

Gender Assessment and Action Plan

**Climate-resilient community access to safe water powered by
renewable energy in drought-vulnerable regions of Ethiopia**

Contents

Part I: Gender Assessment	3
I. Background and National Context.....	3
Population	4
Health	4
Education	5
Participation in the formal and informal economy.....	6
Women in Politics	6
Asset Ownership.....	6
Land as productive resource	7
Services and Inputs.....	7
Level of income and wages	8
Norms and Practices	8
II. Gender and Climate Change	10
III. Gender and climate: institutional, legal and policy frameworks	15
IV. Key Gender and Climate Change Issues at Project Sites	20
Raya-Kobo Girana Valley, Amhara Region	20
Borana Zone, Oromia Region	24
V. Sexual Exploitation, Abuse and Harassment	28
VI. Recommendations.....	30
VII. Conclusion	31
VI. References	33
Part II: Gender Action Plan for Kobo-Girana and Borana	42
Annex I: List of Consulted Individuals	49

Part I: Gender Assessment

I. Background and National Context

Located in the horn of Africa, Ethiopia is home to 105 million people (World Bank, 2019). Over 83% of the population are smallholder farmers, of whom 26% are female-headed households (MoF, 2019). Smallholder agriculture contributes over 85% of total employment, over 90% of foreign exchange earnings, and approximately 50% of gross domestic product (GDP) (Welteji, D, 2018). Smallholder farmers account for 95% of the total area under agriculture and these farmers provide more than 90% of total agricultural output (Welteji, D, 2018).

The country's economic growth and development, as well as the livelihoods of the rural population, are highly dependent on the utilization of natural resources. As a result, growth in the agriculture sector can play a critical role in reducing the poverty rate – a 1% increase in agricultural output leads to a decrease in poverty of nearly 1% (World Bank, 2016a).

Eighty percent of the Ethiopian population currently live in rural areas. Recent rapid economic growth, however, signals the advent of a demographic transition, as urban services and industry are expanding rapidly (World Bank, 2019a). In the past decade, Ethiopia's average annual economic growth rate was slightly over 10%, exceeding the regional average of 5%. In this period, services grew by 12%, industry by 21% and agriculture by 7% (World Bank, 2019a).

Public investment, which increased from 5% of GDP in the early 1990s (Rodrik D, 2016) to 15.3% in 2022 (Terry M et al., 2022), plays a significant part in Ethiopia's growth. More recently, foreign direct investment (FDI) has influenced Ethiopia's growth and the country has attracted about US\$ 8.5 billion in FDI (CIA, 2021). The sustained economic growth Ethiopia maintained over the past decade reduced the poverty rate from 30% to 24% between 2011 and 2016 (World Bank, 2019a).

However, in the past two years, the COVID-19 pandemic, desert locust invasions, erratic rainfall that disrupted the country's dominant rain-fed agricultural sector, civil unrest, as well as cholera, measles and yellow fever outbreaks have increased Ethiopia's vulnerability and resulted in enormous disruption to lives and livelihoods. As a result, Ethiopia's economy grew at 6.1% in 2020, compared to 9% in 2019. Remittances declined by 10% in 2020, and Foreign Direct Investment inflows were 20% lower (FDRE, 2021).

Ethiopia is among the poorest countries in the world. The Human Development Index (HDI), which measures average achievements in long and healthy lives, knowledge and a decent standard of living, places Ethiopia in the low human development category: at rank 173 (out of 189 countries), with a value of 0.485. Almost half (48.9%) of the population is multidimensionally poor (UNDP, 2020).

Despite its very low global greenhouse gas emissions contribution (0.04% of global emissions) (Crippa, M. et al., 2019), Ethiopia is highly vulnerable to the impacts of climate change. In the last 50 years, evidence of climate change impacts has become clear in Ethiopia. Temperatures have increased by an average of around 1°C since the 1960s. Annually, 25-50% mean rainfall variations are observed, while occurrences of extreme weather events such as drought and floods have increased in the last ten years. These conditions are expected to further increase the risk of food insecurity, affect human health, result in conflict over scarce resources, put infrastructure at risk and exacerbate environmental degradation. Therefore, sustainable adaptation and resilience measures are crucial to manage vulnerability to climate risks and hazards (FDRE, 2021).

Women constitute half of the Ethiopian population (49.97%) (World Bank, 2020) and 22.1% of the total heads of households (World Bank, 2019b). Almost all rural women are directly dependent on agriculture and environmental resources for their livelihoods and are engaged in productive activities (including crop farming and livestock herding) and the management of natural resources and household assets (AU, 2012).

The major responsibility for household water supply, energy for cooking and heating, and food security falls on rural women; as a result, they are highly affected by drought, uncertain rainfall, and deforestation (AU, 2012). Despite their significant roles, women have long been marginalized or even ignored in major decision-making processes at all levels (MoF, 2019).

Ethiopia has a value of 0.837 in the Gender Development Index, which is the ratio of female to male HDI values; it is in Group Five, which comprises countries with low equality in HDI achievements between women and men. The Gender Inequality Index, which reflects inequality in achievement between women and men in reproductive health, empowerment, and the labor market, ranks Ethiopia at 125 out of 189 countries, with a value of 0.517 (UNDP, 2020).

This gender assessment is carried out to inform the proposed GCF project on the gender roles and power relations observed in the Ethiopian context. It is expected to support the design of the project by taking into consideration the different needs, priorities and knowledge of women and men.

Ethiopia Gender Profile

Population

With a population of 105 million and a population growth rate of 2.85%, Ethiopia is the second-largest country in Africa (World Bank, 2019a). Of the total population, 50% are women, 44% are under the age of 15 and 4% are above the age of 65 (EPHI, 2021). Average household size is 5.2 persons in rural areas and 3.6 in urban areas (CSA, 2020).

Health

Health problems in Ethiopia are largely attributable to preventable infectious ailments and nutritional deficiencies. Infectious and communicable diseases account for about 60-80% of diseases in the country. The health status of people, particularly women, is poor, mainly due to the higher rate of illiteracy and poverty among women, which has hindered their access to health services, information, and decision-making in health matters (JICA, 2006).

The age at which childbearing commences is an important determinant of the health and well-being of a mother and child. In Ethiopia, the median age at first birth among women aged 25-49 is 18.7 years (EPHI, 2021). The 2020 gender inequality index shows that, in Ethiopia, there are 66.7 births per 1,000 women aged 15-19.

Family planning is essential for women to avoid unplanned or unwanted pregnancies and prevent unsafe abortions. Additionally, contraceptive use enables women to space the births of their children, which benefits the health of the mother and child. The 2019 mini demographic and health survey showed that 96% of married women aged 15-49 know at least one method of contraception. The contraceptive prevalence rate in 2019 was 41% and has steadily increased from 14% in 2005 (EPHI, 2021).

Health care services during pregnancy and after delivery are yet another important factor for the survival and well-being of both the mother and the infant. Skilled care during pregnancy, childbirth and the postpartum period is critical in reducing maternal and neonatal morbidity and mortality. The 2019 survey shows that 74% of women aged 15-49 received antenatal care from a skilled provider, which has increased from 62% in 2016. Further, 48% of births occurred in a health facility, a fraction that has increased from 26% in 2016 and just 5% in 2005. The gender inequality index of 2020 shows that the mortality ratio for Ethiopia is 401 maternal deaths/100,000 live births, which needs considerable improvement to meet the SDG target of 70/100,000 by 2030. Although institutional delivery has been promoted in Ethiopia, home delivery is still common, primarily due to distance, scarce transport, and lack of appropriate facilities (EPHI, 2021).

Twenty percent of women aged 15-49 and 38% of men aged 15-49 have comprehensive knowledge of HIV. The national HIV prevalence rate is 1.2% for females and 0.6% for males (CSA, 2017a). With regard to female genital mutilation (FGM), 65% of women aged 15-49 (a decrease from 74% in 2005 and 80% in 2000) are circumcised. Among women who have heard of female circumcision, 24% believe that the

practice is required by their religion and 18% believe that the practice should be continued (CSA, 2017a). Though a lot of progress has been observed since a national strategy and action plan were developed in 2013 to address harmful traditional practices, it is evident that more work is needed in raising awareness and taking actions to eliminate the practice of FGM (MoWCYA, 2013; CSA, 2017a).

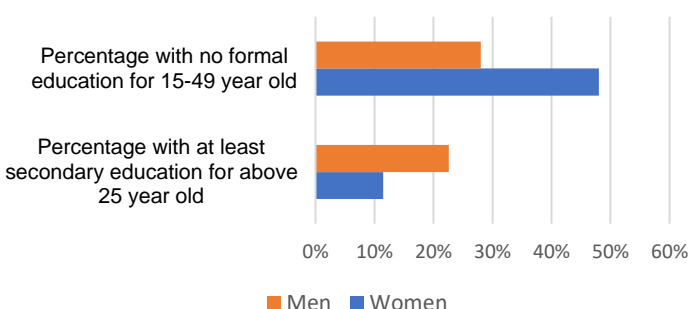
The 2019 EPHI survey clearly indicates that most of the positive outcomes on women's health indicators are higher for women in urban areas and for those that have at least a secondary education. This is a clear indication that a focus on education can significantly improve the health of both women and men in Ethiopia.

Education

Literacy is key in equipping the workforce with skills. Participation in a broader range of business, including more profitable and high-value-added sectors, depends on technical and vocational skill development (Hallward-Driemeier, M., 2013). Education is strongly linked with socioeconomic variables such as lifestyle, income, and fertility.

The gender development index of the 2020 Human Development Report indicates that the mean year of schooling in Ethiopia is only 1.7 years for females and 4.3 for males, while the 2020 gender inequality index shows that only 11.5% of females and 22.6% of males above the age of 25 have at least some secondary educations (UNDP, 2020).

