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The Gender Dimensions of Drought in Fedis Woreda District, Ethiopia

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Gender Dimensions of Food and Water Security
in Dryland Areas

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Acronyms

BoA	Bureau of Agriculture
CCI	Complementary Community Investment Programme
DRR	Disaster Risk Reduction
EPRDF	Ethiopian People's Revolutionary Democratic Front
ETB	Ethiopian birr
EWS	Early warning system
FAO	Food and Agriculture Organization of the United Nations
FGD	Focus Group Discussion
FSP	Food Security Programme
GDP	Gross domestic product
GGCA	Global Gender and Climate Alliance
HAB	Household Asset Building Programme
IDI	In-depth interview
IGA	Income-generating activity
IPCC	Intergovernmental panel on climate change
IUCN	International Union for Conservation of Nature
KII	Key informant interview
MDG	Millennium Development Goal
MoFED	Ethiopian Ministry of Finance and Economic Cooperation
OECD	Organization for Economic Co-operation and Development
PSNP	Productive Safety Net Program
SIGI	Social Institutions and Gender Index
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
UNEP	United Nations Environment Programme
UNICEF	United Nations Children's Fund
UNISDR	United Nations International Strategy for Disaster Reduction
UNRISD	United Nations Research Institute for Social Development
USD	United States dollars
WEDO	Women's Environment and Development Organization
WFP	World Food Programme
WHO	World Health Organization

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Abstract

This paper presents the key findings of a research project that investigated women's and men's vulnerability to drought in Fedis woreda, a district located in Eastern Ethiopia. It focuses on the gendered impacts of drought on rural livelihoods in dryland areas. The research used a comparative assessment of both men's and women's susceptibility and coping capacities. Findings show that, in the event of a drought, women's workload increases, their health is severely compromised due to reduced food intake, girls are more likely to drop out of school, and women have fewer chances than men to engage in income-generating activities. In addition, women do not have decision-making power on many issues that impact livelihood security, such as crop cultivation, agricultural practices and asset management. As a result, women's capacity to reduce the negative consequences of drought, be it preventive or palliative, is inferior to that of men. Furthermore, this paper analyses the government's key interventions to reduce drought risk.

The analyses of these different aspects illustrate that women are more likely than men to experience harm from drought. The paper therefore calls for stronger and gender-sensitive risk reduction measures that take into consideration women's needs and their disadvantaged position.

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Introduction

Dryland areas cover 40 per cent of the earth's land surface (Koohafkan and Stewart 2008) and are home to two billion people (Reynolds et al. 2007). What characterizes them is the scarcity, infrequency or unpredictability of rainfall. Drought, loss of organic material, wind and water erosion, soil crusting, salinization and other processes gradually render soils infertile and severely impact livelihood in dryland areas (Schwilch et al. 2015). Research studies have estimated that 12 million hectares of fertile land are lost to desertification every year—three times the size of Switzerland (UNCCD 2011). Some regions are particularly prone to drought events. Recurrent drought events in Africa have for instance resulted in huge losses of life and property and triggered the migration of people.

In Ethiopia, dryland areas make up 75 per cent of the land mass and host about one-third of the population (FAO 2010). Drought is the most important climate-related natural hazard which periodically affects Ethiopia, greatly menacing the agricultural sectors and livelihoods of the poorest populations (FAO 2010) as well as the economic growth of the country.[1] Climate variability and the frequency of extreme events have increased over recent times and the country was recognized as one of the most affected by climate change (Shepherd et al. 2013). This adds to the challenges already experienced by people living in dryland areas.

There is general consensus that climate change—despite its global nature—will not affect everyone in the same way and with the same intensity. As Neumayer and Plumper explain, "natural disasters do not affect people equally...a vulnerability approach to disasters would suggest that inequalities in exposure and sensitivity to risk as well as inequalities in access to resources, capabilities and opportunities systematically disadvantage certain groups of people, rendering them more vulnerable to the impact of natural disasters" (2007:1).

Poor people are therefore often identified as the most disadvantaged when it comes to the impacts of natural disasters: the reliance of the poor "on local ecological resources, coupled with existing stresses on health and well-being and limited financial, institutional and human resources leave the poor most vulnerable and least able to adapt to the impacts of climate change" (Economic Commission for Africa 2009:1-2).

Multiple studies and organizations[2] also point to differences between men's and women's vulnerability to natural hazards. For instance, the United Nations Economic Commission for Africa (UNECA) claims that climate shocks will disproportionately affect women, as they are mostly "responsible for securing food throughout the whole value chain, and equally responsible for managing the natural resource base (land, water, in particular)" (UNECA 2009:5), which is likely to be severely reduced as a consequence of climate change . Women seem more vulnerable due to factors related to their reproductive role and the associated higher food and medical supervision needs during pregnancy; and to factors resulting from social norms that regulate decision-making power and access to land and other resources. The social dimension is central in determining one's vulnerability to external shocks, as any kind of human impact of

[1] In Ethiopia, agriculture directly supports over 85 per cent of the population in terms of employment and livelihoods, accounting for about 47 per cent of the country's GDP, and generating over 90 per cent of the foreign exchange earnings on average (https://www.cia.gov/library/publications/the-world-factbook/geos/et.html, accessed in August 2015).

[2] United Nations Development Programme (UNDP), United Nations Environment Programme (UNEP), UN Women, Global Gender and Climate Alliance (GGCA), International Union for the Conservation of Nature (IUCN) and the Women's Environment and Development Organization (WEDO).

natural disasters is contingent on economic, cultural and social relations (Neumayer and Plumper 2007). As Cannon puts it, "there are no generalized opportunities and risks in nature, but instead there are sets of unequal access to opportunities and unequal exposures to risks which are a consequence of the socio-economic system" (1994:14).

Drought can affect a community in many ways. Its direct or indirect impacts can be grouped in three clusters: (i) economic impacts, as failed or infected crops, loss of livestock production, loss of income, capital shortfall and price increase; (ii) environmental impacts, as loss of wildlife and water quality, fires, soil erosion and loss of biodiversity; (iii) and social impacts, including health, public safety, conflicts between water users, reduced quality of life and poverty. Drought vulnerability is a complex concept that includes both biophysical and socioeconomic drivers that determine people's susceptibility to harm and capacity to cope with drought. Components of drought vulnerability are, for instance, inadequate disaster management, limitations of technology and of the economy, social factors and environmental constraints (Naumann et al. 2014).

Situated within the international debate on the gender dimensions of climate change, this paper will present the key findings of an empirical study that assessed how men and women experience drought in Fedis *woreda*,[3] Ethiopia. More specifically, it presents men's and women's disaster risk to drought with the aim of contributing to a broader understanding of the phenomenon to policy makers, sector officers and researchers. The data have been collected during fieldwork conducted between October and December 2014 in Bidi Bora, a lowland agro-pastoralist *kebele* inhabited by 8,235 people.[4] Bidi Bora is one of the 19 kebeles that are comprised in Fedis, a woreda located in the East Hararghe Zone, Oromia Region, Eastern Ethiopia.

The section below introduces the conceptual approach and methodology used in this research. This is followed by background information on the general level of exposure to drought in the case study area and the gender relations patterns in the research area, as identified during data collection. Then I will present men's and women's susceptibility to drought and their coping capacity. This will be followed by a brief look at government initiatives concerning disaster risk reduction. Finally, I will list the different factors contributing to men's and women's vulnerability to drought and suggest recommendations for policy makers based on the research findings.

Conceptual Approach and Research Methodology

Disaster risk is defined as the likelihood of experiencing harm from a natural hazard (UNISDR 2009). It signifies the possibility of adverse effects in the future, and "derives from the interaction of social and environmental processes, from the combination of physical hazards and the vulnerabilities of exposed elements" (IPCC 2012:69). In other words, disaster risk is determined by (i) the exposure to climate change impacts and extreme weather events, and (ii) the vulnerability to these hazards. In order to identify disaster risks, I will therefore briefly discuss drought exposure in the area under research and then focus on vulnerability, which relates to the "propensity of exposed elements such as human beings, their livelihoods, and assets to suffer adverse effects when impacted by natural events" (IPCC 2012:69).

[3] A woreda is an administrative division in Ethiopia managed by a local government and equivalent to a district with an average population of 100,000. Woredas are composed of a number of *kebeles*, or neighbourhood associations. Each kebele is under is represented by a chief, who reports to the woreda offices.

[4] Data taken from the 2013 Bidi Bora census (KII with the Woreda Bureau of Agriculture).

In spite of the variety of definitions and frameworks developed to assess vulnerability, two common causal factors have been identified in all of the most widely accepted definitions of vulnerability: susceptibility[5] and lack of capacity to cope with and/or adapt to hazard impacts (IPCC 2012).

Susceptibility consists in a "predisposition of society and ecosystems to suffer harm as a consequence of intrinsic and context conditions making it plausible that such systems once impacted will collapse or experience major harm and damage due to the influence of a hazard event" (IPCC 2012:72). Lack of coping or adaptive capacities indicate the "limitations in access to and mobilization of the resources of the human beings and their institutions, and the incapacity to anticipate, adapt, and respond in absorbing the socio-ecological and economic impact" (IPCC 2012:72). The last point refers to the positive features of people's characteristics that might reduce the risk posed by a certain hazard. This capacity is relevant both ex post and ex ante, as "it encompasses everything necessary to be able to react once an extreme event takes place" (IPCC 2012:74).

