

The Gender dimension of Climate change and women's role in Environmental protection and Natural Resource Management in South Wollo, Ethiopia

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Abstract

In Ethiopia women have demonstrated unique knowledge and expertise in leading strategies to combat the effects of climate change through the management of natural resources and environment, especially at the grassroots level though not well recognized and their effort is full of challenges. This research is conducted in South Wollo, Qalu district, Ethiopia aiming to see gender impact of climate change on women's life and women's role in environmental management and natural resource protection to avert the risks of climate change and to scrutinize major impediments. The research employs qualitative orientation through basic qualitative survey techniques. Focus group discussion, individual interview, and participatory observation used as basic data gathering tools accompanied by a guide checklist for primary data and published and unpublished documents for secondary information. The findings of this study show that women have active body of knowledge in protecting the environment and natural resources despite various challenges emerging from political, economic, institutional and other arenas.

Key words: Gender, women, climate change, environmental protection, natural resource management

1. Introduction

Climate change is not a gender-neutral phenomenon; it has got various gender-specific impacts. Given that climate change disproportionately affects the poor, and that women form the majority of the world's poor, women are among the most vulnerable to the effects of climate change. Women are particularly vulnerable to natural disasters such as floods, fires, and mudslides. Many women live in conditions of social exclusion. When, for example, skills such as swimming and tree climbing are taught mainly to boys, women and girls are more likely to die when a natural disaster strikes. Indigenous women are especially susceptible to natural disasters (Action aid, 2008).

The massive and unequal impact of climate change in the developing world also impinges directly upon women's livelihoods. In Africa, women rely directly on forest resources to meet health, nutritional, economic and cultural needs of their families and communities. Deforestation poses a direct threat to women's economic well-being because forests provide a significant source of environmentally-based income generating activities for women. Further women are also primarily responsible for the production of food, mostly through subsistence forms of production, and are highly exposed to the risks that come with drought and uncertain rainfall. In the agricultural sector, women are the main producers of the world's staple crops, producing 60 to 80 per cent of the food in most developing countries (UNCSW, 2008).

Women's domestic responsibilities have got a greater share to play in increasing their vulnerability for environmental changes. In Ethiopia, for example, women have primary responsibility for food security, household water supply, and the provision of energy for cooking and heating. Conditions such as drought, deforestation and erratic rainfall have a disproportionate negative effect on their ability to carry out these duties.

However, women are not just victims of climate change; they are also powerful agents of change. Women have demonstrated unique knowledge and expertise in leading strategies to combat the effects of climate change, as well as natural disaster management, especially at the grassroots level. Women played and have still been playing a vital

leadership role in adaptive and mitigation strategies to curb the plights of climate change. Overall, however, women tend to be underrepresented in decision-making on sustainable development, including on climate change, and this impedes their ability to contribute their unique and valuable perspectives and expertise on the issue.

In a nutshell, this paper aims to identify the gender impact of climate change on women's life and women's role in environmental management and natural resource protection to avert the risks of climate change through their adaptation and mitigation measures and to scrutinize stumbling blocks impeding their active engagement in the study area. This research is conducted in selected districts of South Wollo Administrative zone of the Amhara National Regional State, Ethiopia.

2. Review of literature

2.1 *Women's Work, Poverty, and environmental Conservation*

Through their economic and household work, poor rural women in developing countries are in daily and year-round contact with the agro-ecological system; they depend on land and water to grow food and on forests for wild foods, medicines, fuel wood, and a host of other products that enables them to generate income or that can be used for household subsistence (Agarwal, 1994). By such sustained interaction with ecological systems, women have a profound impact on it, and in turn, are deeply affected by change in it. There is also evidence that women's interaction with the natural dependency on the ecological system fosters among some of them the ability to acquire, nurture, and disseminate knowledge and information about natural and biological resources, and about the use of sustained practices and conservation techniques. Alternatively, as poverty and environmental stress increase, poor women's chronic lack of access to the resources needed for survival and to new information and technology also sometimes results in resource depletion and degradation.