Fig. 1: Percentage of men and women with no formal education and with at least secondary education



Source: CSA, 2017a; UNDP 2020

A survey conducted in 2016 shows that men are better educated than women in Ethiopia. About half of women (48%) and 28% of men aged 15-49 had no formal education. Urban women complete a median of 7.7 years of education, while the median among rural women is 0. The corresponding figures among men are 9.3 and 2.9 years. Additionally, 48% of women are literate, as compared to 69% of men (CSA, 2017a; EPHI, 2021).

In 2019, 35% of females attended some primary schooling, 6% completed primary education, 11% had some secondary schooling and 7% completed secondary school or had more than a secondary

education. The percentage of women with no education fell from 75% in 2000 to 48% in 2016 and 40% in 2019 (EPHI, 2021).

Most individuals learn literacy skills through the formal education system, for which attendance has increased in the past two decades, especially for girls and women (CSA, 2017a). Between 2000 and 2016, the gender parity index, or the ratio of female to male primary school attendance, increased from 73% to 99%. Age-specific attendance rates for the population aged 5-24 show that 70% of children attend school by age 7, while between ages 8 and 13 more than 60% attend school. The attendance rate declines rapidly from age 16-24 and during these years attendance is higher for males than females (CSA, 2017a).

The median age for a mother's first birth in Ethiopia is 18.7 years (EPHI, 2021). Women who give birth in their teenage years are more likely to drop out of school, and throughout their childbearing years they will continue to grapple with decisions related to fertility, motherhood, and the labor market (CSA, 2017a).

A report on adult learning shows that due to a persistent share of older, illiterate cohorts, overall gender literacy gaps remain wide while younger cohorts' gender literacy gaps are decreasing. Adult and non-formal education programs are being made available to cater to this generation of women. Children and adults ages 15 and up may enroll in Adult Literacy Training to learn literacy skills, while any adult may enroll in

community skills training centers to learn basic literacy, numeracy and other entrepreneurship and trade-related skills via regionally governed centers (MoE, 2008).

The gender gap in adult education is wide: while 70% of illiterate men are enrolled in adult education programs, only around 40% of illiterate women are enrolled in such programs, since women are likely to experience more time and social constraints with age relative to men. In order to facilitate women's involvement in continuing education programs, it may be effective to offer financial incentives to offset time costs associated with attendance and travel (UN Women, 2014).

Buehren, N. and Salisbury, T.V., 2017 find that education facilities may fail to offer girls and women a safe, accessible and gender-sensitive environment. Therefore, initiatives that reduce distance to learning centers, provide safe transportation, provide female instructors or those that are attuned to the needs of female students and inviting boys and men into discussions on cultural and societal practices are essential to increase the participation of girls and women.

A study undertaken in Malawi and Uganda shows that when women's schooling increased, women's ideal family sizes decreased: a one-year increase in schooling was associated with a 0.34 drop in women's ideal family size. As such, women's education can influence women's economic activity by improving skills development, reduction in fertility rate and increasing the amount of time women can contribute to the labor market (Behrman, 2015).

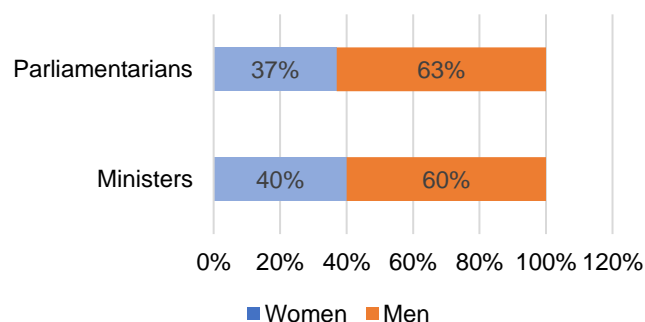
Participation in the formal and informal economy

According to the Ethiopia Socioeconomic Survey (ESS) of 2015-16, gender serves as a strong predictor of workforce participation in Ethiopia. A simple average indicates that women are 17% less likely than men to participate in the labor force. This difference widens to 29% when considering other factors such as age, education, and household wealth. A gender gap of 4.4 hours exists among individuals active in the workforce; while men work 31 hours per week, on average, women work only 27 (World Bank, 2019a).

Women in Politics

According to 2021 women in politics data, Ethiopia ranks 25 (out of 182) for women in ministerial positions with a score of 40% (8 out of 20), while the country ranks 31st for women in parliament. Of the 700 seats in the federal Parliamentary Assembly (House of Peoples' Representatives and House of Federation), 37% are held by women. This is higher than the sub-Saharan African average of 24.9% and the world average of 25.5% for women in parliament. Ethiopia is also among the 9 countries (5.9%) globally that have a woman head of state (UN Women, 2021).

Fig. 2: Percentage of women and men parliamentarians and Ministers



Access to Resources

Asset Ownership

Source: UN Women, 2021

Assets such as land and business equipment serve not only as essential inputs, but also as potential collateral for credit. Half of all women in Ethiopia own a house in part or in full, while 40% of women own land. Of the women who own land, half report having their name on a title deed (CSA, 2017a). However, relative to men and male-headed households, women and female-headed households fare worse in land and asset ownership. Compared to female-headed households, male-headed households have larger plot sizes, a larger proportion of cultivable land and a larger fraction of registered land. Women in male-headed households are very rarely primary land managers, though the reverse is not the case for men in female-headed households (World Bank, 2019a).

Land as productive resource

According to the Ethiopia Socioeconomic Survey (ESS) of 2015-16, 74% of female farmers are widowed, divorced, or separated. In addition, on average, they have smaller household size, are five years older and are more likely to be illiterate – 88% for females vs. 59% for males (World Bank, 2019a).

Rural households, on average, own 1 hectare of land; while, on average, male-headed households own 1.12 ha, female-headed households own 0.6 ha (CSA, 2020). Further, even though women make up more than 40% of the agricultural labor force and head approximately 25% of all farming households, they have less access not only to land but also to other factors of production than men (World Bank, 2019a). In terms of gross value of output, female farmers produce 23% less per hectare than male farmers. In addition, women see lower returns to their time spent on agricultural activities, extension services received, and use of fertilizer and oxen compared to their male counterparts (O’Sullivan M. et al., 2014). The fact that female farmers grow a narrower range of crops further widens the gender gap in productivity (World Bank, 2019a).

These lower returns point to broader social norms, market failures and institutional constraints that prevent women’s resources from translating into the same levels of agricultural productivity as they would for men (World Bank, 2019a). Addressing these challenges is a necessary step to fulfill ambitious targets, such as those set in the national Ten-Year Development Plan – including securing the rights of the 60% of women who are not given land rights (FDRE, 2020).

Services and Inputs

Extension services

Smallholder farmers access information about new technologies and other farm-related information through agricultural extension services. However, female farmers are less likely than male farmers to attend extension programs. In 2015-16, 23% of female farmers attended extension programs compared to 38% of male farmers. This means women are less exposed to, and aware of, new techniques, farming knowledge and management practices. Though policies have recognized the need to close the gender gap, identifying and addressing constraints still remains a challenge (World Bank, 2019a).

Formal credit

Credit and other financial services can provide small-scale farmers with the opportunity to improve farm productivity and transition from subsistence farming to large-scale and commercial farming (Mukasa A. N., 2017). Credit can, in the short term, help farmers increase their purchasing power to acquire necessary production inputs and finance their operating expenses, while in the long run it can help farmers to make profitable investments (World Bank, 2019a). Female farmers are, however, 9 percentage points less likely to live in a household with access to credit than male farmers (Mukasa A. N., 2017). Reasons include the fact that women are less likely to own and control physical assets that serve as collateral and they have lower levels of human and social capital which, in turn, can reduce their eligibility for formal credit. When credit is constrained, farmers are likely to use sub-optimal levels of productive inputs, thereby limiting their productive capacity (Mukasa A. N., 2017).

Production inputs

Modern agricultural inputs, such as fertilizers, pesticides, herbicides, and fungicides, are used to increase agricultural productivity and protect farmers against harvest fluctuations linked to pests, adverse weather, and soil degradation, and thus mitigate crop losses. Female farmers use 2 percentage point lower levels of these agricultural inputs than their male counterparts, which limits productivity and may imply greater vulnerabilities to shock-induced variations in production. Reasons vary from these products being typically sold in large quantities, requiring a sizable upfront cost that cash-constrained women may struggle to afford, to mobility where limited transport options are available that affect access to both inputs and markets (World Bank, 2009a).

Access to Irrigation

Although studies show most projects target both women and men farmers, women still benefit much less from irrigation programs due to lower access to information, including training (Likimyelesh, N. et al., 2017, FDRE, 2007). Men mostly control the use of irrigation technologies and have more control over income from these technologies (Likimyelesh, N. et al., 2017).

Level of income and wages

In 2009, the average wage in Ethiopia was only one-third of the Sub-Saharan African average and less than one-half of the global average for low-income economies. In 2012, the monthly average real income was ETB 421.70 (USD 23.40), less than USD 1.25 per day (Tadele, F and Shiferaw, K., 2015). Low levels of productivity and investment likely contributed to stunted wage growth (World Bank, 2009b).

Both formal and informal sector analysis indicates that female employees earn 44% less per hour than their male counterparts. This disparity drops to 36% when individual-, household-, and job-level characteristics are taken into consideration (World Bank, 2019a).

The gender wage gap is partly explained by gender differences in education, experience, and training (Arbache J. S. et al., 2010). Secondary and post-secondary education help individuals to develop more advanced skills to garner higher wages. Data show that employees who hold a bachelor's or postgraduate degree, have, on average, a 50% higher hourly wage relative to individuals who only completed secondary education, and a 20% higher wage than those who only completed their primary education (World Bank, 2019a).

Furthermore, women's limited labor market skills pigeonhole them into jobs concentrated in low-profitability sectors, with more women working in informal wage employment than men (Arbache J. S. et al., 2010). 37% of women report seasonal employment and 13% report occasional employment (CSA, 2017a). These trends of irregular employment contribute to women's limited on-the-job training, fewer professional development opportunities, and a perpetuation of disparities in skill sets, job opportunities and wages (World Bank, 2019a).