In this paper I will assess women's and men's susceptibility to drought and their capacity to respond to it (both preventively through disaster risk reduction measures, and reactively when a hazard occurs) in order to understand the gender dimensions of vulnerability to drought. Several thematic clusters have been used to conduct this research. Factors used to assess women's and men's susceptibility to the negative impacts of drought have been selected based on their impact on basic human needs. They are physical (workload, food access and nutrition level, health conditions, education), economic (financial capability, and financial access and control) and psychological (psychological stresses).

The capacity to respond to drought is often influenced by decision-making power over the use of households' assets in case of a hazard. Main indicators used to assess response capacity are: education, participation in training, systems of saving, access to information related to drought,[6] decision-making power over agricultural practices and technologies, livestock management, family size and place of residence, access to and control over money, social support availability, mobility, and ability to take part in income-generating activities. These indicators have been selected because they directly impact household livelihood security[7] and represent the coping strategies commonly used in the area.[8]

The research encompassed both qualitative and quantitative data collection methods.[9] A survey was conducted with 100 respondents: 50 women and 50 men between the age of 25 and 65.[10] The age group of respondents was chosen to capture those who have experienced and lived with drought for a relatively long period of time. Additionally, in-depth interviews (IDIs) were carried out with three men and three women. Two focus

5 Also referred to as fragility.
6 This also encompasses participation in political gatherings where information and knowledge can be shared.
7 Household livelihood security is defined as an adequate and sustainable access to sufficient income and resources to meet basic needs (food, water, health, education, shelter, community participation and leisure) (http://www.fao.org/docrep/x0051t/x0051t05.htm, accessed in August 2015).
8 The reader will notice that some indicators are used to assess both susceptibility and coping capacity (for example, education, and financial access and control). This use would make it difficult to determine levels of vulnerability between individuals, as a positive score on one indicator under susceptibility may offset a negative one under coping capacity and vice versa. However, this risk is reduced by the fact that the research looks at the distinct patterns of impacts between men and women, and aims for a group assessment rather than an individual one.
9 Since this research is investigative, it focuses on qualitative data, while quantitative data are used to identify general trends and support the main findings.
10 Since age is often hard to gauge in rural Ethiopia, the respondents' age should be considered as indicative.

group discussions (FGDs), with groups of eight women and eight men, were also undertaken.[11] The research also uses participant observation techniques.

The equal number of male and female respondents was to avoid gender bias. All respondents came from male-headed households. The research looked at women and men as homogenous groups. It assessed intra-household differences without considering variables of age, and marital and economic status between different households.[12] The research participants are mostly Oromi, a patrilinear and patrilocal ethnic group, and Muslim by religion.[13]

Prior to data collection in the field, key informant interviews (KIIs) were conducted with representatives from the Bureau of Agriculture (BoA) (both at woreda and zonal level), the zonal Disaster Risk Reduction (DRR) Unit, the zonal Food Security Unit, and with an officer from the Woreda Women and Children Affairs Bureau. Through the KIIs, I aimed to get secondary information on the research area, its specific challenges and the policies undertaken by the government to address them. All data gathered were interpreted from a gender perspective, where the respondent's sex is the grouping variable, and the individual the unit of analysis.

Drought Impacts on Livelihoods in Fedis Woreda

Bidi Bora inhabitants are small-scale agro-pastoralist subsistence farmers who occasionally sell a minimal part of their harvests. They extremely depend on rainfall, which directly impacts yield. The area experiences two rainy seasons: Belg, from February to April, and Maar, from June to September.

Farmers have experienced worsening drought conditions and have reported an increase in the persistence and severity of droughts. This is likely to worsen, considering climate change scenarios for the region (Shepherd et al. 2013). As far as they remember,[14] the district has been experiencing increased occurrences of drought and erratic rainfall over the last 30 years. Key informants and Bidi Bora inhabitants reported that 30 years ago, drought used to occur approximately every 10 years; 20 years ago it began to appear every five years; and today it is an ever-present issue (IDI and KII with DRR Unit). As claimed by a respondent, 30 years ago, drought was not "a serious problem" (IDI). One 60-year-old interviewee said "when I was a child, we had butter and honey" (IDI). This is a way of saying that rainfall used to be abundant enough for two harvest seasons and a variety of foods. The first rainy season was for onion cultivation, and the second for annual crops such as sorghum (FGD). On the other hand, farmers now state that "only one rainy season is present" (FGD), meaning that there is no dry month between Belg and Maar, thus hampering crop maturation and harvest.

Respondents indicated that a 1998 famine was a turning point: while farmers were previously able to provide sufficient food for their families and could even sell the surplus, life after 1998 became much more challenging, and farmers barely managed to survive with their small yields. Male participants in FGD reported that due to food scarcity, they only manage to sell cash crops. In addition, in the last decades pests have

[11] Both in-depth interviews and focus group discussions were facilitated by a translator. Some participatory tools, such as seasonal calendars (see annex 2) and daily activities maps, were also used in the FGDs.

[12] There was no distinction between poor and better-off because there is a general state of poverty in Fedis woreda.

[13] Because of poverty, few men in Fedis woreda have more than one wife, despite the fact that polygamy is allowed in Islam (IDI).

[14] I have not been able to get reliable hard data on weather records and rainfall patterns over the last decades in Fedis woreda.

begun seriously affecting crops. Due to striga,[15] farmers began shifting from sorghum to maize 20 years ago. A number of years later, having overcome striga, locals re-started growing sorghum. Similarly, due to water shortages and lack of proper irrigation systems, crops that demand less water and have a shorter life cycle, such as potatoes, are now preferred over onions.

Changed rainfall patterns, land degradation and vast deforestation have forced inhabitants to change the way they work the land, as well as their livelihoods. Previously the land also comprised pastures and forests, but now people have to rely almost entirely on agriculture and are highly dependent on livestock, their only trading good and a commodity that can be sold in times of stress. Main crops, sorghum and groundnut, are mainly cultivated for subsistence purposes. To a smaller extent, maize and vegetables, such as sweet potatoes, are also cultivated. Cash crops include *chat*, an evergreen shrub with mildly narcotic leaves that is commonly grown and chewed in the Horn of Africa,[16] and groundnuts in smaller quantities. Chat suppresses one's appetite and is mainly consumed by men in the area under research. The staple foods are sorghum derivatives, such as cornmeal mush, and sorghum *injera*, a flatbread with a spongy texture. Although milk and eggs are often sold due to the fact that they are one of the few available sources of money, they are sometimes eaten by farmers as well.

Food insecurity is probably the most evident impact of drought in Fedis woreda. The government reports that local food production during the last 10 years was sufficient to cover only four months of household food needs per year on average. Families' participation in food for work programmes, through which they receive food stocks in exchange for daily labour, sustained them for an additional four and a half months, and food relief aid covered the remaining month and a half (KII with Zonal Food Security Unit), requiring families to purchase an additional two months' worth of food. The main reasons for food insecurity are identified by the Fedis Woreda Bureau of Agriculture as scarcity of good and fertile land, erratic rainfall, low quality inputs, low yield per hectare and high family size (the mean number of children per family is five). Respondents have also pointed out lack of infrastructure, and especially roads, as another challenge to their daily life and food security. Having to walk at least two and a half hours to get to the closest medium-size markets makes it difficult to engage in business activities. Attending health facilities is also impeded by distance as the nearest health centre is an hour's walk from Bidi Bora village, which is the biggest and most important village in the kebele. Apart from distance, other factors hinder the use of health services: a lack of habit, inadequacy of services, shortage of material, costs, inaccessibility of medicines and too few doctors. In addition, the restriction of migration and population growth have contributed to a situation of widespread vulnerability to food insecurity.

Farmland size per family is limited. Most respondents' farmland (59 per cent of cases) is reported to be between half and one hectare; 26 per cent of respondents have less than a half hectare land, and 15 per cent between one and one and a half hectare.[17] In good years, when drought is perceived as not severe, most people have sufficient harvest for six to 10 months (85 per cent), but in bad years subsistence drastically decreases to four to six months (for 75 per cent of respondents; see annex 1). Six per cent even reported

[15] Also known as witchweed, stiga is a type of parasitic plant that occurs naturally in parts of Africa, Asia and Australia and causes considerable crop losses.
[16] Chat consumption is legal in Ethiopia and other countries in the Horn of Africa.
[17] All respondents own land. One and a half hectare was the maximum amount of land that any one farmer possessed. As FGDs revealed, land size is decreasing year by year as a consequence of population growth: when respondents were younger, yields per family were higher (IDI and FGDs).

consuming all their crops in less than two months during drought years, and other three per cent in a time span between two and four months. Drought seriously impacts crop yields, which in turn significantly affects subsistence farmers, for whom drought directly translates into loss of available food.