2.2 *Women's Work and Resource Use*

The majority of poor women in developing countries are engaged in farming related enterprises such as animal husbandry and fishing, which are highly dependent on the availability and quality of resources such as land, water, forests, and seeds (Agarwal, 1994). Although patterns of participation vary, women play important and sometimes critical roles in household survival through their subsistence and income generating activities. Women also depend on the availability of fodder, trees, grasses, and water for livestock production – to which they contribute labor. This constitutes an important source of income for them. Women use trees and tree products for a wide range of items such as fuel wood, fodder, fibers for clothing and mats, roofing materials, basketry, and medicines to earn income and to meet household needs (Anderson, 2006).

Women are also active in the capture and use of wildlife. Although men kill far more large mammals, women help to sight and track them. Women throughout Africa also capture insects, fish, reptiles, birds, bats and rodents. They use insects and insect products extensively for subsistence and cash income. In many parts of the developing world, women are active participants in small-scale fishing enterprises (Jain, 1984).

2.3 *National Environmental policy on Ethiopian women (NPEW)*

NPEW did not all address environmental issue. The first NAP-GE(2002-06), apart from monitoring environment is a crosscutting issue, did not address the issue in relation to women. However, the second NAP-GE(2006-2010) which was prepared in 2006 and the environmental policy of Ethiopia, have spelled out gender as one of the key principles. The environment policy states “ As key actors in natural resource use and management, women shall be treated equally with men and empowered to be totally involved in policy, program and project design, decision making and implementation”(FSS, 2003).

Ethiopia is currently an urgent need to halt and reverse land degradation in order to bring about sustainable environment. Reversing environmental degradation and poverty eradication are mutually reinforcing imperatives and have to be implemented together in Ethiopia's development initiatives (MoFED, 2006). This means that it is urgent for Ethiopia to take the necessary action, as envisaged in goal 7 (target 9-11) of the MDGs, to integrate the principles of sustainable development into the country's policies and programs and reverse the loss of environmental resources. It is also envisaged to increase the proportion of population with sustainable access to an improved water source by

halve and address the issue of access to an improved sanitation and secure tenure.

Women in rural areas in particular are more affected by environmental factors such as natural resource degradation. The main energy sources in Ethiopia are biomass fuel: wood, dung cakes, crop residues, all taking a share of 90 % (CSA, 2007). Use of modern energy sources such as electricity, kerosene and diesel are not widely available and are very expensive even in the urban settings. Biomass energy sources are in general very inefficient and the smoke from the burning biomass has adverse health effect. Time spent in collecting the fuel woods also adds to women's burden. Women suffer from the consequences of shortage of fuel wood, as they are responsible for preparation of food and processing. Thus, environmental degradation worsens the poverty situation of women and poses more time shortage. Moreover, poor women depend to greater extent than men on common property resources for their household subsistence needs (WB, 1998). These include the use of biomass for cooking, the sale of any surplus, raw food or fodder for livestock, medicinal plants for health ailments and raw material for a variety of small household tools and articles. Such products provide security to the household subsistence economy. Degradation of land, population pressure, deforestation and conversion of land to farmland are some of the factors that have reduced the effectiveness of such informal security provision and have had an adverse impact on the economic status of poor households in general and on women in particular.

NPEW emphasized research work on ways and means of lightening the workload of women. However, the government has managed to introduce only very few packages of energy saving appropriate technologies when compared to the magnitude of the scarcity of energy supply. The program is also largely limited to the upgrading of traditional technology. Yet these devices are in most case practical in urban areas than in rural areas due to constraints such as space and affordability.

Higher tariff of electricity is also forcing women, even in urban areas, to go back to fuel wood. This shows also little understanding of the complex nature of environmental issues by the government, and the importance of easy access to efficient energy sources not just for cooking but also for subsistence and environmental considerations. Taking into consideration that environmental degradation worsens women's poverty, NPEW should be revised to include environmental considerations and develop implementing guidelines on environmental management to address women's concern.

