending on the socio-cultural dynamics of their communities. Robertson, A. & Minkler, M., state that 'high-level community participation increases capacity on die individual and community level [16]'. Similarly, Wallerstein, N., writes that 'community competence has been proposed as an important research outcome of social network and community participation interventions [19]'. In special consideration to this the author therefore recommends that:

1) The identification and addressing of ecosystem challenges relating to traditional laws and procedures that serve as constraints to gender inclusion particularly regarding access to land and the type of crop cultivated by both men and women. This will help contribute to improving gender equity.
2) Development practitioners should promote ecosystem integration at all levels in all communities through education and sensitization using culturally appropriate methodologies.
3) The use of models promoting the integration of traditional knowledge and practices should be vigorously pursued by policy.
4) Also, efforts should be made to document and publicize benefits of gender inclusion in ecosystem service utilization.
5) Studies should be conducted on human attitudes and perceptions regarding ecosystem services as a tool for understanding the complex problems associated with environmental change in the context of cultural landscapes.
6) Farmers should be encouraged to share experiences on ecosystem services.
7) Promoting of joint planning and consensus building with Fulani, farmers, decision makers and livestock owners in helping solve the issue on livestock theft and

over grazing should be pursued by policy makers.

8) In most of these study areas, governments will need to create policies that will strengthen tenure security in a way that benefits both men and women.

Conflict of Interests

All the authors do not have any possible conflicts of interest.

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