Norms and Practices

Shared beliefs or informal rules about which behaviors are appropriate, typical, or desirable in a particular social group are referred as social norms (Padlock E.L. and Ball L., 2010). Although norms do not dictate behavior, they influence the likelihood of particular behaviors by establishing expectations of rewards and approval or, conversely, sanctions and disapproval. Gender norms arise from, and give basis to, the belief that men and women are, and should be, different in behavior, aspirations, status, and economic activity (Cech E.A., 2013). Norms influence everything from educational investments early on in life, to factors later in life such as the timing and dynamics of marriage, childbearing, household dynamics, asset ownership and internalized beliefs (Paluck E.L. and Ball L., 2010).

Marriage and Childbearing

Marriage in Ethiopia occurs early in life, with the median age at first marriage for women standing as the lowest in Eastern Africa at 17.4 years (Clark S. et al., 2017). Both social norms and economic pressures may result in early marriages. When norms emphasize women's role as mothers rather than providers, girls may be motivated to move into adulthood through marriage and motherhood rather than through education and employment. In cases where norms emphasize virginity, marriage in adolescence is encouraged. Economic pressures also motivate marriages, leading parents to arrange their daughters' marriages in order to escape poverty at home. Women who marry early are more likely to drop out of school earlier and less likely to spend time acquiring valuable skills for economic success. Therefore, delaying marriage may result in better educational and economic outcomes for women in Ethiopia (World Bank, 2019a).

Career and Family

Women may be forced to avoid job opportunities that will minimize the time they can give to caring for family members and the household. Such choices will impact lifetime earnings and contribute to the gender gaps in wages and profits (World Bank, 2019a).

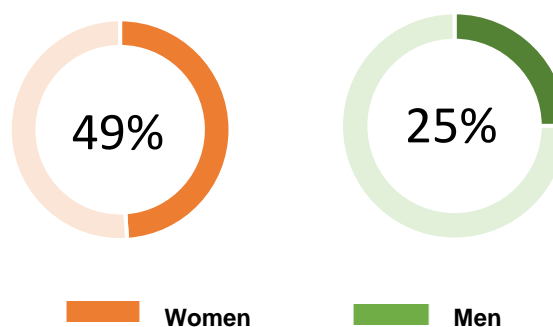
Further, women experience an increasing trade-off between career and family as they enter roles with higher pay and responsibility, in part discouraging women from aspiring to particular occupations or positions. In Ethiopia, a study of large companies, including Ethiopian Airlines, Ethio-Telecom and NIB International Bank, found that female business leaders experience intense “work overload” attributed to their “inability to say no, the nature of their company and their work, and the imbalance of their responsibility and their required working hours” (World Bank, 2019a).

Intra-household Dynamics

In Ethiopia, the majority of domestic work is delegated to women, including child rearing, cleaning, food preparation, wood and water collection, and food production. Ethiopian women aged 18-19 spend 4.1 hours per day on domestic tasks, compared to 1.5 hours for boys of the same age (A. Pankhurst et al., 2016). Women are much more likely than men to spend time collecting water and fuel wood; about 49% of female household members engage in these activities daily, compared with only 25% of male members (CSA, 2020).

In addition, many studies document the large amounts of time women devote to agricultural and livestock production. In Oromia, Amhara and SNNP Regions, for instance, women divide their time between agricultural and domestic tasks and spend about 14 hours a day on both productive and domestic activities, compared to an average of 10 hours spent by men (Agajie, G. and Derese, T., 2011). According to UN Women, women contribute as much as 70% of on-farm labor in post-harvest activities for cereals and take on 60% of marketing activities .

Fig. 3: Percentage of household members collecting water and fuelwood daily



Source: CSA, 2020

These responsibilities hinder women’s opportunities to study, develop professional experience and skills, run a business, or engage in paid work: 16% of girls drop out of school to look after siblings and 12% of girls drop out of school due to family issues (Frost M. and Rolleston C., 2013).

Internalized Beliefs

Women’s and men’s subjective self-assessment capabilities contribute to gender gaps. Ethiopian gender gaps in self-assessed ability are clearly seen for tasks typically performed by only one gender or tasks for which either men or women have a perceived natural advantage. On the other hand, when gender is said to be irrelevant to the task, men and women show no difference in self-perceived competence (World Bank, 2019a).

Violence against women affects a woman’s physical and mental health, as well as her ability to engage in daily activities. Fear of violence can also reduce women’s willingness to pursue economic activities, especially activities uncommon for women. In Ethiopia, one in ten women report having experienced sexual violence while one-third of ever-married women have experienced spousal violence (CSA, 2017a). 63% of

women and 28% of men agree that a husband is justified in beating his wife for activities such as burning food, going out without permission, neglecting children, or refusing to have sex (CSA, 2017a).

II. Gender and Climate Change

Although climate change is global in its extent and impacts, Africa has been identified as highly vulnerable to climate change due to low adaptive capacity and high reliance on climate-sensitive sectors such as rain-fed agriculture (Gebrechorkos, S.H. et al. 2019; Girvetz, E. et al., 2019). Rainfall variability and increasing temperatures are the two most important variables of climate change, imposing a negative effect on the productivity of the agricultural sector and sustainable economic development in Africa, particularly in sub-Saharan African countries (Serdeczny, O. et al., 2017; Abera, K. et al., 2018; Asfaw, A. et al., 2018; Gebrechorkos, S.H. et al., 2019).

Despite its very low global greenhouse gas emission (0.04%) contribution (Crippa, M. et al., 2019), Ethiopia is one of the sub-Saharan African countries that is highly vulnerable to the impacts of climate change and variability (Birara, H. et al., 2018).

In the past 50 years, evidence of climate change impacts has become apparent in Ethiopia. Recurrent droughts, combined with changes in the amount and spatial distribution of seasonal and annual rainfall, are among the major climate-related developments evident in Ethiopia (Zelege et al., 2017; Weldearegay, S.K. and Tedla, D.G., 2018).

Agriculture in Ethiopia is predominantly dependent on rainfall. Therefore, any variation in rainfall amount, distribution and trends will have a direct impact on agricultural production and thus significantly affect the lives of rural smallholder farmers who depend largely on agriculture as their main source of income (Desalew, M.M. and Bhat, H.G, 2021).

A study by Solomon, R. et al. (2021) on agricultural productivity change induced by climate change up to the year 2050, finds that, at national level, crop production will be adversely affected during the coming four decades, with increased severity over the time period. As a result, food prices will be higher and this will lower Ethiopian GDP growth, reduce real household incomes, and adversely impact consumption. Overall, the study indicates that climate change will cause the loss of 31% of agricultural GDP by 2050. Poor, rural households will be more affected than urban and rural non-farming households. Since agriculture has linkages with other sectors, an impact on the agriculture sector will also adversely impact the agro-processing, industrial and service sectors. The value of exports and imports will fall by 36% and 32% in 2050, respectively. Therefore, the need to mainstream adaptation measures to sustain the overall performance of the economy is of paramount importance. The key recommendations of the study are increasing the use of irrigation and infrastructure development, building human capital, especially the skills of farmers, and integrated policy options, including changes in modern technology and enhanced awareness to adapt to adverse climate change impacts.

Another study done in the Rib Watershed, northwestern highlands of Ethiopia, indicate that both seasonal and annual rainfall patterns across the watershed vary extremely and exhibit high temporal and spatial variability (Desalew, M.M. and Bhat, H.G, 2021). Most parts of the watershed have experienced high variability or less reliability of rainfall over the last few decades, notably with higher variability of Belg – short rainy period (March-May) rainfall in the watershed than Kiremt – the main rainy season (June- September). Projections by the study suggested that the Kiremt rainfall will probably increase by 20-25% by 2050 relative to the baseline period (1986–2017). However, the Belg rainfall is projected to decline by 4.8-8%.

A greater warming trend for both current and future scenarios was observed in the Rib watershed. The mean annual temperature in the study area has increased by 1.07°C over the last four and a half decades, with an average rate of 0.24°C per decade (Desalew, M.M. and Bhat, H.G, 2021). Similar results were found in Lake Tana sub-basin (Abera, K. et al., 2018) and Tekeze basin (Fikru, F. et al., 2018).

A high concentration of rainfall over a few months – particularly in July and August, which accounts for more than 50% of total Kiremt rainfall – results in more frequent flood events and soil erosion, thereby posing a threat to agricultural production (Desalew, M.M. and Bhat, H.G, 2021). Flooding and waterlogging result in anaerobic stress in roots, which significantly reduce crop yield (Fiwa, L. et al., 2014) while, at the same time, affecting the quality of grazing lands and irrigation facilities in the downstream watershed (Maharjan and Joshi, 2013). Excessive rainfall also leads to a high rate of surface runoff and soil erosion that causes the loss of fertile topsoil in the high slope areas and sedimentation in low slope areas in the absence of proper soil conservation structures (Fiwa, L. et al., 2014). Loss of soil fertility consequently leads to losses in agricultural production and rural livelihoods.

Increases in growing season temperatures may also adversely affect crop production, farm income and food security in many ways, especially when combined with high inter-annual and intra-seasonal variability of rainfall. The projected warming will reduce the grain yield of cereal crops, which are already experiencing significant reduction due to human-induced soil erosion (Desalew, M.M. and Bhat, H.G, 2021). An increase in temperature significantly affects mean yield responses, as well as yield variability, of maize, millet, and sorghum (Maharjan and Joshi, 2013). Heat stress also reduces grain yield by increasing evaporation and reducing water availability (Hatfield and Prueger, 2015), particularly in low rainfall-receiving downstream areas.

The challenges of having a high concentration of rainfall in Kiremt season, while other months remain dry or receive little rain, is that farmers in the watershed are unable to grow food crops more than once on their small parcel of plots in a given year, which leads to food insecurity and poverty (Desalew, M.M. and Bhat, H.G, 2021).

