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Exploring Gender Role in Face of Climate Change in West Shoa Zone, Ethiopia

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Abstract
Assessing gender vulnerability and impacts to climate change needs to check various socio cultural, economic and biophysical factor that attributes to the variation in climate impacts .Of the socio-cultural resolution, this study targeted to assess the role that gender bears in the community, including their perception ,in shaping the impacts of climate change. The study was conducted in west shoa zone of Ethiopia, in Bako Tibe district. The research employs both quantitative and qualitative orientation through a holistic combination of qualitative and descriptive method of data analysis. Purposive and random sampling method was used to select sample Kebele and households respectively. Accordingly, 150 sample households were surveyed in the district, for wich 50 household equally represents their respective three agroecology or Kebele's. In adition, FGD, direct observation and KII were used to generate qualitative information.The findings of the study discloses the prevalence of unequal gender role where women's suffers from skewed division of labor, higher work load ,unequal access and control over resource with in the household and community. In adition, Gender perception to climate change varies in the district and males tends to perceive the change more in line with the existing climatic data records. This all aggregates in varying gender livelihood asset strategy and possession, which finally contributes to the non-uniformity of climate change impacts among men and women. Hence, if gender disparity in terms of roles and responsibility is not readapted, climate change magnifies the existing pattern of discrimination to other sphere of complicated social issues and inequalities.
Keywords: Gender, Role and Climate change

1. Introduction

Climate change is taking place in every part of the world, however, its impact is perceived to be gender specific. The idea of linking gender and climate change is widely aroused and studied after the third Intergovernmental Panel on Climate Change (IPCC) report in 2001. According to IPCC (2001), "The impacts of climate change is differently distributed among different regions, generations, ages, classes, income groups, occupations and gender". Since then, a multitude of authors (Denkelman, 2002; Denton,2002; Parikh,2007; BRIDGE,2008; Agnes,2010)andinternational organization(WEDO,2007;Commission on the Status of Women,2008 and UNDP,2008) presented their work on gender and climate change issues. These study identified a heterogeneous factor for differential climate impacts ranging from socio cultural to economic reasons among men and women.

Gender shapes men's and women's differential familiarity to climate change, implying that both experience and perceive climate change differently. Basically, socio-cultural factor is now becoming a centrifugal for the disparity in gender disparity to climate change impacts. For instance, the study of Denton (2002) associates the concept of gender differential impact to climate change as socially constructed phenomena.

Hence, the reason for which men and women affected by climate change is partly a function of their gendered role, responsibility and social status, which is aggregated under social quo. Apparently, culturally inhabited gendered role among men and women takes the hegemony and hence, is required to be explicitly addressed. Role takes various forms and mainly expressed in terms of activity, resource ownership and control from gender perspectives.

Differential gender roles, access and control over resource may lead to a disparity in resource acquaintance, asset formation and possession among them, which finally emerge as an economic factor. At the same time, climate change related impact is resilienced by one's livelihood resource at disposal at the time of shocks (Nellemann.et al., 2011). This implies that, the level of vulnerability and coping mechanism to the adverse effect of climate change is determined by the status of gender roles in the community, including their perception to the changes.

Hence, studying gender vulnerability and adaptation options requires to know the grass-root factors attributed to the variation within the community basically from the role and responsibility that both men and women bears with in household or community.

This paper aims to identify these major gender role practiced with in a household and community that further improves an understanding of how socio-cultural factor shapes the overall picture of gender to climate change impacts. The study was conducted in Bako Tibe districts of west shoa Zone of Oromia regional state, Ethiopia.

2. Research design

2.1 Sampling procedure and data sources

Purposive and random sampling technique were employed to select sample kebele[1] and households respectively. Three representative kebele was purposely selected from the three traditional agro ecologies of the district. Then, we used a simplified formula developed by Yamane (1967:886) to calculate sample size, assuming 95% desired level of confidence interval with ±8% precision level. Accordingly, 150 sample households were selected for the survey in the district, for which 50 household were taken randomly from each kebele administrates, keeping an equal proportion of men and women representatives in their respective vicinity.

Both primary and secondary data sources were used in the study. Basically, Primary data were used to assess gender role and perception to climate change. Household survey, Focus Group Discussion (FGD), Key Informant Interview (KII) and participatory observation were the central method for data collection.