As financial constraints impede most households from purchasing safe potable water, water security is also highly impacted by drought. With no river present in Fedis woreda, community ponds have been built to collect rainwater.[18] These are the most widely used sources of water, despite decreasing rainfall and the fact that the water—locally often referred to as Fanta due to its orange colour– is highly insecure as ponds are accessible to livestock as well. When the ponds dry out, a couple of springs become the main sources of water. In spite of this, respondents say that the far distance to the springs, their frequent contamination and the long time that women have to queue discourage people from using them.

The increasing recurrence of drought has also modified livestock preferences: goats are preferred because of their endurance to drought, as are donkeys, which are mainly used for transport. Other dominant livestock are cattle and sheep. The results show that most respondents' households owned the following assets: donkeys (owned by 84 per cent of respondents), cows (67 per cent), goats (64 per cent), hens (63 per cent), oxen (35 per cent), sheep (11 per cent) and camels (5 per cent).[19] Livestock are primarily used for milking and ploughing purposes. They also serve as signifiers of one's social status and appear to be among the most important assets for times of emergency. When sold, they are what De Waal has defined as erosive coping strategies, namely coping mechanisms that lead to the erosion of productive assets, thus making households more vulnerable to recurrent shocks (De Waal 1989).

Gender Relation Patterns in Fedis Woreda

Ethiopia ranks 127 out of 142 countries in the 2014 Gender Gap Index (UNDP 2014). According to the 2014 Social Institutions and Gender Index (SIGI), the country shows high levels of discrimination against women in social institutions[20] (OECD 2014). The SIGI found that the country has particularly high levels of gender discrimination in terms of restricted physical integrity and in the access to resources and assets. The Ethiopian Poverty Reduction Strategy Paper (PRSP)[21] states that primarily women fall under the poverty line. Women indeed appear to be affected the most by poverty, as they have limited capacity, rights and endowments.

In Ethiopia, women are limited by unequal access to livelihood resources, health services, credit and education. In rural areas, their decision-making power regarding land use is limited (Ethiopian Society of Population Studies 2008:17): "mostly women in the country have the power to make decisions on issues related to the daily life of their family, but decisions about large household purchases, degree of participation of a woman in social activities, and reproductive health issues are dominated by men".

[18] Water harvesting has been a government policy for many years across Ethiopia.
[19] I did not, however, gauge the total number of assets owned.
[20] Ethiopia scored 0.2450, where 0 corresponds to high discrimination and 1 to the absence of any discriminatory practice.
[21] The Federal Democratic Republic of Ethiopia issued the PRSP in 2011. It describes the country's macroeconomic, structural, and social policies in support of growth and poverty reduction, as well as associated external financing needs and major sources of financing.

Cherinet and Mulugeta also state that the Ethiopian society "is socialized in such a way that girls are held inferior to boys. In the process of upbringing, boys are expected to learn and become self-reliant, major bread winners, and responsible in different activities, while girls are brought up to conform, be obedient and dependent, and specialize in indoor activities like cooking, washing clothes, fetching water, caring for children, and the like" (cited in Ethiopian Society of Population Studies 2008:16). These socially induced differences between males and females "result in discriminatory rewards, statuses, opportunities and roles" (Cherinet and Mulugeta, cited in Ethiopian Society of Population Studies 2008:16).

These findings hold true in Fedis woreda. The data collection showed, notably through FGDs, that women in Fedis woreda do not enjoy the same endowments and entitlements of men. The following table presents the key differences (as per the views expressed in FGDs and sustained by participant observation).

Table 1: Observed gender roles and entitlements

	Men	Women
Agriculture	Men work the land. They take all decisions related to agricultural practices. Their contribution to household livelihood security mainly consists in food production.	Women are generally not allowed to work the land. They only help in harvesting and weeding. Women do not decide on agricultural inputs.
Off-farm work	Men's work off-farm consists in selling big assets, as well as chat and groundnuts in large amounts. This activity notably occurs in times of stress or big surplus.	Women are responsible for most off-farm activities. Their contribution to household livelihood security mainly consists in unpaid care work,[a] including fetching water and firewood. Often, women also contribute financially through their involvement in petty trading and goat, sheep and chicken trade.
Financial capital access	Men usually hold the finances.	In spite of their direct engagement in petty trading and sale of smaller assets, women have to give their husbands the money they make. The men keep it and give it to their wives when needed.
Education	Boys' education is prioritized over that of girls.	While only 9 per cent of respondents said they were literate, only 2 per cent of them were women, thus proving gender discrimination in schooling. School-age girls seldom attend school.
Food consumption	Food is first served to men and children.	Women eat what is left after the other family members have eaten. This practice is explained by the belief that "a good wife must first make sure that her husband and children are sated" (IDI). The result is that women eat much less than men.
Health facilities usage	Men do not use health facilities often.	Women often have to ask their husbands' permission to use medical facilities, as they need money to pay for the services provided or to buy medicines. Women attend health facilities more, either for young children when they are sick or to get support before, during or after delivery.[b]

Land tenure	According to customary law, land is divided equally among all male children. Changes in national and regional land policies have provided women with significantly increased land rights, but customary law is still more commonly practised in Fedis woreda.	In line with customary law, women in the research area do not inherit land. When they get married, they depend on the yield of their husband's land. If divorced—usually by decision of the husband—the wife loses access to the land and returns to her parents' house.
Family planning	Despite the fact that some men said that they would be inclined to have fewer children, local norms which value big family sizes discourage them from using contraceptive methods.	Women reported to be afraid that having fewer children might compromise their marriage, which discourages them from using family planning.
Access to and control over livestock	According to customary rights, men have access to[c] and control over[d] all assets. They are the main decision makers on the sale of all livestock, both big and small, except for chickens.	Although women take care of animals' shelters and milking, most do not enjoy access to and control over big assets and do not express their opinion on the sale. They are the first sellers of goats and sheep, but can seldom autonomously decide to sell or buy them. They are the main breeders of chicken, over which they enjoy full control.
Physical mobility	When food shortage arises, men migrate to nearby towns, where they work as construction workers or in agricultural work in peri-urban areas, thus escaping hunger and earning an income, part of which is sent to wives.	If men migrate, women usually remain home to take care of the children and assets. If the family does not own assets, the whole family may, in rare cases, migrate. When women migrate, they work as domestic workers. After marriage, it is common for women to move and live with their husbands. This might lead to the loss of their social network. Women are not allowed to travel far away to trade, especially if it means that they sleep away from home.

Notes: [a] According to UNRISD terminology, "Unpaid care work includes housework (meal preparation, cleaning) and care of persons (bathing a child, watching over a frail elderly person) carried out in homes and communities" (UNRISD 2010:1). It contributes to national well-being, social development and economic growth. [b] The use of formal medical assistance during pregnancy is a relatively new practice, which has been encouraged by the MDGs (KII with the Women and Children Affairs officer). [c] Defined as the opportunity to make use of a resource (Hundera 2010). [d] Defined as the power to decide how resources are used, and who has access to resources (Hundera 2010).

These differences are indicative of customary norms and practices within the community and built around the social construction of gender in the local context. They put women in a disadvantaged position already in a normal situation, but cause serious distress when the livelihood is affected by drought impacts. The links between these diverging experiences and differential vulnerability patterns of women and men will be elaborated in the following sections.

Susceptibility

To recall, susceptibility consists of the "predisposition of society and ecosystems to suffer harm as a consequence of intrinsic and context conditions making it plausible that such systems once impacted will collapse or experience major harm and damage due to the influence of a hazard event" (IPCC 2012:72). Susceptibility may differ throughout

people's life stages and across groups or individuals within communities, depending on their livelihood activities and social standing.

Food and water security

While food needs differ to a certain extent for men and women,[22] the social construction of food habits seems to disadvantage women in Fedis woreda (see table 1).

In general terms, the mean number of meals decreases from 2.70 to 1.67 per day in times of food scarcity, and the food consumed requires less water and feeds more people with fewer inputs.[23] Most of the time milk availability is significantly reduced by restricted livestock nutrition and the value of milk as a trading good. When surplus is available, it is given to men (FGDs). The amount of water consumed is, if possible, left unchanged. Due to food allocation practices—by which husbands and children are given priority in food allocation—women eat the "leftovers" (IDI). Although children are always given priority in food-scarce times, the same pattern can be found for boys and girls: while the youngest are treated equally regardless of their sex, from five years old, boys are served first. This habit has often been explained by social and cultural habits. One respondent noted: "this is how things are done here...my mom has always eaten after my father, and I do the same with my husband" (IDI). This practice leads many women to skip meals and give up on their food intake.[24]

Health status

Due to the insufficiency of food consumed, women are extremely prone to health issues. Most interviewed women reported that inadequate food consumption leads to stomach aches, vomiting, weakness, diarrhoea and malnutrition. For instance, one respondent reported that she eats too little and often faints during times of food scarcity (IDI). In addition, due to the increased workload of women during drought and the high amount of wood and water they carry, back pain is more severe (IDI).

Food scarcity also exacerbates challenges women experience during pregnancy. The prevalence of miscarriages and complications during childbirth and, in the worst case, maternal and child death, are higher in times of drought due to undernourishment. In the FGDs and IDIs, women have recounted that they often fail to breastfeed their children. Two interviewees of 30 and 60 years old said that they bled for many days after the delivery in a year in which food insecurity was severe. Recovery after childbirth takes longer in food-scarce conditions.