A projected increase in annual and seasonal rainfall would have mixed implications for future agriculture. On the one hand, it could contribute to future agriculture under proper soil conservation practices to control associated impacts such as flooding, excessive runoff, and soil loss. On the other hand, unless properly managed, the projected increase in Kiremt rainfall will lead to excessive flooding, runoff, and soil loss, thus contributing to a reduction in overall agricultural yields (Desalew, M.M. and Bhat, H.G, 2021).

Livestock production is also very important in supporting rural livelihoods. It contributes about 17% of the gross domestic product (GDP) of Ethiopia and 39% of the agricultural GDP (Shapiro, B. et al., 2017). However, livestock management is often inefficient in Ethiopia, with low and unreliable returns that leave many livestock-producing households in poverty (Rettberg, S. et al., 2017).

Approximately 60% of Ethiopia's lowlands are arid or semi-arid and Shapiro, B. et al. (2017) estimate that 60 million ha of rangelands are grazed in Ethiopia and that livestock consume 120% of the annual forage production in average weather years. The forage deficits are higher in drought years and have been aggravated by increasing livestock populations. As a result, livestock productivity per animal has declined.

Rettberg, S. et al. (2017) report that most of the rangeland in Ethiopia is already degraded and has sparse vegetation. Herders in arid and semi-arid areas have traditionally moved livestock to deal with droughts. However, the ability to move livestock to different areas is diminishing and there is a pressing need to develop other approaches to reduce animal mortality rates and support production during droughts. The Government of Ethiopia has encouraged voluntary settlement of pastoralists and communal rangelands are being increasingly enclosed and privatized. As a result, the future productivity of livestock and crop production in the Ethiopian lowlands is highly vulnerable to land degradation from overgrazing, as well as from climate variability and change (Ng'ang'a, S. et al., 2020).

A study done on the health of Hamar pastoralists shows that the biggest climate challenges they are facing are reductions in rangeland, erratic rainfall, recurrent droughts, and loss of seasonality (Samuel, L. et al., 2021). Communities are travelling greater distances to access sufficient grazing lands, and this is leading to livestock deaths and increased ethnic violence. Reductions in suitable rangeland are also resulting in disease outbreaks in animals due to increased mixing of different herds.

The reduction in livestock production and increased water scarcity, as well as uncertain crop harvests, are having impacts on the community's health. Reduced availability of animal milk, utilization of unsafe water

sources and seasonal shifts in climate-sensitive diseases such as malaria are among the many challenges they are facing (Samuel, L. et al., 2021).

Climate change could increase the relative importance of pastoralism versus sedentary crop and livestock farming in arid and semi-arid areas of Ethiopia since traditional cattle varieties grazed in Ethiopia may be better adapted to water and high temperature stresses than the imported varieties used in sedentary livestock production (Rettberg, S. et al., 2017). Improved production practices, such as restoration of degraded rangeland, rotation grazing and fodder cultivation, can reduce or mitigate the negative impacts of grazing livestock on rangelands (Ng'ang'a, S. et al., 2020) and can reduce the GHG emissions per unit of animal products by increasing yields per animal (Kashangaki, J. and Ericksen, P., 2018). Improved practices can also accelerate the production cycle and reduce livestock mortality and morbidity rates (Vétérinaires sans Frontières, 2018). However, if ruminant populations increase, total GHG emissions may increase even if the emissions per animal fall.

Improved livestock production practices can thus have positive and negative impacts on GHG emissions. The positive impacts (i.e., reduced emissions) occur because improvements in rangeland quality allow more carbon sequestration and storage in the soil, while the potential negative effects stem from increases in the ruminant livestock population, which increases enteric emissions of methane. Increases in livestock product yields per animal could reduce methane emissions by allowing farmers to reduce their herd size, particularly where intensive production methods make raising livestock expensive (Ng'ang'a, S. et al., 2020).

The impacts of climate change mentioned above affect men and women differently. There is a general understanding that since climate change has gender-differentiated impact, policies, programs, and interventions need to address these impacts in both mitigation and adaptation responses in order to make interventions sufficient, just, sustainable and avoid further increases in the existing gender gap (MoF, 2019).

A study by Tesfamichael, W. (2016) shows that although all rural Ethiopian households are vulnerable to climate change, the magnitude of the effect differs, and female-headed households are more vulnerable. In the study, on average, household income in female-headed households declined by 12.4% due to climate variability, while income declined by 5.7% in male-headed households. Given that the study exposed both types of households to the same level of climate shock, the effect was attributed to differences in endowments and adaptive capacity. It is expected, therefore, that female-headed households will become absolutely and relatively poorer as a result of climate variability.

Women and female-headed households are the most vulnerable, least prepared, and likely to be worst affected by climate change. Their limited access to, and control over, resources and information, and their limited input in decision-making processes, increases the vulnerability of many women to climate change (Aklilu, A. et al., 2013; Alebachew, A., 2011; Tesfamichael, W., 2016).

Securing food, water, and energy for the household, as well as maintaining overall household well-being, is the role of women in rural Ethiopia. As a result, extreme climate events such as droughts, floods and rising temperatures place greater pressures on women. Furthermore, during emergencies men are usually forced to migrate while women are left behind with children, assuming additional responsibilities without necessarily having the right skills and knowledge (MoANR, 2017). A study by Alebachew, A. (2011) shows that some men who leave their villages and wives behind sometimes do not continue to support their family and never return, as they establish new lives at their destinations. Migration can thus increase the level of malnutrition due to increased scarcity of food, leading to deteriorating health status of the communities left behind.

Women often engage in growing backyard gardens or purchasing, processing, and managing food and other natural resources, and are often also responsible for raising small ruminants; men are generally responsible for larger livestock and farming crops. In these contexts, responsibility for adaptation to climatic and broader environmental changes mainly falls on women's shoulders, including finding alternative ways to feed their household members (AU, 2012). This is more pronounced for female-headed households, where landholding sizes are smaller and there is limited means of using land due to labor shortages. A case study in different parts of the country reveals that the extent of involvement of female-headed households in weeding of major crops is 84%, while this proportion is 43% for women/wives in male-headed households (Leulseged, K. et al., 2015).

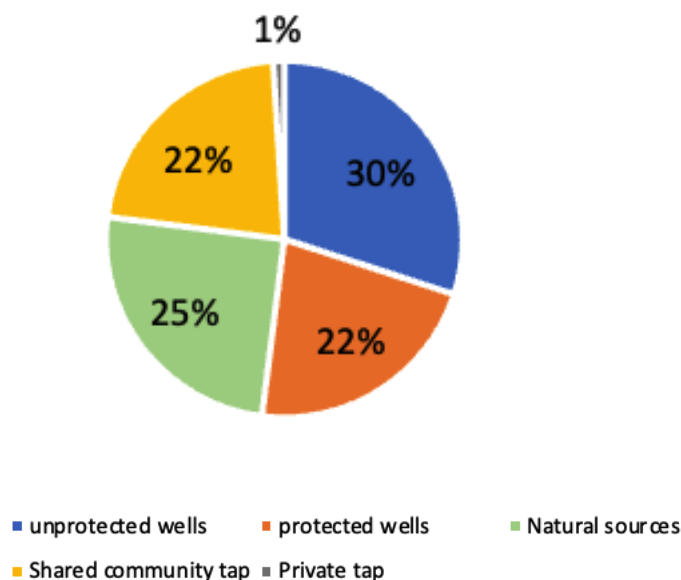
Adaptation preferences in male-headed households tend to focus on on-farm adaptation measures, such as cropping time adjustment, crop diversification, planting cash crops (such as khat and buckthorn) and soil conservation, while off-farm and non-farm diversification adaptation measures are preferred by female-headed households (Azeb, A. and Van Laerhoven, F., 2016). Male-headed household heads are more mobile and have fewer domestic responsibilities and can, therefore, rely on income from temporary labor migration during bad harvest times – which is usually not an option for female-headed household heads, as they are responsible for caring for the children, the elderly and the sick, as well as the cattle (Azeb, A. and Van Laerhoven, F., 2016, Aklilu, A. et al., 2013).

Increased water stress, increasing frequency and intensity of floods and deteriorating water quality are additional critical impacts of climate change. Women usually use water for domestic purposes while men usually use it for agriculture-related functions: women and men therefore often have different needs and priorities in terms of water use (Alebachew, A., 2011).

In drought-prone areas affected by desertification, for example, the time required for water collection increases as women and children (mostly girls) have to travel greater distances to find water (Azeb, A. and Van Laerhoven, F., 2016). As a result, they are forced to spend more hours fetching water, which significantly increases their workload and potentially exposes them to harassment, especially in areas and times of conflict. A study by Alebachew, A. (2011) shows that, on average, women work 14-17 hours each day and, during chronic drought and famine years, the daily work schedule may extend to 16-18 hours and beyond.

According to a time-use survey by CSA (2014), rural households in Ethiopia obtain water mostly from wells or from public/private taps outside their homes. Thirty percent of households obtain water from unprotected wells outside of the household; 22% from a protected well outside of the household; and 25% from natural sources (rivers, springs, etc.). About 22% obtain water from a shared / community tap, and less than 1% of households report having access to piped water on their own premises. Women and girls spend a significant amount of time collecting water. About 56% of rural households have to travel less than 1 hour to get water, while 37% have to travel between 1 and 2.5 hours, and the remaining have to travel even further to fetch water. Poor access to safe drinking water, coupled with illiteracy (73%) and water-borne disease prevalence, greatly influence the participation of girls and female in education, agricultural production, and other development activities (Getachew, D., 2016).

Fig. 4 Water sources in Ethiopia



Source: CSA, 2014

Therefore, easy access to water mostly benefits women and girls, as it reduces the burden of water collection that disproportionately falls on them and makes time available for education and economically productive activities. It also reduces the physical challenges they face (i.e., exposure to physical hardship, sexual and physical violence), when they travel long distances to fetch water (UN Women, 2014). Yet, achieving equity within and among rural communities remains challenging and can compromise the sustainability of groundwater use (Likimyelesh, N. et al., 2018).