2.2 Methodology

Harvard analytical frame work was designed to assess gender role and responsibility. Activity profile assessment, access to and control over resource were the indicator to characterize gender role in the community. The study employs quantitative and qualitative research methods by incorporating both qualitative and quantitative (i.e descriptive statistics) technique of data analysis. Two separate FGD were conducted with male and female headed households to capture case stories. Case stories were conducted to drive gender disaggregated data and to complement the information derived from household survey on gender activity. In adition, KII was conducted with informants from various background aiming to triangulate quantitative information generated on gender access to and control over resource.

To assess gender perception, structured questionnaire were designed to know whether they noticed long term changes in precipitation, temperature and extreme climate events over the past 30 years. Then, descriptive stastics (simple percentage, count and chi square test) were the central to analysis the data. For all this purpose, SPSS software was employed to analyze the data.

3. Summary of finding

3.1 Gender role

Gender role was seen from two perspectives _gender activity profile and resources (i.e access to and control over resources). The indicators of gender activity, access and control over resource is summarized in Table 4 and their respective sub indicator is expressed in Table 1 and 2 respectively (see at the back).

3.1.1 Gender activity profile assessment

The full indicators of gender activity profile along with their analyzed data is stated in table1 (see at the back).These gender activity profile was illustrated in four categories; Agricultural, livestock, food preparation and other related activities for wich each categorical activity comprises several variables under it. For instance, Agricultural activity (plough farm land, seed dispersal, weeding, and manure, composting, harvesting and threshing) and temporary income generating activity (i.e. paid labor force) are the major activity in the study area, which are productive activity in its essence. Gender also participates in activity of food preparation (cooking wat[2], making injera[3], collecting firewood and fetching water) ,livestock related activities (milking and feeding animals) and other activities (i.e. feeding and caring child, house cleaning, selling and buying home consumption) ,which are categorized under reproductive activities .Respondent reported that, both men and women participates in productive and reproductive activities either individually or jointly, though their involvement rate varies.

Almost 60% of the respondent views that men's are participating in activities outside home -at filed works such as agricultural activities and paid temporary labor force. According to the survey, agricultural activity and other related activity that generate a reasonable income in rural settings are mostly undertaken by men. The nature of men's activity are more labor intensive and redirect them to generate extra income through temporary paid employment. This assists them to expand their livelihood strategies in a safest way at the time of climate induced shocks. At the same time, the survey also shows that women starts to join outdoor works in support of their husband's especially in seed dispersal, weeding, manuring and composting activities.

The father of eight (8) children details how men drive an absolute advantage over women in their activity, especially from their assignment to field works in diversifying their income as a mechanism to cope up with the newly emerged climate change impacts on agricultural outputs.

Case story 1

...we have no such enough wealthy to fed these all my family except two oxen and very few sheep. The responsibility

[1] *Is small administrate unit of Federal Democratic Republic of Ethiopia, for the sake of convenience for administration in dividing communities according to their resident locations.*

[2] Is traditionally eaten with 'injera' and is a typical of Ethiopian cuisine.

[3] A thin, round traditional Ethiopian flat bread, similar to crepe, prepared by fermenting batter made from teff floor.

of feeding these child is on my shoulder and, hence I always participate in temporary works that generate extra income .Especially, during my farm break, I process forest products for making furniture to assist my family. Even during farm season, I make a plough, on my extra time, to the families who has no boys/husband on temporary wages or for equal sharing agricultural yields .This is my way of life to meet with the fluctuating agricultural yield facing us recently.

The above mentioned case history spell out how the inherited work division among gender favors men's to diversify their income and then enable them to cope up with the climate induced shocks on agricultural products.

In other dimension, majority of the respondent argues that women's are currently suffering from skewed division of labor both within a household and community. According to the survey, women's (i.e. around 83%) are primarily engaged to activities around home such as child caring, housecleaning, livestock related activity and food preparation, which are reproductive activities. This activities are conducted freely for the betterment of the family. It doesn't generate extra remunerative income that in turn hinders to react in a similar way with their male counter parts, during fluctuation in agricultural yield and climate impacts. Further, it limits their capacity to expand livelihood strategies and asset formation especially for women headed families. Hence, gender division of labor is not fairly distributed and skewed in the study area.

Historically, in Ethiopian community, women's are busy right day and night and then experiences a higher workload. From meeting food shortage to its preparation, women's are on the front stage. As it is detailed in Table 1 (see at the back), majority of food preparation (more than 97%) is vested on women's. Recently, due to climate induced impacts, they often travel a long distance to fetch water, collecting firewood and to get other forest products that used to conduct their predefined daily activities. This brings an extra burden to their existing scenario. Apparently, after climate change impact is pronounced, the habit of men's mobility to get extra source of income during farm and off farm time become increased. This assists to shift gender predetermined societal activities and, now, women's started to cover the gap seen in place of men's in outdoor activities. As a result, almost, women's are equally participating in field activities except to duties that are culturally restricted to them (i.e. plough, harvesting, and threshing) .These increases their working hour and workload, that finally possess an extra hardship .For instance, it affects their healthy adversely and even minimize their social interaction, thus affects their social and human capitals, which consequently constraints their adaptive capacity to climate change impacts.