Overall, attending health facilities is extremely complicated for Bidi Bora inhabitants and many FGD participants stated that they do not use health facilities at all. This is even more difficult for women, who often "have to ask the husbands' permission" (IDI) in order to gain access to household finances (see table 1). Yet, a 60-year-old interviewee reported that she does not need to ask her husband "if the health facility is

[22] As proved by various studies, men and women need different calories intake (http://www.health.harvard.edu/family_health_guide/good-nutrition-should-guidelines-differ-for-men-and-women, accessed in August 2015)

[23] More specifically, the diet moves from injera to *shuro*—a powder made with dry vegetables and seasonings that becomes mush when cooked with water.

[24] Women's practice of eating after the other family members is deeply embedded in local culture. To quote a 60 year-old interviewee, "women are affected more because men and children always come first...We don't like to eat first because of our culture...That's what we have learned". Another participants in FGD said: "we know eating after doesn't benefit us...but that's how things are here, what should we do?". The link between culture and feeding practices has been reported by a male interviewee too: "it is a shame in our culture to have women eating first". This practice would therefore be extremely difficult to change. Nevertheless, addressing the lack of recognition that women need a proper amount of food is vital to ensure their well-being and the enjoyment of their human rights.

near", thus suggesting that one of the objections to women's use of health centres is related to the long distance they have to go from their villages, something that is not widely accepted in the local culture. While men attributed women's health problems in times of drought to issues of biological reproduction, women indicated lack of food and work load as important factors that worsened their health.

Workload

In regular times, women's workload is higher than that of men. In Ethiopia, women work an average of 15 hours per day, when both paid and unpaid work are considered (Parker 1995). The differences become even more severe with drought, as many female activities require additional time under such circumstances. In contrast, farming activities, which are usually undertaken by men, decrease when rain is absent. However, men generally continue to spend their days on the farm, despite the lack of work to be done. As reported in FGD, "even if I do not have anything to do, I go to the field anyway and spend my time there with others farmers... at home I wouldn't know what to do". During the dry months, men prepare stones and construct houses.

Fetching water, primarily done by women,[25] requires much more time when pond water is depleted. Women have to walk further distances to reach water pumps. One interviewee reported that, as a consequence of insufficient rainfall, she spends up to eight hours to fetch water, four times longer than the average two hours usually required to collect water from ponds. This activity is especially time-consuming for those who do not have a donkey. Women without donkeys either borrow one from a neighbour or carry heavy jars full of water, often with the help of daughters. When ponds are empty, men are in charge of taking animals to new watering holes. They therefore use the same pumps, but less often than women, as the animal's requirements can be met every other day. Women are also responsible for fetching firewood, which implies that they carry heavy wood bundles every other day.

Involvement in income-generating activities (IGAs) often increases when food shortages arise. While only 46 per cent of respondents reported being engaged in off-farm IGAs during regular times (26 women and 20 men), 72 per cent reported using them when they experience food scarcity (37 females and 35 males). Therefore, more women than men are engaged in IGAs both in regular times and during food scarcity.[26] Nevertheless, when men engage in IGA they earn more than women, as they trade bigger assets. Moreover, women's working performance is jeopardized by lack of proper nutrition, time and financial capital to start a business.

Finally, during dry times women's care work often increases due to diseases and weakness caused by hunger among household members.

Additional hurdles may arise for women when their husbands migrate in order to earn alternative income in times of stress. In this case, wives find themselves as sole keepers of the household and become responsible for livestock as well. Unlike in regular times, taking care of livestock remains the responsibility of women, who have to take them to watering holes and grazing spaces. Children often help mothers with these tasks. When men migrate, women are also responsible for maintenance work on the farm, usually

[25] Respondents said fetching water was primarily a woman's activity both in regular times (88 per cent of females and 4 per cent of males) and during water shortage times (90 per cent of females and 12 per cent of males).

[26] The main difference is that while men trade big assets and crops in big quantities, women are involved in petty trading. In addition, women trade in the woreda or in nearby cities, while men often go further.

with the help of others, as they are entitled only to carry out certain tasks on the farm, according to local social norms.

To give an example, a 35 year-old woman described her tasks during food-scarce times as follows: since her husband migrates, she starts trading firewood and milk. In order to do this, she has to walk two and a half hours to the town of Boko. This means that she leaves in the morning and comes back in the late afternoon. Meanwhile, her daughter helps her by fetching firewood while her son is responsible for fetching water.

Education

To start with, girls have a smaller chance of enrolling in school as compared to boys. When drought affects a household, many children also drop out of school because of the many tasks that the families have to carry out as well as the lack of food. Although both girls and boys drop out, the reasons and the extent of the dropout rate appear to be different, with girls more likely to abandon education (according to 64 per cent of respondents). A 70-year-old interviewee stated that, when food scarcity arises, boys are given the priority in food allocation, since they are also given priority for education. Therefore, "girls do not have breakfast and lack the strength to be in class and learn". In addition, girls often undertake mothers' tasks, either supporting them or taking over their roles, thus not having the time to be in school. Last, early marriage has also been reported as a factor leading to girls dropping out: boys keep studying, while girls remain at home. On the other hand, boys drop out because they often migrate in order to work the land of wealthier families. This means that there are fewer mouths to feed. Such a practice is widespread once boys have developed the physical strength to work, regardless of the time of the year and their age.

Financial security

When it comes to financial security, namely the access to financial resources necessary to meet basic needs, women and men show different susceptibility patterns. In general terms, women are often entrusted to keep money but cannot decide independently on how to use it.[27] As a male participant in the FGD stated, "after I sell an ox, I give money to my wife to gain her trust, although I do not allow her to use it without my agreement". Another person reported that his wife is allowed to independently use the money she earns, but "she always has to inform me". Even when women are assigned to sell an asset or engage in petty trading, once the task is done they have to inform the husband about the profit. However, wives can autonomously decide how to use money for small daily expenses, such as buying food, but then they have to report their expenditures (FGDs). On the other hand, husbands are not required to report their incomes and expenditures to their wives whether in regular or in stressful times (FGDs).

If men are home during drought times, they engage in large-scale sale of chat, but this remains an exceptional activity, as they usually do not have big harvests. More often, they migrate to town and engage in daily labour. Women are left home with even less access to financial resources. Data have revealed that migration usually encompasses stays ranging from one to three months during which men most often work in agriculture, and the most skilful in construction work. Men earn around Ethiopian birr (ETB) 100 (USD 4) per day. Although they save some of the money to take it home, the amount is always minimal compared to what they earn. This is partly because of the high additional living cost, in particular spending for rent, food and transportation. They

[27] The control over the profit made at a household level has been reported being uniquely up to the man by 57 per cent of respondents, and jointly in the remaining 43 per cent of cases.

also spend money on chat. When they have sufficient time and energy, their wives engage in petty trading, thus earning a bit of money.[28] They also wait for tiny contributions from their husbands (as little as ETB 20 or USD 0.80 per week and never higher than ETB 100 or USD 4 per month).

Overall, men have greater chances of engaging in business, unlike women, who are more likely to face increasing difficulties in making ends meet. Not having direct access and decision-making power over money also jeopardizes women's agency, and it is believed to have an impact on the general well-being of a family. Several women have in fact claimed that "due to limited addiction to chat, higher planning capacity and the perfect knowledge of a household economic needs, women are better able to manage finance" (FGD).

Psychological concerns

In times of hardship, psychological concerns also increase. For instance, disputes in the family because of lack of money were a frequent source of worry (FGDs). Moreover, women have stressed the challenge of being with suffering children (FGDs and IDI). Such stress is experienced more by women because they are the main, if not only, caregivers. "Women have more worries than their husband, since children ask them more", stated a male interviewee (IDI). They are also afraid that their displaced husbands will get new wives, which might then translate into the first wife having to leave home, unless the husband decides to keep both. In either case, the first wife will experience aggravating food scarcity, as she would lose access to the land owned by the husband in the first case, or share the harvest, as well as all other household resources, with the new wife in the second.

Migrant men in towns are afraid of robbery, homelessness, the risk of car accidents and police controls. People who migrate also suffer social isolation. The only female respondent who said she migrated in the past along with her family, was called the "mother of firewood" in the town where she used to sell wood. She found this epithet very offensive, as she saw herself as "the mother of someone" (IDI). A similar case has also been made by a man. Lastly, migrants are worried that they would lose community support and respect from community members because of their migration (FGD). Mobile phones that have started circulating among local inhabitants alleviate some of the difficulties as they facilitate communication between migrants and their families and communities. Nevertheless, both men and women experience detrimental psychological stress from drought and migration, although differently.

Different groups' susceptibility

To sum up, during periods of drought women's paid and unpaid work increases, their health is severely compromised due to limited food consumption and limited access to health facilities; they experience psychological stress regarding the well-being of children and their social and family status; they earn less when engaging in IGAs; and girls are more likely to drop out of school. On the other hand, men's on-farm work decreases. Men often migrate in search of other work opportunities, thus being exposed to the psychological challenges that characterize urban life. Nevertheless, their capability to engage in income-generating activities remains higher than that of women. Due to the fact that they are given priority in food allocation and that they do not face hardships as those experienced by women during pregnancy, men do not appear to have their health compromised as much as women. Overall, and with the only exception of

[28] In their husbands' absence, women gain control over the money.

psychological stress, women's susceptibility to the aspects investigated within the research is higher than men's. This is caused by gendered division of labour, the care burden, gender discriminatory practices and unequal access and allocation of resources that disadvantage women.