An assessment made by a project implemented in Oromia and SNNPR that provided women and men farmers with water lifting technologies found that installing the technologies near households enabled multiple uses in addition to irrigation (Likimyelesh, N. et al., 2017). The assessment showed that both women and men found the technologies ease their work. However, men and women use the technologies for different purposes. While men use water from these technologies mainly for irrigation, women and children use water from these technologies for multiple purposes, including livestock watering and domestic use. For these reasons, a water-based project should give specific attention to gender-based needs and concerns to prevent reinforcing inequities in opportunities for water access and governance or social norms against women (World Bank, 2016b).

Access to resources, including information, affects the likelihood of technologies improving the livelihoods of farmers. Likimyelesh, N., et al. (2017) found that, in their study area, men have greater access to information and women are excluded from decision-making in groundwater development and management due to male dominance, cultural influence and women simply not being invited to meetings, as well as inability to participate due to their high domestic workload. Due to the same reasons, women are reluctant to participate in groundwater monitoring.

Therefore, projects must invest more effort in reaching and informing women, including understanding the times and locations convenient for women. Projects need to extend invitations to women directly for information-sharing events and meetings, and not rely on spouses or men in the community to inform women (Likimyelesh, N. et al., 2017). Even though it is now standard practice for development programs to be built upon 'gender mainstreaming' approaches, the result is often nothing more than a satisfied quota (e.g., a certain number of women in groups or on water management committees), rather than actual participation or influence in decision-making (Lefore, N. et al., 2017). Therefore, it is imperative that steps are taken to address the root causes of women's lack of participation, such as high demands on their time due to domestic responsibilities, and social norms that discriminate against them (Likimyelesh, N. et al., 2018). Unless interventions aimed at empowering rural women and strengthening their limited adaptive capacity and diversifying their narrow livelihoods and income sources are put in place, climatic variability and extreme events will damage food security and the well-being of smallholder farmers and pastoralists, with women bearing the brunt of the impact due to the responsibilities they hold in relation to food security and the well-being of households (AU, 2012).

The development of the Climate Resilient Green Economy (CRGE) Strategy in 2011 has provided a strong basis for climate-resilient development planning across sectors and levels of government in Ethiopia (FDRE, 2011; MoF, 2021a). In 2012, the Ethiopian government established the CRGE Facility as a financial mechanism to support the implementation of priorities identified by the CRGE Strategy (MoF, 2021a). Although studies indicate that the CRGE Strategy, as well as the Climate Resilient Strategies for Agriculture and Forest, and Transport, fail to explicitly address the gender dimension of climate change (Azeb, A and Van Laerhoven, F., 2019; MoF, 2019), recent efforts by the CRGE Facility have tried to ensure gender is taken into account in the implementation of programs and projects managed through the Facility (MoF, 2021b).

III. Gender and climate: institutional, legal and policy frameworks

Legal and policy frameworks

The Government of Ethiopia has demonstrated strong policy commitments to bringing about gender equality and women's empowerment, including in the socio-economic and political arenas. It has signed and domesticated several international and regional policies, development frameworks and conventions, including the Convention on the Elimination of all forms of Discrimination against Women (CEDAW), the Beijing Platform for Action, Agenda 2063, the 2030 Sustainable Development Goals (SDGs), the Maputo Protocol, the Maputo Plan of Action, and the Malabo Declaration.

Further, the Ethiopian Constitution guarantees equality before the law: equal rights to land, property, employment, maternity leave and pay, and equal rights between the male and female counterparts in marriage. Provision is also made for affirmative actions to address the historical legacy of discrimination.

The 1993 National Ethiopian Women's Policy and the 2006 National Action Plan for Gender Equality, accompanied by the National Women's Development and Change Strategy and Package, have served to mainstream women's issues in the country's social, economic, and political affairs.

Furthermore, the Ten-Year Development Plan (2021-2030), which is the country's overarching development strategy, includes women's rights, representation, and access to resources as one of the key areas of focus under social sector development (NPC, 2021). Gender-responsive budgeting (GRB) is expected to be implemented across all sectoral ministries, guided by the National Gender-Responsive Budgeting Guideline developed by the Ministry of Finance.

The Women's Affairs Office was upgraded to a Ministry in 2005 and was restructured as the Ministry of Women and Social Affairs in 2021. Proclamation no 691/2010 expanded the Ministry's mandate to render comprehensive protection and promotion of women's rights and to coordinate the efforts of the Women's Affairs Directorates (WADs) established in the sectoral ministries (MoF, 2019).

In a similar manner, several legislative and policy frameworks have been established to provide directions on how climate change effects can be eradicated or at least reduced. The frameworks range from stand-alone climate change mitigation and adaptation processes to the mainstreaming of climate change into decision-making processes at a national level. Relevant policy instruments are presented below.

National Policy on Ethiopian Women, 1993

The policy outlines the major economic, social, and political concerns of Ethiopian women and indicates broad strategies and interventions (Transitional Government of Ethiopia, 1993). Since then, major programs have been designed to be gender-sensitive or to have gender components, and women's affairs have been given attention with the establishment of an office that eventually grew to the status of a ministry (Amdissa, T., 2018).

The Revised Family Code, 2000

The earlier Family Code granted permission to married women to control assets or pursue a profession, but it failed to offer protection to unmarried or widowed women. The 2000 Revised Family Code better protects women by granting equal rights to spouses during the duration, conclusion, and dissolution of marriage, requiring equal asset division between the husband and wife upon divorce (FDRE, 2000).

In an attempt to improve women's ability to earn, work and thrive outside of the home, the 2000 Revised Family Code changed the legal age of marriage to 18. A study in 2013 showed that, by 2005, five regions and two charter cities had implemented this change. The increased marriage age helped improve participation in the labor market, particularly for young women. In the five regions, labor force participation rose by 15-24% more than regions that had not yet implemented the change (Hallward-Driemeier, M. and Gajigo, O., 2013).

Water Resources Management Proclamation, 2000

The Ethiopian Water Resources Management Proclamation (WRMP) is the main living policy governing the water resources sector. The theme of the WRMP revolves around the sustainability and equitability of water uses; and crossing-cutting issues in general. The WRMP indicates that management of water supply and sanitation services is to be at the lowest and most efficient level of institutional set-up, which provides for the full participation of the users for effective decision-making (FDRE, 2000). The main constraint surrounding the water resource is its uneven spatial and temporal occurrence and distribution among the major river basins. 80-90% of the water resource is found in four river basins; namely, Abbay (Blue Nile), Tekeze, Baro-Akobo and Omo-Gibe in the north-western and south-western parts of Ethiopia, where just 30-40% of the national population is found (Israel K, and Merkinah M, 2020).

The Ethiopian Water Resources Management Policy and Water Sector Strategy, 2001

The Policy (MoWR 2001a) has a section on gender issues which aims to “promote the full involvement of women in planning, implementation, decision making and training, as well as empower them to play a leading role in self-reliance initiatives.” The Strategy (MoWR 2001b) emphasizes gender mainstreaming with the aim to:

- Pay special attention to the role of women while establishing community-based structures for the management of localized water supply and sanitation (WSS) and small-scale irrigation systems. Allocate a specific number of seats for women in these community-based structures, depending upon the nature and size of the scheme.
- Enhance the active involvement of women for the success of water projects and programs, and for the sustainable services of water schemes. Launch campaigns to encourage women to contribute to improved management of water schemes.
- Take steps to relieve women from the huge burden of fetching and carrying water for the family by empowering them in decision-making in water projects.

Land Registration Act, (FDRE, 2003)

The Act sought to grant equal inheritance and property rights to women. It facilitated land registration of households, accompanied by a low cost of issuing certificates. To ensure transparency, land certificates were issued after public registration. Furthermore, the Ethiopian land certification scheme required that land administration committees at the *kebele* level, the smallest administrative unit in Ethiopia, include at least one female member (Holden et al., 2011). The presence of female members in the land administration committees encouraged female-headed households to participate in land certification. Overall, Ethiopia's land registration process increased tenure security for women (World Bank, 2019a). A study across 15 villages in Ethiopia found that, combined with the Family Code revisions, the 2003 Land Registration Act shifted perceptions and social norms related to the division of assets upon divorce (World Bank, 2019a).

Climate Resilient Green Economy (CRGE) Strategy, 2011

The CRGE Strategy integrates climate change adaptation and mitigation, and resilience-building measures, into the country's development planning objectives. It has recognized agriculture, health, water and energy, buildings, and transportation as the most vulnerable sectors to climate change (FDRE, 2011). More than 150 potential green growth opportunities were identified, of which 60 were prioritized for inclusion.

Studies show that the CRGE Strategy is weak in terms of identifying gender equality issues and in elaborating the challenges to women relevant to the different identified priority sectors. The only initiative that mentions the potential positive impact on women is the Rural Energy and Efficient Stoves Initiative, where the potential to contribute to gender equality is indicated without any specific detail (MoF, 2019).

Despite the Strategy recognizing the effects of climate change on people's livelihoods and social well-being in its vision statement, it is silent on the differential impact of climate change on men and women. The Strategy provides no explanation for how the gendered nature of climate change problems and their solutions can be addressed (Azeb, A and Van Laerhoven, F., 2019).

Following the creation of the CRGE Facility in 2012 and the development of sector climate-resilient strategies in 2015, the Facility has recognized the need to have deeper gender integration across different

priority sectors, the institutional architecture and program implementation, and has taken some steps towards this in recent years (MoF, 2021a).

Climate-Resilient Strategy for Agriculture and Forestry, (FDRE, 2015a)

The Climate-Resilient Strategy for Agriculture and Forestry sets out to ensure climate-resilient economic growth in Ethiopia. It focuses on three sub-sectors identified as being the most vulnerable to the impacts of climate: crops, livestock, and forestry.

As indicated in previous sections, agriculture is a sector where the role of women is very significant and there is, therefore, a need to identify potentials for equitable participation and benefit from investments geared towards mitigation and adaptation. However, a review undertaken in 2017 shows that the Strategy rarely mentions the terms gender, women, or females, and where it mentions any of these terms hardly any explanation is provided on what the gender- and climate-related challenges, impacts and pursuant actions should be. In the instances where the terms are used, it portrays women as being impacted by climate change but without articulating specific mechanisms to address their vulnerability (Azeb, A. and Van Laerhoven, F., 2019).