One of the women informant shares her history, how society's work division affects her family subsistence in terms of food security and then how climate change gradually exacerbate these division to other complicated challenges.

Case story 2.

...I am a head of my family and now become on the verge of elderly women. My husband died during Ethio-Eretria war in 1990's. Since then, the responsibility of growing my five child rests on me. I passed through several ups and down to grow them. I have three oxen along with half hectare of farm plots. However, with these my resource, I couldn't feed all my child throughout the year. Because, the cultural norms of my area restricts females from basic agricultural activities like plough and threshing .As a result, I always forced to recruit men's for plough either on daily wage or contract basis. Sometimes, I give my two oxen including my land to other men, who ploughs being in his home based on equal sharing of agricultural output. However, the return of the share couldn't fulfill the food demand of my families covering all life expenses. Hence, I decided to collect fire wood and sell to surrounding cities. Recently, collecting firewood in the nearby is difficult, hence, marching a lot by bushes and mountains is inevitable .Sometimes, it takes a whole day, mostly, without eating foods. After such challenges, most of the time, the money derived from the selling is insignificant to compensate our effort and even not enough to buy us a bread of two three individuals.

The above case history become evident how the available social norm limits women not to use their resource effectively and then expose them to extra expenses due to socially restricted work division. Hence, they ordered to give their resource to other body and gone to collect firewood.

3.1.2 Gender access and control over resources and benefits

In this study, access and control over resource was seen from different context but assessed from similar indicators. Access to resource indicates the legal and socio-cultural coverage that makes men and women to use resources to carry out certain activities, without hindrance. Control over resource was seen from societal and legal coverage to influence and determine about the usage of resource, including its distribution in terms of benefit among men and women.

This study analyzed the status of gender access and control over resource including the distribution of benefit, as detailed in Table 2 (see at the back). These resources are land, livestock, money and various household and community equipment's, which are significant in rural farming communities. A better access and control over resources may assist as a platform to get temporary opportunity, generate income and to secure family subsistence. Thus, the status of gender access and control over these resource defines their vulnerability level to climate change impacts.

Land is the most productive resource in rural settings. Both men and women reported to use land jointly

basically for their common purpose, however, some differential access was observed that productive land favors men while bare land around the home is commonly allotted to women for gardening. Despite of a higher joint access, the survey reveals a complete disparity on control over land resource where men's are the ultimate architecture in deciding the usage of farm land, the type of crop to be grown on it as well as pass the decision to sell, buy or rent of farm land. In this regard, several legislative reforms has done to keep women's benefit at country level, however, its implementation is still constrained by women's themselves associated with the lack of knowledge in its entitlement

Gender joint access in livestock and agricultural resource shows a better progress (more than 67%), however, the survey articulates that women are still confined to access food crops and smaller livestock in terms of value than using cash crops and livestock, which are assumed to generate a higher returns. The dominance in controlling the selection of livestock type, control over cash crops, selling and buying livestock including the management of agricultural input and output is merely on the hands of men's interest and benefit.

Another observed gender disparity was reported from the usage of household and community material (equipment) including liquid asset. Though household equipment (i.e. 80%) is jointly accessed between both sexes, community owned equipment's are mostly accessed and controlled by men's. Women's has an easy access and control over household material used for common family advantage .However, men had a better access and control over durable equipment's, controls agricultural materials and authorize to rent the most valuable family equipment's .

Liquid asset (cash) is the most important resource to balance all rural livelihood strategies. In the study area, within a household, both men and women uses family cash for individual and common purposes. However, more than 75% of respondent's views that men has a greater access to family cash for making big expenditure where as women uses for petty expenditure used for family consumption. In addition, the survey shows that, controlling the management and saving of these cash is vested on men. In general, study reveals that, the decision on how to use, when to use, what to do including the decision to change or modify these resources are merely under the control of men. Despite of such major constraints in control over resources, women acquires relatively a better score on access to resources. According to KII, such gender imbalances in access and control over resources aroused from the inherited practice, socio cultural norms and women's lack of knowledge in its legal enforcement. From gender access to benefit, the survey opines that men has relatively a better access to education, training, temporary paid employment and technology in the society.