Coping Capacity

As mentioned earlier, coping capacity refers to people's ability to reduce natural hazard impacts and consists in their capacity to anticipate and respond by absorbing the socio-ecological and economic impacts. The research has focused on investigating women's and men's ex ante and ex post capacity to mobilize available resources and respond to drought. I will start by discussing preventive measures for disaster risk reduction.

Ex ante disaster risk reduction capacity

Ex ante disaster risk reduction capacity has to do with decisions that can be taken before a hazard has taken place.

Agricultural management

Since livelihood security in Bidi Bora is highly dependent on households' harvests, I assessed the capacity of women and men to take decisions that might influence the quantity and quality of yields. Data have revealed that women cannot take decisions or express their ideas on cultivated crops in the majority of cases (85 per cent).They cannot encourage the use of fertilizers or other agricultural inputs (in 92 per cent of cases, the decision is up to the husband), which leaves few possibilities for women to influence decisions for improved food security. Although there is no evidence that women's decisions would result in agricultural productivity growth, excluding women from the decision-making process is disadvantageous as it limits their capability and agency for disaster risk reduction.

Assets management

Increasing herd size in good times can also help a family to cope with drought as it increases the household's asset base. Selling an asset in the case of droughts allows the household to buy the much needed additional food, but it erodes the household's coping capacity and long-term resilience. Participants in FGDs claimed that, although women can generally decide to sell chickens and sometimes ovine animals independently, men usually decide whether or not to purchase them. Wives are not at all involved in cattle and donkey purchases and sales and are therefore not given the opportunity to assess which of the household assets are most important in order to avoid erosive coping mechanisms. Again, local customs prevent women from influencing the households' asset provision.

Place of residence and house maintenance

After marriage, it is common for women in patrilocal societies to move and live with their husbands, thus partially losing contact with their social network. Unlike in other cases, where the place of residence can enormously impact the exposure to a natural hazard,[29] within Bidi Bora the location does not make a significant difference because of the scale of drought that affects the entire area.

House maintenance can be an important factor in preparedness for severe natural hazards. Although structurally sound houses are important in the context of natural

[29] For instance, when a flood occurs, the houses located on the shores are more likely to be flooded.

disasters such as earthquakes, floods and hurricanes, living in a well-maintained house is also relevant in the context of Bidi Bora. Hygienic conditions are poor in the research area, where malaria and other diseases are widespread. This can impact the health status of a household and add on the unpaid care work done by women, both in drought times and in the rainy season. Surveys showed that joint decisions are made on house maintenance in 58 per cent of cases. In 41 per cent it is up to the male. Only one woman reported making decisions concerning house maintenance by herself. Again, women's agency is limited. Nonetheless, when compared to other decisions that might limit the risks posed by a hazard, women enjoy more decision-making power on house maintenance. This might be due to the fact that the house is seen as the woman's responsibility.

Family planning

Having large families with many children can be a burden during times of drought because the household food needs are more difficult to fulfil. Surveys were used to reveal how family planning is managed within households. The results show that the husband has complete control in 39 per cent of cases, in 42 per cent of the cases spouses jointly decide on the use of family planning and 19 per cent of the times it is the wife's decision. Men thus have a considerable role in deciding how and if contraception and family planning are used. Although women have some say in 61 per cent of cases, which might lead one to think that they are relatively empowered on this issue, FGDs and IDIs have revealed a more complex picture. Having a big family is highly valued in the local culture and "limiting births might reduce a family's status" (FGD). Women have therefore repeatedly mentioned that they are worried their husbands will abandon them or look for an additional wife if they want fewer children. Similarly, the tendency to have several children was seen as a social pressure for men, too, who are encouraged to have many children (IDI). For this reason, a 35-year-old woman reported secretly using birth control because she feared repercussions from her husband.[30] These beliefs limit both women's and men's capabilities to reduce the factors that might expose a household to greater distress.

Saving strategies

Without access to financial resources, women cannot save finances to prepare for hard times. Nevertheless, different saving strategies have been registered for men and women. Women reported reducing food amounts to increase stocks, while men appeared to be more prone to save or invest through cooperatives or livestock purchase, although they complained that they were dissatisfied with cooperatives (FGD). When asked for their strategies to prepare for stressful times, women said they engaged in petty trading activities. Nonetheless, their space for intervention remains little, since they can only engage in small-scale business and are often challenged by lack of time and capital. Overall, respondents said they were not able to save money and/or food.

Education and training participation

Education can play a considerable role in increasing one's capacity to face negative events in the long term as it was found to have a significant impact on food security and risk exposure (Cherinet and Mulugeta 2002). Without basic education, women have fewer options in their struggle against drought. As reported by a 60-year-old interviewee, "I haven't sold anything in my life, because I gave birth 12 times and I am not educated". Although this does not imply that she cannot successfully cope with drought, she feels that the lack of education limits her options. A key informant from

[30] When her husband found out, she felt that he did reduce the support to his family: "he said 'that's good!' but then stopped looking after the family as he did before" (FGD).

the Women and Children Affairs Office said that boys are more likely to be educated than girls in Fedis woreda since education will provide better opportunities for future employment and livelihood, financially benefiting the parents when they are elderly. As household managers, men can transfer financial support to their parents, while it is uncommon for wives to do so (IDI).

In addition, women attend the training sessions given by sector offices far less often than men. Respondents explained that since most training covers issues such as agricultural productivity and practices, they are more suited to male participants, since "men are those that work the land and can put to use that knowledge" (IDI). There is, however, training on nutrition, health practices, motherhood, savings and so on. FGDs have showed that these are mainly attended by women. In these capacity-building initiatives of the government, agricultural extension efforts were carried out by male development agents whereas health extension issues were led by female officers (participant observation). This division is likely to reinforce women's exclusion from training.

According to respondents, women's lack of education was another factor that impacted negatively on women's attendance. As a 45-year-old male interviewee claimed, "due to the fact that they are more educated, men attend training sessions more than women". Other findings have proved that the limited participation of women in extension training is also due to time and attitudes. First, women are often too busy with their daily routine and household chores, thus ending up with no time to attend training sessions. The case of a 35-year-old interviewee can shed some light on this. She said that when there is training in her village, she "hides herself so as to avoid to be forced to attend". Second, many female respondents reported that they feel their participation is not as relevant as that of males, since the latter are those that make decisions and have the ability to put learning into practice. Training often addresses issues handled by men. These findings are in line with earlier work arguing that despite their critical role in agricultural production, women have been virtually ignored by agricultural extension units (Berger et al. 1984):

> [T]he mechanisms currently used by most extension services for providing technical advice to farmers...tend to channel services to those who have the greatest access to certain means and resources important to production. Women farmers, who are more likely to be involved in subsistence production and generally have smaller land holdings and less access to other resources, are therefore not typical of the clientele served by many agricultural extension programs. Other characteristics of women farmers, such as their relative lack of education, their limited control of land in their own names, and their dual responsibilities for both household maintenance and subsistence or market production, also serve to limit their participation in agricultural extension programs that operate with the standard delivery mechanisms (Berger et al. 1984:2).

With lower levels of education and participation in trainings, women's capacity to improve their lives in the context of droughts is further compromised.

Access to relevant information and participation in community life

Other mechanisms likely to strengthen one's capacity to respond to drought are access to relevant information, traditional forecasting and early warning systems. These can allow people to take early measures and prepare for natural hazards and the damage they cause. In the case study context, none of the interviewees used any kind of forecasting technique. Yet it became clear that the newly adopted use of mobile

communication is simplifying Bidi Bora inhabitants' lives, by allowing spouses to communicate when they are apart, for example in the case of the husband's temporary migration. Although this improves coping capacities only to a limited extent, it allows spouses to exchange opinions on possible coping mechanisms or to consult health officers when they face health issues (FGDs and IDI). Women tend not to participate in community political and civic events (FGDs). Further research should assess how women's lack of participation impacts their role in preparing effectively for droughts.[31]

Ex post coping capacity

Ex post coping capacity focuses on the capacity of men and women to cope during the drought and after. Many of the factors that determine this capacity are interlinked with what has already been discussed above, but I will add a number of relevant insights.

In order to fully comprehend in what ways immediate risk reduction capacities vary for men and women, key coping mechanisms need to be analysed.[32] While the original research has provided a thorough analysis of coping mechanisms, I will briefly focus only on the most common ones.