Further, the Strategy identifies 41 adaptation options, which are further categorized under nine themes. One of these themes is social protection for high-priority groups, including women and children. However, the remaining themes (capacity building and institutional coordination, information and awareness, crop and water management on farms, livestock, value chains and market development, sustainable agriculture and land management, natural resources conservation and management, disaster risk reduction) include no references to gender and women's issue.

Climate-Resilient Strategy for Water and Energy, (FDRE, 2015b)

The Climate Resilient Strategy for Water and Energy aims at economic growth and poverty reduction by analyzing the economic and social impacts of current climate variability. It takes preventive measures for the impacts of future climate change in the water and energy sectors to build climate resilience in Ethiopia.

A review of the Strategy indicates that the Strategy includes few references to the impact of climate change on women. For instance, even though there is an overall statement that identifies the positive contribution of improved access to water on women's lives, no detailed information is provided to understand what will be done and how the changes will come about. Further, the vulnerability assessment does not consider gendered power relations, institutions, or other socio-economic drivers. Of the 11 identified strategic priorities, only one (the development of the gender action plan) reflects women's issues (MoF, 2019).

On a positive note, the Strategy does recognize a few gender issues, including the impacts of lack of access to modern energy services on women's workloads, their participation in productive activities such as education and employment, their health and lack of access to clean water and sanitation. Moreover, although it has yet to materialize, the Strategy has committed to developing a gender action plan (MoF, 2019).

Climate-Resilient Strategy for Transport, (FDRE, 2015c)

The Climate-Resilient Strategy for Transport sets the framework to deliver an integrated, modern transport system with a focus on multi-modal transportation and good customer service. A review by MoF (2019) indicates that this Strategy is completely gender-blind with regard to its contents.

Gender Equality Strategy for the Agriculture Sector (MoANR, 2017)

The Strategy recognizes the limitations of female farmers and proposes to address these through capacity building of staff on gender-sensitive planning, programming, and service delivery. It also emphasizes the need to support the revision and implementation of land-related policies and to strengthen institutional structures and systems in Ethiopia to increase the profitability and productivity of women in the agriculture sector. Meaningful participation of women in decision-making and partnership with other relevant ministries to promote gender equality are also among its strategic objectives.

Women's Development and Change Package and Strategy (MoWCA, 2017a,b)

The Women's Development and Change Package recognizes that female farmers have limited access to extension services and highlights services that should benefit women, including input use, labor-saving technologies, participation in horticulture, nutrition-dense crop production, irrigation soil management and agro-processing.

The Women's Development and Change Strategy lists a set of interventions related to ownership, access, and use of land. Among these are: encouraging sharecropping where women lack the required labor to cultivate their land, ensuring women obtain fair sharecropping agreements, assigning plots to landless women, and making women aware of their land ownership rights.

Ethiopia's National Adaptation Plan (NAP-ETH), 2019

NAP-ETH is a key element of the country's response to climate change, under the framework of the CRGE Strategy. Ethiopia's NAP was developed in 2017-2018 with the goal of reducing vulnerability to climate change by building adaptive capacity and resilience (FDRE, 2019). A detailed gender analysis to inform the implementation of the Plan with a better understanding of gender issues – as they relate to vulnerability and adaptation to climate change – was commissioned in 2019. The analysis identified three main issues that need to be considered in the implementation of the NAP-ETH: (i) gender differences in adaptation needs, opportunities, and capacities; (ii) equitable participation and influence in adaptation decision-making processes; and (iii) equitable access to financial resources and other benefits resulting from adaptation investments. The document further elaborates on actions to be taken to address these issues, with the aim of providing a roadmap to integrate gender considerations into the implementation of the NAP-ETH (FDRE, 2019). The NAP implementation roadmap was developed in 2020 and identifies 5 implementation strategies which focus on agriculture and water; natural resources management; health, livelihoods, and social protection; climate services and adaptation technologies; and infrastructure. Each strategy identifies adaptation options with corresponding key activities and gender considerations (FDRE, 2020).

Gender Mainstreaming Strategy 2020-2023, CRGE Facility

The CRGE Facility has developed a Gender Mainstreaming Strategy to address gender gaps and opportunities relating to its climate finance mandate. The overall goal of the Strategy is to enable vulnerable women and men, young girls, and boys to improve their livelihoods, to raise their incomes and strengthen their resilience to climate change. The Strategy aims to achieve this by creating equitable and fair opportunities for men and women to support a paradigm shift to low-emission and climate-resilient development. The Strategy has four strategic outcomes, with associated outputs and activities, as well as a gender implementation plan to ensure its implementation and monitoring and evaluation. The strategic outcomes identified are:

1. Strengthened policies, institutions, and processes within the CRGE Facility and Executing Entities on the promotion of gender equality.
2. Enhanced gender mainstreaming capacities and strategy delivery within the CRGE Facility and Executing Entities.
3. Increased design of gender-responsive projects and programs in the CRGE Facility.
4. Increased participation of women in climate action decision-making.

The Strategy builds upon the findings and recommendations of the Gender Framework developed for the Facility in 2019, a scoping study conducted in 2019, the National Women's Policy and the Green Climate Fund (GCF) Gender Policy and Action Plan. It is an important first step, one that will enhance institutional capacity to address gender concerns in the climate change space. It is expected to strengthen key interventions that tackle structural changes that accelerate gender equality and inclusion in the core operations of the CRGE Facility and its implementing and executing partners at various levels (MoF, 2020).

Updated Nationally Determined Contribution (NDC), 2021

The updated NDC builds on the initial NDC submitted in 2015. The updated NDC includes updated greenhouse gas emission projections and is aligned with the national Ten-Year Development Plan. In the updated NDC, Ethiopia commits to increased mitigation: to reduce economy-wide emissions by at least

68.8% by 2030 against the business-as-usual projection. The NDC also specifies 40 adaptation interventions (FDRE, 2021).

A gender analysis undertaken on the updated NDC shows that there are neither gender-specific intervention areas nor gender-disaggregated results and indicators to ensure gender mainstreaming in the mitigation interventions. Although there is improvement in the updated adaptation actions, the analysis indicates that, of 66 performance indicators tracking the performance of adaptation interventions, only 4 are gender disaggregated. The analysis acknowledges that areas identified for GHG emission reductions, particularly in agriculture, forest, and natural resources, have immense potential for gender inclusion; however, very few gender-specific interventions are included.

The analysis concludes that there is a lot to be done during the preparation of detailed implementation plans at the sector levels. It also proposes that gender equity funding in the sectors should focus on specific objectives rather than general mainstreaming activities, which usually do not result in tangible outcomes. Financing being a key driver of effective implementation of gender-responsive adaptation and mitigation interventions, the analysis calls for an earmarked budget to implement gender-responsive activities (Bedaso, T., 2021) .

The Ten-Year Development Plan (2020/21 – 2030/31)

Ethiopia's 10-year Development Plan sets the government development mission from 2020/21-2030/2031. In the social development plan section, the document affirms that due attention will be given to women's rights, representation and equitable access and ownership to resources. This includes completely addressing the 44% gender gap in wages, giving land ownership right for 59.7% of women among those who do not currently have ownership rights and increasing the proportion of women who have access to loans from the current 33% to 55%. The Plan also has a section on realizing a climate-resilient green economy through development and conservation of the environment, forest, wildlife, and biodiversity (Plan and Development Commission, 2021).

Institutional Arrangements

The 2001 water sector strategy puts provision for the promotion of establishment of water users' association and irrigation cooperatives at local levels, while promoting the role of women in these community-based structures. These structures are meant to make independent informed choices in the water supply and sanitation management.

The establishment of the Ministry of Women's Affairs in 2005, with structures at regional, woreda and sector department levels, indicates the government's commitment to gender equality. The Ministry is charged with the responsibility of overseeing and coordinating the work of sectoral ministries in their efforts to address gender issues (JICA, 2006). Since its inception, it has facilitated the development of various policies, including the Women's Development and Change Package, that identify gender issues relevant to climate change response interventions. The Ministry has been given different names over the years and, in 2021, it was restructured as the Ministry of Women and Social Affairs.

A number of reports on the integration of gender and climate change shows that there has been limited success in collaboration of the different sectors. In 2012, it was found that the Women's Affairs Departments within sectors were not actively contributing towards integration of gender in the context of the CRGE Framework, mainly due to their limited human and financial capacity, inadequacy of resourcing and their limited integration into decision-making and planning processes (AU, 2012).

A more recent study (2017) showed that the involvement of the Women's Affairs Departments in policy/program development was weak, and their participation was reported as "just a formality" (Azeb, A. and Van Laerhoven, F., 2019). Within the Ministry of Agriculture, where a gender mainstreaming manual was developed, at the zone and wereda levels (where actual implementation takes place) the assigned gender focal persons were found to have no or very limited knowledge of gender issues (Azeb, A. and Van Laerhoven, F., 2019).

A scoping study conducted in 2020 on the Climate and Gender Directorates of the Ministry of Finance and the Environment, Forest and Climate Change Commission concluded that there is consensus amongst stakeholders that gender-responsive climate change policy and program are vital for addressing climate change issues. However, the understanding of which gender issues need to be incorporated into the day-to-day operations of these departments, and how, varies across and within the consulted offices and officials, indicating the need to create a common understanding. Moreover, despite the interest in integrating gender within the climate change sector, a lack of institutionalization has severely deterred gender-responsive planning and implementation of program, accountability and monitoring, intra- and inter-sectoral coordination, and gender-equal decision-making on climate change issues (Mulugeta, M. and Lealem, M., 2020).