3.2 Gender perception towards climate change and variability

The perception of men and women were asked on climate change variables like rainfall, temperature and natural disaster (i.e. drought and floods) observed in the study area. Three point Likert scale dimension (decreased, no change, increased) were used to measure gender perception.

The study shows that majority of men and women (60%) recognized the increment in temperature. Stastically significant relation was not found between gender and their perception towards the changes in temperature, implying both men and women similarly perceived the increment in temperature over the past 30 years.

Male and women announces the changes in precipitation and occurrence of natural disaster in opposite direction to each other. Almost 65% of men respondent perceived the increment in occurrence of natural disaster and 60% of them perceived the decrement in precipitation over the past 30 years. In contrast male's speculation, majority of women perceived the increment in precipitation (i.e 48 %) while 43% perceived the decrement in natural disaster in the study area. Stastically, significant relation was found between gender and their perception towards the changes in precipitation and occurrence of natural disaster at less than 1% confidence level.

The trend report of Bako Agricultural Research (BARC) in 2015 shows an increment in temperature and drought from 1984 to 2014 while precipitation goes on decreasing trend with a higher seasonal variability in the district. Hence, men opines more the changes than women's in line with the existing trends analysis. The perception towards climate variables influences the readiness of gender to cope up with the coming possible risks. It also assists to choice the likely livelihood strategies matching with the changing global climate and environment.

4. Conclusion and Recommendation

4.1 Conclusion

The study tries to explore the major gender role practiced with in a household and community that further improves an understanding of how socio-cultural factor shapes the overall picture of gender to climate change impacts. The findings of the study shows the prevalence of unfair gender roles as well as the non-uniformity in gender perception towards climate change variables. Women are not the privileged group where they suffers from skewed division of labor, higher work load, unequal access and control over resource in the community. Since such issues are merely at the favor of men, climate change seize this internally emergent factor and always, women's are easily vulnerable at the time of climate induced shocks. The study shows, relatively, male's recognizes the changes in

climate variability in line with climatic data records .With their lower perception, women may face a difficulty in coping up with a short term and long term climate variability.

4.2 Recommendation

Unless an equitable gender role is readapted in the study area, climate change continues to affect men and women differentially and even worsen the vulnerability of marginalized social group. For instance, climatic stress on natural resource can increase women's work load by posing additional threat to their traditional works of collecting fire wood or fetching water. They will be ordered to travel longer distances to conduct their predefined gender activities that further limits their opportunities to branch out into non-traditional activities such as education, better healthy facility and better social relation. This adversely affects women' human and social capital, wich in turn limits their adaptive capacity to climate impacts. In adition, women's lower status over access and control over resources affects their livelihood asset formation and strategy, wich is a critical element in climate change adaptation. As a result, primarily, policy emphasis should be placed to create opportunities for non-farm livelihoods options in a manner to reduce women's higher dependence on climate sensitive natural resources and then simplify their higher workloads, through culturally appropriate and labor-saving technology. In other hand, social awareness and appropriate legal coverage should be placed to ensure fair distribution of gender role in the study area. To cope up with their lower perception, empowering women with education, information and technological skill is the best way to minimize these risks and address adaptation strategies.

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Table1. Gender activity Profile

Activities		Male (%)	Women (%)	Joint (%)
Main indicator (category)	Sub indicator (variable)			
Agricultural related	Plough	99%	0%	1%
	Seed dispersal	60%	10%	30%
	Weeding	10%	40%	50%
	Harvesting	85%	5%	10%
	Threshing	89%	1%	10%
	Manure	20%	30%	50%
	Composting	18%	22%	60%
Livestock related	Milking	1%	97%	2%
	Feeding animals at home	8%	52%	40%
Food preparation	Cooking wat	0%	98%	2%
	Making injera	1%	98%	1%
	Collecting firewood	1%	95%	4%
	Fetching water	1%	97%	2%
Other activities	Cleaning house	4%	90%	6%
	Buying home consumption	2%	87%	11%
	Selling agricultural products	10%	30%	60%
	Feeding and caring child	5%	20%	75%
	Engaging in another temporary income generating activity	88%	2%	10%