Key coping mechanisms

When a household finds itself in hardship, a variety of actions are taken. While men often migrate to nearby cities, women are not granted permission to leave their villages, as "someone has to remain home to look after the assets and the children" (IDI). However, women's main coping mechanism, which is intensifying their involvement in petty trading, often fails due to lack of time, financial constraints and sickness. In addition, this is hampered by the fact that often women remain the only adults at home, and sometimes prefer not to leave their households. Seventy-seven per cent of respondents reported that they had already sold assets to cope with droughts. Women, however, reported that, when their husband was not at home, they only sold assets in desperate situations where they did not have any options and were always afraid of the husband's reaction. One woman reported that "if the only other option is dying, we can sell our assets... still, this is a risk for us, because we do not know how our spouses will react". A 60-year-old woman stated that when her husband used to migrate, she was given a list of the assets owned and their importance, so that she could sell the least important ones if needed (IDI). This proves that women's coping mechanisms face more restrictions and challenges than men's.

Access to financial resources

Women do not control financial resources and thus cannot make use of savings immediately. This situation becomes more severe when men migrate. Savings are brought to wives during a visit or via friends who deliver it. Yet, they are often insufficient to cover all household needs. Due to the widespread poverty, neither remittances[33] nor financial assistance from parents were widely used. Respondents stated that while a married woman might receive support from her parents in times of stress, it is rare that she can help them by passing them food or livestock. This decision is usually up to the head of the household. Therefore, women have limited capacity to mobilize financial resources to cope with hardship.

[31] Similarly, the reasons why women do not participate in such events should also be investigated.

[32] Coping mechanism are defined as the actual responses to crisis on livelihood systems in the face of unwelcome situations, and are considered short-term responses (Berkes and Jolly 2001).

[33] Remittances were used by 11 respondents: eight men and three women. Only one out of the three women also controlled the money she received.

Freedom of mobility

While men can temporarily migrate and survive difficult months in far places, women are usually left home with assets and children. In the worst cases, when food insecurity is particularly severe and the family does not own any assets, women migrate with their husbands. While men can escape hunger, women are given this possibility only as a last resort, when there is no possibility of surviving at home.

Social support

Social support, or the assistance one can draw on from belonging to a social network, is another vital resource for dealing successfully with shocks and negative events. Still, community support is decreasing in the last years due to the increasing severity of hardship and decreasing availability of resources (FGD). Due to more difficult living conditions, families have no longer been able to substantially support each other (IDIs). In the case of migration, men find themselves with little social support as they migrate in small groups or alone, whereas women remain in the community and can ask for help from others (IDIs). Women usually receive support from neighbours, for example, in the form of childcare while they are busy with other tasks (FGDs). If the consequences of drought affect the health of a woman who is left alone in the village, she might find a way to borrow money and go to nearby health facilities. Nevertheless, this decision is often challenged by the fact that women have to leave their children for long times or ask other village members for support, returning the favour in in-kind remunerations (FGDs).

Different groups' coping capacity

To sum up, women have low coping capacity both ex ante and ex post. With poor education, little time available and limited capacity to improve agricultural practices and to increase assets, food stocks and economic activities, women face difficulties in contributing to ex ante household preparedness to shocks. Similarly, their contribution is challenged by low training participation rates, as well as difficulties in using family planning.

Men on the other hand, are more educated and the key decision makers, so that they can greatly contribute to livelihood security and disaster risk reduction. In addition, enjoying increasing free time during drought events and having the chance to migrate, men can engage in remunerative activities to face the immediate challenges posed by food insecurity. This is more difficult for women, whose involvement in income generating activities (their main coping strategy) is challenged during difficult times, when lack of time, energy and capital to invest hamper businesses. In those times, men migrate, thus escaping hunger, while women do not enjoy freedom of mobility and have severely limited access to financial resources. However, women can make use of social support from the community to cope with livelihood insecurity, while migrant men are alone or in small groups.

Levels of Vulnerability to Drought

The previous sections have discussed men's and women's susceptibility to the negative impacts of droughts and their coping capacities, which shape the level of vulnerability of any given group, that is a determinant of disaster risk.

The research findings suggest that women are more vulnerable than men in both dimensions: they are more susceptible to the impacts of drought and have less capacities to reduce drought risks and to cope positively with them. The combination of higher

susceptibility and lower coping capacity makes women more vulnerable and leads them to suffer more than men when a drought occurs.

Key Government Policies

A community's vulnerability and exposure to risk can be greatly impacted by state policies. This can be done through interventions developed with a clear disaster risk reduction lens, as well as through any other policy that indirectly impacts people's livelihoods and welfare. Today, "social policies need to address environmental damages and related socio-political unrests, shocks of disaster or food shortages, as they risk to reverse the development progress that has been made" (Sadeque 2010:3). It is therefore important to briefly introduce the actions taken by the Ethiopian government to tackle drought risk.

Since 2005, the Ethiopian government, ruled by the Ethiopian People's Revolutionary Democratic Front (EPRDF), has made major efforts on the implementation of the Productive Safety Net Programme (PSNP), which is part of the national Food Security Programme (FSP). The PSNP encompasses comprises a total of four programmes:

i. Household Asset Building Programme (HAB), which provides farmers with loans for buying a goat or an ox to be fattened and resold, thus getting sufficient income to recover their debt after a year;
ii. Complementary Community Investment Programme (CCI), which involves local inhabitants in the construction of infrastructure for the community, such as dumps and ponds;
iii. Resettlement Programme, which relocates people to areas where the environment is more favourable; and
iv. Productive Safety Net Programme (PSNP), which provides multi-annual transfers, in-kind (food) or cash, to food insecure household.

These programmes encompass some gender-sensitive measures. Under the CCI programme, female-headed households' lands can be ploughed, thus ensuring that the woman will not have to hire external farmers to do it (ploughing is forbidden to women across Ethiopia). Names of both spouses are registered in the client card that regulates transfers under the PSNP and the HUB programmes. Since 2010, the national programme focuses mainly on HAB and PSNP, and now in Bidi Bora, only the latter and emergency relief assistance are provided.[34]

According to Lavers (2014), PSNP—conceived as a model of social protection for Africa—successfully addresses the symptoms of poverty, but not the structural causes of insecurity and the socioeconomic system that sustains it, thus losing the potential to be transformative (Lavers 2013). The widespread vulnerability of peasants has been exacerbated by previous regimes' policies on land tenure and restriction of migration, as well as by population growth, lack of early response systems and of disaster preparedness.

Regarding land tenure, private ownership was first abolished by the socialist Derg regime in the 1970s (Askale Teklu 2005). The EPRDF, which has followed the Derg, has kept this policy based on the assumption that improved agricultural inputs provided by the government would improve smallholders' productivity, as opposed to what the government "considers to be less-efficient, large-scale capitalist agriculture" (Lavers 2015:6). Therefore, all land in the country is state property and land users have only

[34] CCI never operated in Fedis woreda.

usufruct over the land, which they cannot sell, mortgage or exchange in any way. However, this policy is based on an ideal case scenario where other necessary conditions for food sufficiency and security are ensured (Lavers 2013). As this is far from being the case, state landownership has diminished farmers' incentives to invest in their land and has hindered the peasants' development, "dis-empowering" individuals and communities (Rahmato 2003, 2011).

In addition, due to this policy, landholders risk having their land confiscated if they abandon it, do not reside in the kebele, or if they are absent from their farms and the land is left idle for three or more consecutive years. Likewise, PSNP prevents people from migrating (Lavers 2013). This has discouraged farmers from looking for more promising opportunities elsewhere in the last decades.[35] In the context of rapid population growth, this barrier to migration has led to "increasing numbers of food-insecure households" (Lavers 2013:479).

In addition, under the land tenure policy, peasant associations allocate land and usufructuary rights to households. As a consequence, land is mostly given to husbands, as they are the head of the households by law, and "women's rights to land…have become secondary rights, derived through their membership of households and attained primarily through marriage" (Askale Teklu 2005:5). Nevertheless, after the Derg, more efforts were paid to give equal opportunities to both sexes. The EPRDF has come to power with an innovative gender equality agenda and policies improving women's access to land. One of the most crucial policies released implies that the land must be formally registered jointly in the names of the husband and the wife. This is valid in Oromiya since 2005. Nevertheless, "women are unfamiliar with legal procedures, which are costly, and therefore they are under pressure to remain governed by customary norms and to accept fewer benefits that they are formally entitled to" (Askale Teklu 2005:16). This occurs also because the state does not check that women are treated fairly upon divorce or widowhood. In addition, lack of gender implementation guidelines and lack of women's participation in the land registration process add to the challenges that make it difficult for women to claim their rights in formal disputes (Askale Teklu 2005; Lavers 2015).[36]

In addition, governmental interventions can reduce the long-term biophysical vulnerability to drought through disaster risk reduction strategies that mitigate desertification and land degradation processes, thus prompting sustainable land management (Schwilch et al. 2015). So far, the government has made great effort through the WFP's MERET Programme[37] and the PSNP, which include watershed management, afforestation and terracing. Nonetheless, the scale of these measures has not shown considerable progress. The terracing attempts under the PSNP and other anti-erosion programmes have partially prevented soil deterioration, but they have not increased productivity (Lavers 2013).

Lastly, major investments in infrastructure have been made in the last decades. Nevertheless, there are still huge problems of funding, low level of rural accessibility and inadequate road maintenance (Foster and Morella 2011).

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35 Lavers has found that many Ethiopian households who left their agricultural work were better able to ensure livelihood security, even though this coincided with the loss of their land (Lavers 2013).