3. Methodology

Useful information was gathered as a number of issues were raised from participants dwelling in Qalu. Primary and secondary data employed as a source of information. Focus group discussion, Key informant interview and participatory observations were central to the methods of data collection. The focus group discussion offered opportunities to capture case stories. Case stories are captured on relevant issues raised on discussions from women representing two villages. The study indulged qualitative research technique specifically case study research design, mainly incorporating qualitative information and qualitative methods of data analysis. PA officials, female and male headed households of different categories and women's representatives were part and parcel of the sampling categories.

4. Summary of findings

4.1 Indicators of vulnerability at the rural household level

Analyzing vulnerability requires recognizing how different factors – physical, social, and attitudinal – are interconnected. These factors combine to affect the degree to which hazards affect individuals or communities, and also define their ability to adapt. According to literatures and practical field work results by the author in Qalu woreda shows that women, children, and elderly people carry disproportionate 'vulnerability bundles' and these place them in the category of highest risk. In the research, this is borne out in women's discussions of their vulnerability to food insecurity.

The following table (*table1, see at the back*) is adopted to analyze the level of women's vulnerability to the impacts of climate change. The three categories illustrated by the table considered for this research as factors taking the lion's share to aggravating women's level of vulnerability to the impacts of climate change by dwindling their adaptation potentials.

The material vulnerability, the institutional vulnerability and the attitudinal vulnerability are the foundation for the findings of for this research. Therefore, the findings incorporated in this article are made seriously considering the indicators mentioned by the following table.

See table 1 regarding Indicators of vulnerability at the rural household level

4.2 Findings regarding impacts of climate change on women's lives

The focus group discussion and interviews held with those communities residing in those vicinities revealed that the following social groups are relatively more vulnerable to climate-related hazards than other groups.

The following box describes the list of the vulnerable groups in order of importance.

See Diagram one(1) at the back regarding the list of vulnerable groups in order of importance

All those mentioned four categories of vulnerable groups (Diagram1) largely eyes women. For example if we take the first instance (category “A”) that deals with resource poor households which have no or very limited alternative means of coping with the effects of climate-related hazards, women found to be the major victims of its impacts. It is mentioned in one of those case stories incorporated in this work regarding the vulnerable groups in particular households during seasons of lack of harvest or those individuals living under resource poor households. The case stories and responses acquired from different respondents of the locality divulged that women and children are at the victimized hub of those households. In order to bridge the gap of household food insecurity women engage in different minor income generating activities like selling wood which is directly acquired from the forest resources. One of the respondents who is a mother of seven (7) children has bitterly said the following;

Case story 1

..... these days it is not easy to collect fire woods nearby, therefore, we march a lot by the bushes and the mountains. Sometimes it took us almost the whole day and there are moments we travel the day without eating food as a result we often lose the strength to carry the woods and take it to the market. Besides, the money obtained from the sale of the wood is insignificant and not even enough to buy us a bread for two three individuals. We bring something from the market to feed the family members and since what we brought is not sufficient we usually give up our shares and give it back to the kids. In addition, when we send our daughters to collect the fire woods, they are becoming victims of rape and abduction. For example, one of my 13 years old daughters is abducted and forcefully married to a man against her will.

The above mentioned case story is clear evidence regarding the vulnerable members of household members by the threats of climate related after impacts. In addition, the rest of those categories mentioned above indicate that women are the vulnerable majority.

4.3 Findings on women's role in environmental protection and management

A. Water Resources Management: Personal participatory observation in the area made by the researcher have showed that women are always at the center of the management of the communal water resources and household water requirement. At the communal level, women are always in-charge of the control and management of communal taps or water points. They always look after the streams and wells from being polluted by the children and animals. At the household level, the burden of fetching water for cooking, washing etc. falls on the women and girls, while men control the water trade. Where women do not have access to the tap water, they make use of streams, rainwater, wells, rivers, etc. One of the informants stated the following regarding the role of women in water resource management and the reason why they protect and conserve it:

Case story 2

.....We look after the streams and wells from being polluted and spoiled. Since the responsibility of fetching water lies on our shoulder; we are the primary victims in times where water is not available or polluted and so that we protect and utilize the resource to the best we could.