In December 2020, the CRGE Facility and the then Ministry of Women, Children and Youth (MoWCY) launched the National Community of Practice for Gender Equality and Social Inclusion in Climate Change. It was agreed that the Women's Affairs Directorates of the Ministry of Finance and the Environment, Forest and Climate Change Commission would serve as the co-chairs of the community of practice (COP), while MoWCY would provide overall guidance. Members include sector ministries, non-governmental organizations, development partners and academia. In 2021, the first meeting of the COP was held, in which relevant sectoral experts worked on and approved the terms of reference and the 2021/2022 workplan. The specific objectives of the COP are to inform strategic decision-making; plan harmonized and aligned investment programming, capacity development and implementation; advocacy and resource mobilization; and monitoring, evaluation, reporting and knowledge management (MoF, 2021b).

IV. Key Gender and Climate Change Issues at Project Sites

The project aims to sustainably extract groundwater from deep aquifers for agricultural production and drinking and increase the local communities' adaptive capacity. The two climate-vulnerable project sites identified are:

- The Amhara region's Raya-Kobo Girana Valley (for agricultural production); and
- The southern rangelands in Oromia region's Borana zone (for agricultural production and drinking water).

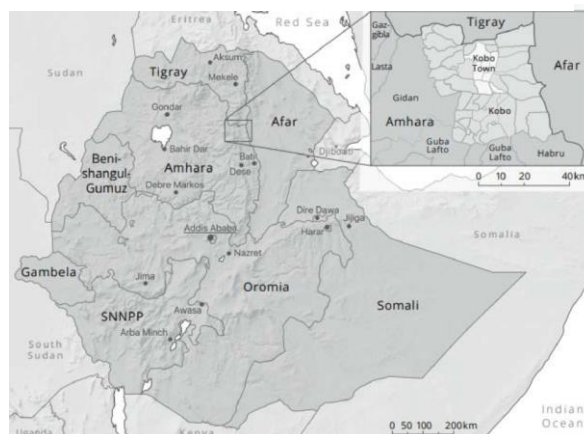
Raya-Kobo Girana Valley, Amhara Region

Background

The Amhara region is situated in the northwestern and north central part of Ethiopia. It is one of the four largest regions, with a population of 21.1 million. 84% of the population live in rural areas and are engaged in agriculture (UNICEF, 2018). Crops that are grown in the region include teff, barely, wheat, oil seeds, sorghum, maize, oats, beans, and peas (UNICEF, 2019a). Large number of livestock, 8,314,200 (27.9% of the national total), are found in the region (USAID, 2000). The region has various water resources, including Lake Tana, and several rivers that provide great potential for irrigation development (UNICEF, 2019a).

Although there has been consistent decline in monetary poverty, largely due to agricultural growth and benefits from program such as the Productive Safety Net, there is still a lot to be done to meet the SDG targets for the region. Over one-quarter (26%) of the population live below the national poverty line (the SDG target being 13%) and almost one-third (31%) live below the food poverty line (SDG target 16%).

Fig 5: Location map of Amhara region and Kobo-Girana Valley



Source: Gebreves, M. and Müller-Mahn, D., 2019.

The median age of 16.2 years for first marriage among women aged 20-49 years is the lowest in the country. The rationale of child marriage in the region relates to the belief that marriage reduces the risk that daughters engage in pre-marital sex, exposing them to sexually transmitted diseases and pregnancy while unmarried, which would lead to family disgrace and social stigmatization (UNICEF, 2019a).

As in most other regions of Ethiopia, Amhara women and girls are traditionally labelled as nurturers and caregivers; thus, childcare responsibilities often fall exclusively on them. 83% of first marriages are decided by parents and 64% of women stop attending school after marriage, with the main reason being that they are too busy with family life (UNICEF, 2019a).

As in other regions, Amhara women are often denied their share of inheritance when their parents or husbands die. It is also common for women to be excluded from decisions on common property in marriage and to be denied their due share during a divorce (UNICEF, 2019a).

Gender-based violence is high in Amhara region, with women aged 15-49 reporting psychological (26%), physical (22%) and sexual (10%) violence. Further, 65% of women and 46% of men believe that a husband is justified in hitting or beating his wife in various circumstances (UNICEF, 2019a).

The climate in Amhara region is affected significantly by weather variations: farmers face droughts, frost, hailstorms, flooding, and landslides. Localized flooding of fields by rainfall run-off is a frequent problem. It was estimated that more than 100,000 people were at risk of flooding and more than 25,000 people were likely displaced in 2018 (UNICEF, 2019a).

According to the 2016 Ethiopia Demographic and Health Survey (EDHS), 64% of households use improved drinking water sources in the region, with only about 17% of water sources being piped. The Ethiopia Socioeconomic Survey (ESS) 2017 shows that 37% of households spend 30 minutes or more reaching the nearest water source, fetching water, and returning to their dwelling. As in other parts of the country, women and girls are mainly responsible for fetching water. The availability and sufficiency of drinking water is 82% and 75%, respectively.

A study on gender mainstreaming in selected sectors in the Amhara region shows that, despite the existence of legal and policy frameworks, in practice gender mainstreaming is not being implemented. It is also not taken into consideration in the region's plans, implementation, monitoring and evaluation and budgeting. Therefore, more work is needed to see changes on the ground (Bishaw, A., 2015).

Raya-Kobo Girana Valley

Kobo-Girana valley is found in North Wello zone of Amhara region and has diverse agro-ecological zones. The valley consists of, on the one hand, dry and moist kola agro-ecological zones, which are characterized by relatively fertile alluvial soils, an erratic rainfall regime that is drought-prone, and frequent drought and crop failures. On the other hand, the highland and mid-altitude zones enjoy relatively abundant rainfall but suffer from heavy population pressure, land degradation and significant levels of poverty (FDRE, 2007).

The valley has a bimodal rainfall pattern. The short rainy season (the Belg season), which extends from March to May, is unreliable and only a small proportion of annual agricultural production is produced during this time. Production in this season accounts for 26% of the area farmed and 35% of rain-fed crop production. The production in this season is mainly in the highlands and mid-altitudes, with very few pocket areas in the lowlands. The main rainy season (the Kiremt season) extends from June to September. Rainfall volume and pattern is more reliable in this season, making it the principal agricultural production season. Production during this time accounts for 74% of the farmed area and 65% of annual rain-fed crop production. However, in recent years rainfall volume and pattern changes have been significant, with substantial impacts on agricultural production and livelihoods (FDRE, 2007).

The months extending from October to February are the dry season, characterized by no or little rainfall, high daily temperatures, and critical shortage of water, particularly in the lowland areas (FDRE, 2007).

In a survey undertaken in 2007, the average household size is about 4.9. Female-headed households tend to be smaller - the average family size of female-headed households is almost 80% of that of male-headed

households. The net annual population growth rate is estimated to be 3.5%, which means the population of the kebeles will most probably double in 20 years. The mean age at first marriage for females in the area is about 17 years while that of males is 24 years. In general, 58% of the total ever-married population is married at an age of less than 20 years (FDRE, 2007).

High population density has resulted in serious environmental degradation, as well as increasing number of land deficit households. In 2007, the number of people subsisting on a hectare of land was about 4.2. Traditional agriculture – crop and animal rearing – dependent on rainfall is the dominant livelihood strategy of the majority of the population in the area, making them vulnerable to climate shocks. Small-scale traditional and modern irrigation systems are practiced by more than 18,500 households. As a result of environmental degradation, changing patterns of rainfall, low level of input use and poor cultural practices, annual crop yields are very low. Irrigated crop production accounts for about 38% of annual cultivated land and 40% of total annual production. Most of the irrigation systems practiced by the majority of the households are traditional river diversions (70%) and, for a few households (30%), modern small-scale irrigation constructed by the government and various non-government organizations active in the area in the last 20 years. Irrigated crop production is only practiced once per year, mainly during the dry season extending from October to the end of March in most areas, with supplementary irrigation slowly starting in a few households (FDRE, 2007).

The problem of water management is critical in areas that are dependent on traditional river diversions. For those using modern small-scale irrigation, the major problems are lack of adequate technical expertise to manage pumps, water and supplementary logistics and materials, as well as lack of frequent maintenance of dilapidated hoses. In addition, oxen-dependent cropping systems, shortage of labor, lack of adequate and frequent capacity building and training for the farmers, and weak water users' associations and cooperatives are not only impediments to the productivity of irrigation systems but also serve as major constraints on the marketing and distribution of production in the project area (FDRE, 2007).

The main crops produced are cereals, pulses, oil seeds, vegetables, and fruit crops. Crop production is low-yielding and highly vulnerable to various natural and man-made risks. As a result, crop production is mainly subsistence-based, with no or small marketable surplus. However, irrigated crops are mostly sold in the market. Vegetables and fruits are produced in both seasons, using both rain and small-scale irrigation. Of the total area under horticultural crops (including sugarcane), 48% is under traditional and modern small-scale irrigation and the remaining 52% is produced under the rain-fed system. Vegetable production is rapidly increasing due to the expansion of drip irrigation and market opportunities (FDRE, 2007).

Farm practices such as intercropping, crop rotation and fallowing are not common. The shortage of land generally limits such fertility-improving practices. In the highlands, the average land holding per capita (cropped land) is less than 0.15 ha. In the mid-altitudes and lowland areas, crop rotation is practiced, although the proportion of land under rotation each year is very low – due, again, to the shortage of land, as well as the limited production of pulses (FDRE, 2007).

Although access to irrigation land is determined mainly by proximity of land holdings to irrigation water and facilities, significant disparities are evident in access to irrigation, training, and extension services. The majority of female heads do not use irrigation at all due to cumulative effects of inequalities such as lower access to productive assets that leads to less income, low decision making power and low access to basic services including literacy programs, education and health. Of the households that have ever used irrigation, only about 22% are female-headed (25% of the total female-headed households). Of these, only 41% have developed adequate experience to use irrigation, compared with two-thirds of male-headed households. The proportion of female heads who have received training in irrigation is half that of males. Of those females who have received training on irrigated agriculture, only 8% report that the training was adequate. In contrast, 92% of male heads report the training is adequate. In addition, only 20% of female heads have access to irrigation extension and support services, compared with 80% of male heads. Furthermore, the average holding of irrigated land is only less than 0.4 ha for female heads compared to 0.7 ha for males (FDRE, 2007).