36 Literature on gender and land tenure has stressed that a variety of factors are necessary to bring about actual changes in the customary law, which is contingent upon the social sphere and power relations (Lavers 2015).

37 https://www.wfp.org/disaster-risk-reduction/meret, accessed in August 2015.

Overall, while the Ethiopian government has proved its commitment to decreasing poverty and gender inequality, many challenges remain and there is room for improvement in the gender-sensitivity of its disaster risk interventions.

Conclusion and Policy Recommendation

This paper has presented intra-household differences between men's and women's vulnerability to drought in Fedis woreda, Ethiopia. When the family is unable to ensure its subsistence and faces severe deprivation in basic needs, women often find themselves overburdened, affected by severe health problems and with a limited ability to engage in income-generating activities. Social conceptions of gender, which mean that they are the last to eat, the first to drop out of school and the main caregivers, prompt their heightened vulnerability. At the same time, local norms which prevent women from taking decisions that might impact disaster preparedness through proper mobilization of household and community resources limit their capability to protect themselves and their family members, despite the fact that the women play crucial roles in taking care of relatives during extreme times.

This research therefore supports the thesis that "gender inequalities in the distribution of assets and opportunities mean women's choices are severely constrained in the face of climate change" and climate shocks (Skinner et al. 2011:1). It confirms that the key drivers of women's higher disaster risk are social norms—including gender relations, gendered division of labour, unequal allocation of resources and distribution of unpaid work and gender discriminatory practices. These findings are in line with earlier work and reconfirm persisting gender inequality (Schultz et al. 2001). In addition, this paper has argued that the measures taken by the Ethiopian government are not sufficient to significantly decrease citizens' vulnerability to drought. The government has failed to acknowledge and address the root causes of vulnerability, which is highly influenced by and differentiated according to gendered roles.

As climate change presents a major threat to the progress made so far, urgent and gender-sensitive measures are needed. These need to take into consideration the gender dimensions of disasters in order to reduce disaster risk effectively and counteract the increasing feminization of poverty, which implies that the worldwide environmental crisis and development policies have trapped women in a cycle of poverty (Sassen 2002; Chant 2006). Policies implemented in this effort have to be developed in a way that goes beyond symptoms to address the underlying causes of the problem. In order to work, policies have to deal with the social structures, institutions, agency, and social norms and values in place (UNRISD 2014) which allocate rights, responsibilities and access to resources inequitably between men and women.

In the case study context, the following recommendations can be derived.

- The interventions delivered under the Ethiopian Poverty Reduction Plan and the Food Security Programme should strengthen their gender focus and ensure equitable outcomes for men and women. For instance, regarding the asset-building programme, more focus should be given to ensuring that small assets are prioritized and directly given to women, and that financial revenues from assets are equally shared.
- Unpaid care work which falls disproportionately on women can worsen women's vulnerability and affect their capacity to reduce risk. Reducing the care burden is therefore key. This could for instance be done through labour-saving infrastructure investment, such as provision of

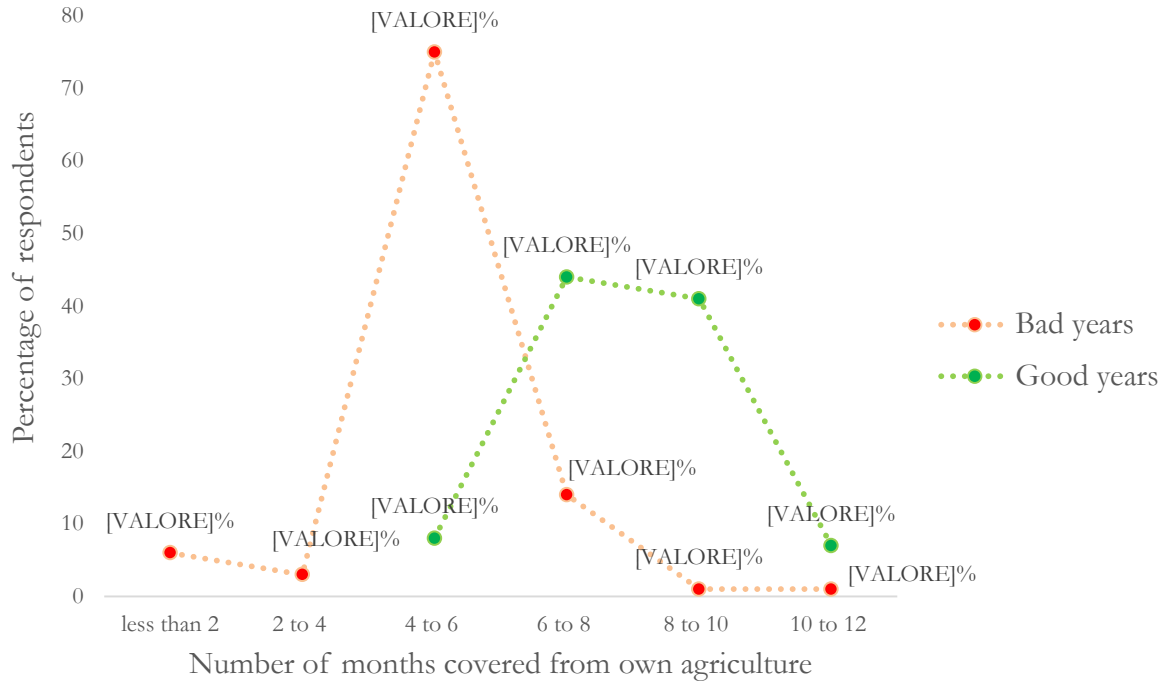
energy, water and sanitation, and the improvements in service provision (notably social services, such as health, education, childcare and care for the elderly).[38]

- Reforms are needed to enforce the formal legislation and to ensure equitable land allocations. This would avoid that women who abandon their household—either because of divorce, widowhood or voluntarily—find themselves destitute without access to own land. Overall, the legal framework needs to enhance women's participation and leadership roles, and to enable poor women's access to information (Askale Teklu 2005);
- Moreover, governmental efforts to reduce soil erosion should be sustained and strengthened. More afforestation projects should, for example, be implemented so as to restore green areas depleted through firewood collection. This would enhance soil quality, water supply and ensure livelihood security in years to come. The policies on land tenure and restricted migration should be reconsidered given the urgent problem of land pressure. An increase in the provision of agricultural inputs and access to safe water would also benefit all and have major impacts on livelihood security and health levels.[39]
- At a higher level, women should be made central actors in decision making in any attempt to reduce household's vulnerability to drought. Women are, of course, the most aware of the specific constraints they face, and would provide useful contributions as key participants in policy making. Involving women in any attempt to unburden their lives would foster the adoption of appropriate and gender-sensitive decisions.

[38] The construction of infrastructures would be a first step to support both women by decreasing their unpaid work, and men, as it would facilitate trade and be an incentive to improve agriculture.

[39] Access to water has an impact on many dimensions of human development. For instance, a study in Tanzania shows a 12 per cent increase in school attendance when water is available within a 15-minute walk, compared to more than 30 minutes away (WHO and UNICEF 2015). If the premise of this research hold true in Ethiopia, where collecting water takes longer than half an hour for more than a quarter of the population (http://www.unicef.org/esaro/7310_Gender_and_WASH.html, accessed in August 2015), then there is reason to believe that water collection is one of the key issues jeopardizing women's education and literacy rates, which are not even half that of men in Ethiopia (Oxfam 2010).

Annex 1: Household Consumption from Own Products



Annex 2: Calendar with seasonal activities

	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.
Ploughing							■	■				
Planting								a	b			
Harvesting	■			■	■							■
Rainy season	■						■	■	■	■	■	■
Pond water				■	■	■	■	■	■			
absence				■	■	■	■	■	■			
Food shortage	■	■	■	■					■	■	■	■
Migration	■	■								■	■	■
Asset Sale	■									■	■	■
School		■	■	■	■	■	■	■	■	■		

Notes: a: Peanuts, sorghum, onions, maize. b: Potatoes and onions.

References

Askale Teklu. 2005. *Research Report 4: Land Registration and Women's Land Rights in Amhara, Ethiopia.* Addis Ababa: International Institute for Environment and Development. Accessed in August 2015. http://pubs.iied.org/pdfs/12521IIED.pdf.

Berger, Marguerite, Virginia DeLancey, and Amy Mellencamp. 1984. *Bridging the Gender Gap in Agricultural Extension*. Paper prepared for the Office of Women in Development, U.S. Agency for International Development. Washington, DC: International Center for Research on Women. Accessed in August 2015. http://pdf.usaid.gov/pdf_docs/PNAAR377.pdf.

Berkes, Fikret, and Dyanna Jolly. 2001. "Adapting to Climate Change: Social-Ecological Resilience in a Canadian Western Arctic community". *Conservation Ecology*, 5(2):18.

Cannon, Terry. 1994. "Vulnerability Analysis and the Explanation of 'Natural' Disasters." In *Disasters, Development and Environment*, edited by Ann Varley, 13-30. Chichester: John Wiley & Sons.

Chant, Sylvia. 2006. "Re-thinking the 'Feminization of Poverty' in Relation to Aggregate Gender Indices." *Journal of Human Development,* 7(2):201-220.