B. Women in agriculture and soil conservation: In the district and woreda women contribute to agricultural production. They produce more than half of all the food that is grown. According to the information obtained from

the discussion and individual interview and from the woreda Agricultural and Rural Development bureau, women's roles in agriculture include: production and distribution, planting and cultivation, weeding, hoeing, harvesting and storage, marketing, and home preparation and distribution of foods. As victims of soil degradation, women have participated actively in soil conservation.

C. Women in flood management: As far as women's role in flood management concerned a woman respondent said the following;

Case story 3

.....Especially during the rainy season, incidence of flood is high (May to August), so flooding is a regular problem in most places. During the summer season many houses get waterlogged and streets are flooded. We play a significant role in the management of flooding either by clearing bushes, digging gutters, or baling water.

D. Drainage management Solid waste disposal: During personal participatory observation I have observed that women's involvement with environmental management and problems make them participate actively in keeping drainages around them clean and free from trash and sand. Drains are mainly cleaned by the women on a regular basis. According to some of the respondents it is found that it is a taboo for male sections of the community to engage in waste disposal.

Case story 4

.....Solid wastes are dumped at compound dumping or undeveloped land or left at various illegal dumps. Women, because they are closer to the environment, engage in environmental management by cleaning the environment and keeping it clean, especially in terms of garbage disposal. Given the health hazard of garbage, women see to its regular disposal at the community level, either by doing it themselves or pay people to do it.

E. Human waste disposal: The literatures reviewed for the purpose of this work showed that environmental health is essential to prevent certain diseases. In this regard in those vicinities where this research has been conducted, I personally have observed women taking a leading role in preventive measures against environmentally transmitted diseases and waterborne diseases, such as malaria, diarrhea, cholera, cough, cold, measles, etc. In some places, the slum areas or urban informal most houses do not have latrines and so the residents do urinate everywhere and anywhere they can. One of the woreda health extension workers has asserted the reality regarding the role of women in human waste disposal by saying the following:

Case story 5

.....women are generally responsible for human waste disposal of children and cleanliness of the compound. Thus, the burden of human waste disposal falls on women. I think this is a clear evidence to reflect upon the contribution and engagement of women in preventing communicable disease by keeping their environment clean.

F. Forest management and tree planting: In those research sites the main sources of energy (cooking fuel) for women are from natural resources: charcoal, firewood, and kerosene. Due to lack of improved energy schemes for cooking besides the mentioned ones, its intensive use is leading to deforestation, soil degradation, and air pollution. During the research process it is observed that in giving response to recovering the dwindling forest resources women are largely been participating in forest management through tree planting, rehabilitation, or protection. Women of those districts in South Wollo not only engaged in tree planting activities alone, they also tend the trees after planting to maturity.

4.4 Socio-economic & Institutional Constraints on Women (Possible impediments constraining women's adaptation capacities to the risks of climate change)

The ability of poor women to overcome poverty, enhance productivity, and use resources without depleting them is hampered by social and institutional factors. According to the respondents the major impediments include lack of access to land, credit and education. Women are often excluded from membership in the community organizations that make decisions with respect to production and conservation. In addition, women's multiple economic and household responsibilities impose severe time constraints.

a) Lack of access to land, credit, mobility and education

The time, credit, mobility and education (which is related to low level of numeracy and literacy) related constraints were raised by the discussants as major stumbling blocks hampering their active engagement in income generating activities. Due to shortage of funds, their activities are confined within the realm of selling of local beverage, fire woods, fuel (two-three litters) and which is only for once a week during the local market day. The scant availability of rural credit and the failure of the woreda to launch rural credit scheme in a sufficient amount is making them prone to potential local money lenders ¹(*arata abedary*) through the system of usury; paying two fold of the money they have initially borrowed during a month period of time if not, it kept on replicating the interest. Further, respondents have disclosed the fact that in times when they have accessed credit to invest it in income generating activities either it will be snatched by their husbands against their will or spent it for a household consumption. This situation is seriously been jeopardizing their loan repayment capacity. This situation, in turn dwindles their credibility and their potential to get another loan in another round.