Table 2 Gender access and control over resources and benefits

Resource		% of Men /boys	% of Women/girls	Joint (%)
Main indicator	Sub indicator (Access and control over resource profile)			
Land	Access to use family land	15%	5%	80%
	Who has a greater access to productive land	75%	15%	10%
	Who has a greater access to non-productive land around home	40%	50%	10%
	Who decides the type of crop to be grow on the land	82%	5%	13%
	Who influence to buy, sell or rent family land	65%	5%	30%
Livestock and agricultural products	Have you a full access to livestock and agricultural products	15%	18%	67%
	Access to grow and use cash crops	69%	6%	25%
	Access to crops used for family consumption	30%	37%	23%
	Selecting the type of livestock to be reared	59%	17%	24%
	Decides to sell and buy livestock	55%	4%	41%
	Manage to sell and buy agricultural inputs (output)	62%	11%	27%
Money (cash)	Access to use family cash to perform other activity	12%	8%	80%
	Access to use money for small expenditure	25%	60%	15%
	Access to use money for big expenditure	75%	9%	16%
	Responsible to manage and saving money	71%	15%	14%
Equipment (household and family)	Access to household equipment's	5%	15%	80%
	Access to community equipment's	44%	15%	41%
	Managing to buy equipment for agricultural activity	71%	14%	25%
	Managing to buy equipment for family activity	30%	13%	57%
	Responsible to rent household equipment	66%	13%	21%
Access to benefit	Access to education and training	77%	10%	13%
	Access to temporary paid employment	90%	2%	8%
	Access to technology and services	86%	5%	9%
	Access to financial service such as credit	16%	14%	70%

Table 3: Gender perception towards the elements of climate change and variability

Climate variables	Men (Count and %)			Women (Count and %)			χ^2 (df=2)
	Decreased	No change	Increased	Decreased	No change	Increased	
Temperature	8 (11%)	16(21%)	51(68%)	13(17%)	23(31%)	39(52%)	4.047^{NS} P-value= 0.132
Precipitation	45(60%)	19(25%)	11(15%)	18(24%)	21(28%)	36(48%)	24.969^{*}, P-value=0.000
Natural disaster	5(7%)	21(28%)	49(65%)	32(43%)	29(38%)	14(19%)	40.427* P-value= 0.000

^{NS} and * indicates non significance and significance at less than 5% confidence level respectively.
Source; Household survey, 2014

Graph 1.Share of gender in agricultural related activities.

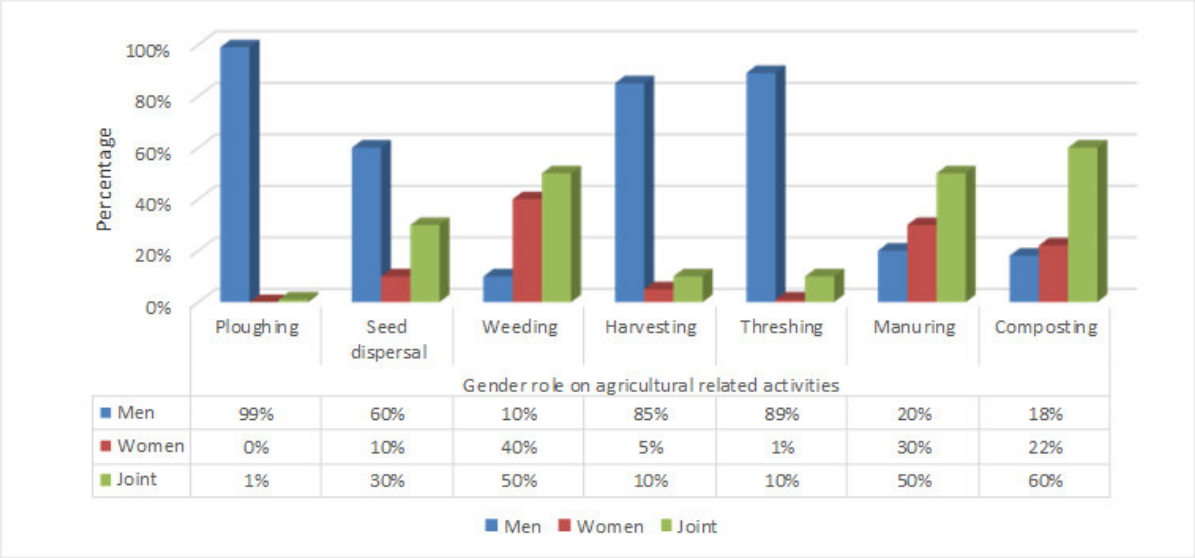

Table 4. Summary of indicators on Gender role

Activities		Resource		% of Men /boys	% of Women/girls	Joint(%)
Main indicator	Sub indicator (Variable)	Main indicator	Sub indicator (Access and control over resource indicators)			
Agricultural related		Land				
Livestock related		Livestock and agricultural products				
Food preparation		Money (cash)				
Other activities		Equipment				
		Access to benefit				