Cherinet, Haregewoin, and Emebet Mulugeta. 2002. *Country Gender Profile Ethiopia*. . Addis Ababa: Swedish International Development Cooperation Agency. Accessed in August 2015. http://hivhealthclearinghouse.unesco.org/sites/default/files/resources/1909_sida_ethiopia.pdf.

De Waal, Alex. 1989. "Is Famine Relief Irrelevant to Rural People?" *IDS Bulletin*, 20(2):63–67.

Ethiopian Society of Population Studies. 2008. *Gender Inequality and Women's Empowerment. In-depth Analysis of the Ethiopian Demographic and Health Survey 2005.* Addis Ababa: UNFPA. Accessed in August 2015. http://www.itacaddis.org/docs/2013_09_24_08_13_27_Gender%20profile%20UNFPA%202008.pdf.

FAO (Food and Agricultural Organization of the United Nations). 2010. *Agricultural based Livelihood Systems in Drylands in the Context of Climate Change. Inventory of Adaptation Practices and Technologies of Ethiopia.* Environment and Natural Resources Management Working Paper 38. Rome: FAO. Accessed in July 2015. http://www.fao.org/3/a-i1786e.pdf.

Foster Vivien, and Elvira Morella. 2011. *Ethiopia's Infrastructure. A Continental Perspective*. Policy Research Working Paper 5595. Washington, DC: The World Bank. Accessed in August 2015. http://elibrary.worldbank.org/doi/pdf/10.1596/1813-9450-5595.

Hundera, Berhanu Mulu. 2010. *The Gendered Drought Coping Mechanisms: The Study among Pastoralist Communities, in Shinile District, Somali Region, Ethiopia.* Velp: Larenstein University of Professional Education. Accessed in August 2015. http://edepot.wur.nl/167019.

IPCC (Intergovernmental Panel on Climate Change). 2012. *Manging the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation.* A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change, edited by C.B. Field, V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley. Cambridge, New York: Cambridge University Press.

Koohafkan, Parviz, and Bob A. Stewart. 2008. *Water and Cereals in Drylands.* Rome: FAO and London: Earthscan. Accessed in August 2015. http://www.fao.org/docrep/012/i0372e/i0372e.pdf.

Lavers, Tom. 2015. "Land Registration and Gender Equality in Ethiopia: How State-Society Relations Influence the Enforcement of Institutional Change." *Journal of Agrarian Change*. DOI: 10.1111/joac.12138.

———. 2014. *A Model for Social Protection in Africa? Ethiopia's Productive Safety Net Programme (PSNP).* Geneva: UNRISD. Accessed July 2015. http://www.unrisd.org/80256B3C005BD6AB/search/98094D5071294EC4C1257CE6004A5461?OpenDocument.

———. 2013. "Food Security and Social Protection in Highland Ethiopia: Linking the Productive Safety Net to the Land Question". *The Journal of Modern African Studies,* 51(3):459-485.

MoFED (Ministry of Finance and Economic Cooperation). 2012. *Assessing Progress towards The Millennium Development Goals. Ethiopia MDGs Report 2012.* Addis Ababa: MoFED. Accessed in August 2015. http://www.et.undp.org/content/dam/ethiopia/docs/Ethiopia%20MDG%20Report%202012_Final.pdf.

Naumann, Gustavo, Paulo Barbosa, Luis Garrote, Ana Iglesias, and Jürgen Vogt. 2014 "Exploring Drought Vulnerability in Africa: An Indicator Based Analysis to be Used in Early Warning Systems." *Hydrology and Earth System Sciences*, 18:1591–1604.

Neumayer, Eric, and Thomas Plümper. 2007. "The Gendered Nature of Natural Disasters: The Impact of Catastrophic Events on the Gender Gap in Life Expectancy." *Annals of the Association of American Geographers*, 97(3):551-566.

OECD (Organisation for Economic Co-operation and Development). 2014. *Social Institutions and Gender Index. 2014 Synthesis Report.* Accessed in August 2015. http://www.oecd.org/dev/development-gender/BrochureSIGI2015-web.pdf.

Oxfam International. 2010. *The Rain Doesn't Come On Time Anymore. Poverty, Vulnerability and Climate Variability in Ethiopia*. Accessed in August 2015. https://www.oxfam.org/sites/www.oxfam.org/files/rain-poverty-vulnerability-climate-ethiopia-2010-04-22.pdf.

Parker, Ben. 2003. *Ethiopia. An Oxfam Country Profile*. London: Oxfam.

Rahamato, Dessalegn. 2011. *Land to Investors: Large-Scale Land Transfers in Ethiopia.* Addis Ababa: Forum for Social Studies. Accessed in August 2015. http://www.landgovernance.org/system/files/Ethiopia_Rahmato_FSS_0.pdf.

Rahmato, Dessalegn, ed. 2003. *Some Aspects of Poverty in Ethiopia*. *Three Selected Papers*. Addis Ababa: Forum for Social Studies.

Reynolds, James F., D. Mark Stafford Smith, Eric F. Lambin, B.L. Turner II, Michael Mortimore, Simon P.J. Batterbury, Thomas E. Downing, Hadi Dowlatabadi, Roberto J. Fernandez, Jeffrey E. Herrick, Elisabeth Huber–Sannwald, Hong Jiang, Rik Leemans, Tim Lynam, Fernando T. Maestre, Miguel Ayarza, and Brian Walker. 2007. "Global Desertification: Building a Science for Dryland Development." *Science,* 316(5826):847–851.

Sadeque, Zahir. 2010. "Global Social Policy Forum: Climate Change and Social Policy: An Introduction." *Global Social Policy*, 10(1):3–6.

Sassen, Saskia. 2002. "Counter-geographies of Globalization: Feminization of Survival." In *Feminist Post-Development Thought. Rethinking Modernity, Postcolonialism & Representation*, edited by Kriemild Saunders, 89–104. London: Zed Books.

Schultz, Irmgard, Diana Hummel, Claudia Empacher, Thomas Kluge, Alexandra Lux, Engelbert Schramm, Stephanie Schubert, and Immanuel Stiess. 2001. *Research on Gender, the Environment and Sustainable Development*. *Studies on Gender Impact Assessment of the Programmes of the 5th Framework Programme for Research, Technological Development and Demonstration.* Frankfurt am Main: Institut für sozial-ökologische Forschung. Accessed in August 2015. https://cordis.europa.eu/pub/eesd/docs/wp1_endversion_complete.pdf.

Schwilch, Gudrun, Hanspeter Liniger, and Anu Lannen. 2015. *Saving soils at degradation frontlines: sustainable land management in drylands.* CDE Policy Brief, No. 5. Bern, Switzerland: Centre for Development and Environment. Accessed August 2015. http://www.cde.unibe.ch/services/publications/policy_briefs/e98881/e213791/05_CDE_PB_Dryland_Soils_eng.pdf.

Skinner, Emmeline, Alyson Brody, and Georgina Aboud. 2011. *Gender and Climate Change*. Gender and Development In Brief, Bridge Bulletin, 22. Brighton: Institute of Development Studies. Accessed in August 2015. http://docs.bridge.ids.ac.uk/vfile/upload/4/document/1201/InBrief22-ClimateChange-ForWeb.pdf.

Shepherd, Andrew, Tom Mitchell, Kirty Lewis, Amanda Lenhardt, Lindsey Jones, Lucy Scott, and Robert Muir-Wood. 2013. *The Geography of Poverty, Disasters and Climate Extremes in 2030*. London: ODI. Accessed in January 2015. https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/8633.pdf.

UNCCD (United Nations Convention to Combat Desertification). 2011. *Land and Soil in the Context of a Green Economy for Sustainable Development, Food Security and Poverty Eradication.* Submission of the UNCCD Secretariat to the Preparatory Process for the Rio+20 Conference. Bonn: UNCCD. Accessed in July 2015. http://www.unccd.int/Lists/SiteDocumentLibrary/Publications/Rio%206%20pages%20english.pdf.

UNECA (United Nations Economic Commission for Africa). 2009. *Gender And Climate Change: Women Matter.* Accessed in August 2015. http://repository.uneca.org/bitstream/handle/10855/15345/BIB-61121.pdf?sequence=3.

UNRISD (United Nations Research Institute for Social Development). 2014. *Social Drivers of Sustainable Development*. Beyond 2015 Brief No. 4. Geneva: UNRISD. Accessed in August 2015. http://www.unrisd.org/post-2015-4.

———. 2010. *Why Care Matters for Social Development.* Research and Policy Brief 9. Geneva: UNRISD. Accessed in August 2015. http://www.unrisd.org/rpb9.

UNISDR (United Nations Office for Disaster Risk Reduction). 2009. *2009 UNISDR Terminology on Disaster Risk Reduction.* Geneva: UNISDR. Accessed in August 2015. http://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf.

WHO (World Health Organization) and UNICEF (United Nations Children's Fund). 2015. *Progress on Sanitation and Drinking Water*. 2015 *Update and MDG Assessment.* Accessed in May 2016. http://files.unicef.org/publications/files/Progress_on_Sanitation_and_Drinking_Water_2015_Update_.pdf.