As far as mobility concerned, respondents reflected that the local custom has malicious restrictions in allowing women to move from one area to the other for the purpose of trade as it is thought to be the role of the husband.

As far as their access and legal entitlement and inheritance right to land concerned, the majority of the married women gave their testimony saying they have access to the land of their husband though they don't have a legal entitlement over the tenure. According to the respondents, it is a common phenomenon for husbands to divorce their wife without any exit option from what she deserves to have. By the same token, during times of divorce, it is up to the husband to decide on the split of assets. The local customary rulings which are considered to be malicious by the dwellers lose their coerciveness when it comes to the sharing of properties amongst spouses in times of divorce.

According to the respondents there restricted access to economic resources is leading them to lesser possibility to adapt to climate change.

b) Time constraints

Time has also been mentioned as constraint to engaging in income generating activities. Lack of leisure time according to the respondents, emanates from women's extreme engagement in the household chores and the domestic drudgery.

C) Lack of information and Vulnerability

Higher level of education is believed to be associated with access to information on improved technologies and productivity consequences. Evidence from various sources indicates that there is a positive relationship between the education level of the household head and the adoption of improved technologies and adaptation to climate change. Therefore, farmers with higher levels of education are more likely to better adapt to climate change.

Gender inequality also affects women's access to information and communications which could ensure their safety, and the safety of their dependants. In the event of an emergency such as flood, access to early-warning information is 'gendered'. This information often comes through communication media such as television, radio or, in some pilot activities, mobile phones, which are more frequently used by men than by women. According to the vulnerability assessments in the villages, most women cannot swim, whereas most of the men can. In many rural communities of South Wollo, girls and women are not encouraged to learn how to swim, largely for reasons of cultural appropriateness or modesty. This situation added up to their vulnerability during those periods of calamities.

Since most of the sampled respondents and the majority of the villager women (as witnessed through personal participatory observation and from the literacy level grouping data from the local Agriculture and Rural Development bureau) are without any kind of educational background (illiterates), they cannot easily access information regarding the issue of climate change and natural resource management.

Women, being primarily responsible for domestic and household management, interact more intensively with both the natural environment and build the environment more than men. Consequently, they are more likely to suffer from a degraded home, neighborhood, and city environment and to shoulder more of

¹ These are potential local money lenders based on the principle of Usury (compounding the interest on monthly basis if the debt is not returned)

the burden that goes with living in poor housing and communities with inadequate residential and health infrastructure, since they spend more time at home and its immediate vicinity.

d. The lacking access to political resources

In view of the literatures reviewed political resources include issues like influence, networks, information, skills or control over decision making, representation in different organizations, participation in project and programme development are some of them.

The findings of this study according to the majority of female respondents and the district and village level women's representative from all of the research sites revealed that women's proper representation in the political sphere and role in decision making process is meager. One of the district rural women representatives said the following;

Case story 6(In relation to lack of political resources)

....the contribution of women in decision making and implementation of programmes is negligible and they almost have a figurehead role and besides they don't even have a female component in their projects. Most of the projects are masculine biased. In the past three to four years, there were some sort of possibilities and efforts of involving women in different meetings and community based projects, most of them failed to realize and give due substantial emphasis on the major adaptation needs, priorities and the felt needs of women.

5. Conclusion and Recommendation

5.1 Conclusion

The findings have proven the fact that women are an underprivileged group. Regardless of the various constraints women face, they actively engage in different activities to cop up with impacts associated with natural resource degradation and climate change issues in south Wollo of Amhara Region, Ethiopia. Women have a very crucial role in environmental protection and natural resource management. Some of those roles observed includes; Water resource management, agriculture and soil conservation, flood management, Drainage management Solid waste disposal, Human Waste disposal and Tree planting and forest management are some of them. In addition, women have a very indispensable role in adaptation measures during seasons of food scarcity resulted from climate change and related impacts. They engage in minor income generating activities. Those income generating activities women engage in are not capital intensive and well structured- they are informal trades not targeted to earn profit rather meant only for a mere survival. Despite of their unreserved effort in different mitigation and adaptation measures of climate change, different Socio-economic & Institutional Constraints are impeding women's effort. Some of these hindrances are; time, mobility, credit, information and landlessness are some of the constraints.

5.2 Recommendation

To ensure success, adaptation policies and measures need to be gender sensitive. It is important to have in mind that equal participation in terms of numbers does not automatically guarantee representation of women's concerns. Therefore, there is a need to include gender expertise into projects wherever possible. Particular emphasis should be put on conflicting effects: e.g. relief assistance in response to natural disaster may cultivate dependency on foreign help instead of strengthening empowering people. Women are in an acute shortage of information regarding different climate change related coping up mechanisms. Therefore information should be provided to women in line with the local circumstances. Launching rural credit scheme by considering the local women's circumstances is also of a paramount importance to strengthen women in the quest of environmental protection and natural resource management.

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Diagram 1. Classification of vulnerable groups in the study area

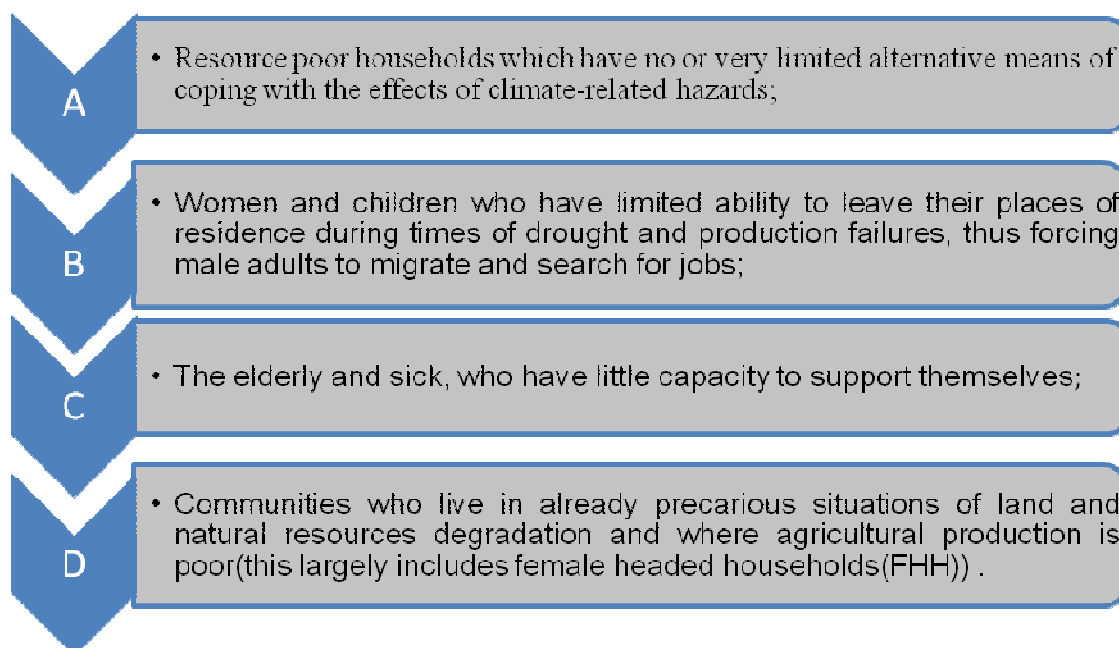


Table1 Indicators of vulnerability at the rural household level

Material vulnerability	Institutional vulnerability	Attitudinal vulnerability
Income source	Social network	Sense of empowerment derived from access to leadership at different levels, community, national, regional
Educational attainment	Extra local kinship ties-response at times of adversity	Knowledge about potential hazards
Exposure to risk; distance from river coast, landslide zone	Infrastructure; access to road, sanitation, electricity, communication	
	Proportion of dependents in households	
	Reliability of early warning systems	

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