Most women in the valley are engaged in family and household chores in addition to supporting agricultural activities such as weeding, harvesting, and transporting. In some parts of the highlands, women are also engaged in planting, ploughing, and threshing. Decisions on planting time, the sale of animals and crops and other matters that affect the household are predominantly made by males. However, this applies to married women; most divorced, separated, and widowed women are the decision-makers in their households. Equal decision-making is, however, common with regard to some issues, particularly migration of family members, marriage and schooling, and land acquisition and contracting and, sometimes, marketing of large animals such as oxen and cows (FDRE, 2007).

Although men and women have equal legal rights to their own productive assets, in reality women are at a disadvantage. Women usually have less land and fewer animals and tools and, as a result, produce less and earn less.

Although women and men have equal legal rights to inherit and possess land, the majority of female-headed households actually own smaller plots of land compared to male-headed households. Women in general own land when they are separated from their husbands either due to death, divorce, or permanent separation: very few of them own land through inheritance. The proportion of male-headed households with less than half hectare of land is, for example, 16%, whereas that of female-headed households is approximately 33%. In the category of more than two hectares, the proportion of male heads is more than 2.5 times than that of females. In addition to the relatively small plots of land they cultivate, women-headed households usually lack farm oxen, labor, and inputs. Furthermore, only about one-quarter of female heads own fertile land, while for males the proportion is about 37% (FDRE, 2007).

The effect of the shortage of farm oxen is more critical for the livelihoods of the female heads than those of males. Most of the female-headed households use sharecropping and contracting the land to cope with shortages of farm oxen and tools. These households usually suffer from low productivity, low cash incomes and food shortages. Only 25% of the female heads have two or more farm oxen (50% of males do so). The proportion of females with no oxen is also twice that of males (FDRE, 2007).

Female-headed households produce less than male-headed households. The average annual production of female-headed households is only 1,211 kg, compared to 2,080 kg for males. Female-headed households depend more on purchases from markets to fill their food gap. About one-third (30%) of their food needs is obtained through purchase from the market (cash saved, sale of animals, daily labor, etc.). For males, market purchases account for 24% of annual food consumption (FDRE, 2007).

The average cash income of female-headed households is only 1,656 ETB, 56% that of males. Over 91% of the income of the female-headed households is obtained from crop sales. Non-agricultural income accounts for less than 5% of their total cash income. Of their annual cash expenditure, about 94% is for immediate consumption purposes. Investment expenditure accounts for only 6%. For male-headed households, however, consumption and investment expenditure account for 87% and 13%, respectively (FDRE, 2007).

Although rural credit schemes are said to provide loans to the most vulnerable, only 23% of female-headed households report having access to rural credit in recent years. The proportion of male-headed households is 29%. Moreover, the average loan size for female-headed households is 71% that of male-headed households (FDRE, 2007).

The water supply coverage of urban and rural areas in the region is about 97% and 41%, respectively. The sources of potable water in the project area includes developed springs, and deep, shallow, and hand-dug wells. However, due to the inadequacy of these sources, a considerable number of residents also use river water and unprotected sources. Most protected water sources are found to be potable except protected springs, which are sometimes found not to be good due to high levels of salinity. Access to safe water has improved, but there is still a considerable demand gap and is one of the priority needs of the communities in the area. The majority of the protected and unprotected water sources (except tap water) are not adequate throughout the year. The lack of access to clean and adequate water is the cause of water-borne diseases in the area, which are the cause for over 50% of morbidity, especially for children under the age of five (FDRE, 2007).

The frequency of fetching water depends on the family size of the household. Over half of households fetch water two or more times a day and spend a minimum of two hours per day doing so. The burden of fetching water from different sources is the responsibility of the wife, followed by adult females and then girls. This has an adverse impact on the ability of girls to attend school and hinders women from effectively participating in income-generating activities (FDRE, 2007).

Considering this, the Kobo-Girana Valley Development Program (KGVDP), a government-led large-scale ground water-based irrigation program, has installed three water supply points in lowland villages of Raya-Kobo and Habru woredas.

About two-thirds of household members in the region are illiterate. The main reasons for illiteracy are the need for labor, lack of awareness, poverty, and shortage of access to school (primarily because it is too far away). Slowly, most cultural, and religious barriers and attitudes towards gender and education are changing and girls have almost equal access to education. As a result, about 34% of the female population is now literate. However, in terms of the average grade completed, over 50% of females complete up to grade four; with increasing grade level, the proportion of girls declines from 25% in grades 5-6 to 1.5% in grade 10 and above. The proportion of girls in grade 10 and above is almost 2.5 times less than that of boys (FDRE, 2007).

Though slowly changing, the role of girls and women is still mainly limited to household chores. Poverty, lack of access to water supply at close distances, early marriage, lack of access to technologies (improved stoves, grinding mills, energy sources, etc.) and lack of nearby secondary schools contribute not only to low school enrolment but also to high drop-out rates of girls. Girls from poor families and female-headed households have relatively lower access to education services (FDRE, 2007).

In times of stress, cultural norms affect women. Mothers and adult women usually eat after they feed their husbands and children, and hence cyclical and chronic food shortages and malnutrition affect women more than men. Maternal malnutrition has a synergistic effect on the family and the child. Women are more vulnerable to various diseases, which cause significant maternal mortality and still birth as well as pre-natal and post-natal complications. Only 46% of women visit health services during pregnancy – and, for female heads, it is only 34%. Furthermore, for the majority, delivery is done in their own home, with only 4% delivering at health facilities (FDRE, 2007).

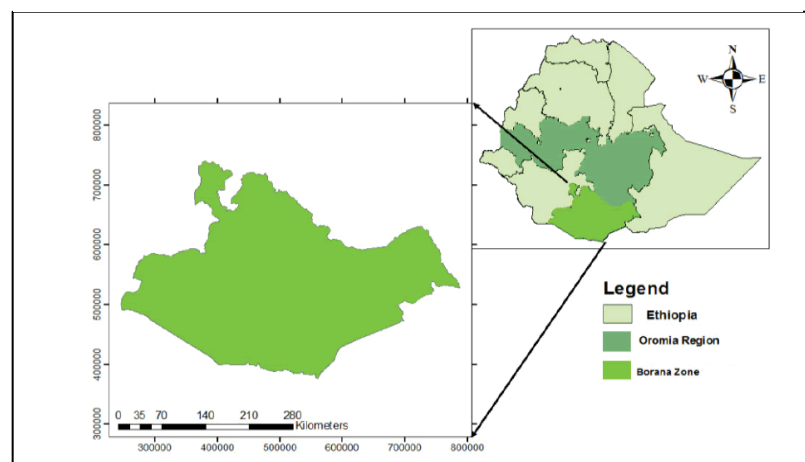
Conflict in the area where the KGVDP office is located has resulted in difficulty to access latest data for this gender assessment. Therefore, the scoping study that will be conducted at the beginning of the project will include a gender baseline assessment in the Raya-Kobo Girana Valley.

Borana Zone, Oromia Region

Background

Oromia is the largest region in Ethiopia, occupying approximately 34% of the land area and accounting for 37% of the population. The total population is over 37 million. Under-18s account for 54% of the population (CSA, 2017b). The fertility rate in Oromia is higher than the national average, with a total fertility rate of 5.4 compared to the national rate of 4.6 (CSA, 2016). The average household is also large, at 5.2 people per household compared to the national average of 4.8 people per household (CSA, 2017c).

Fig 6: Location map of Oromia region and Borana zone



Source: Godana, J. and Sisay D., 2021.

Oromia has a diverse range of agro-ecological zones. Sedentary rain-fed agriculture and livestock production dominates in the highland areas while the lowlands are characterized by pastoralist communities who depend on livestock production (UNICEF, 2019b). The region is divided into 20 administrative zones, with 84% of the population living in rural areas (CSA, 2019). Oromia has experienced high and sustainable economic growth, due primarily to growth in the agricultural sector; however, there are limited off-farm job opportunities in the region, especially for youth (UNICEF, 2019b).

Strong agricultural growth, positive results from the Productive Safety Net Program (PSNP), and implementation of pro-poor economic and social development policies and strategies have all contributed to an increased per capita income in the region (World Bank, 2015). The region succeeded in achieving a 16% decline in monetary poverty between 2004/05 and 2015/16 (FDRE, 2017). A poverty analysis study in 2015/16 found that the poverty headcount ratio in Oromia was 23.9%, just above the national average of 23.5 percent (FDRE, 2017).

Oromia region has the most repeated beneficiaries of relief food in Ethiopia, especially between 2016 and 2018 due to extreme droughts (UNOCHA, 2019). In 2022, the region had 792,686 internally displaced persons due to conflicts and climatic shocks (IOM, 2022).

The proportion of pregnant women who gave birth in the five years and who received antenatal care from a skilled health provider during their pregnancy is 71%, the fourth lowest rate in Ethiopia. Only 44% of births are assisted by a skilled attendant (doctor or midwife) and 56% of women give birth without any assistance during delivery.

There is high prevalence of malnutrition, with serious implications for social and economic development. In Oromia, 28% of child deaths are associated with under-nutrition (CSA, 2016), with 36% of children under 5 stunted, 5% wasted and 16% underweight (EPHI, 2019). Stunting is associated with low socio-economic status and mothers' educational attainment: the children of mothers with no education are more than two times more likely to be stunted than those whose mothers have completed secondary or higher education (EPHI, 2019).

The gross enrolment ratio (GER) and the net enrolment ratio (NER) for pre-primary education in Oromia are low (29.4% and 16.4%, respectively) and far below the national average of 40.7% and 23.9%, respectively. Only 46% of students complete the first cycle of primary education (grade 4) and the dropout rate in primary schools is 20%, higher than the national average of 17.5%. Some of the reasons for high dropout rates and grade repetition include demand for child labor by rural households, child marriage, abduction of girls, long distances to schools, internal migration due to climate change, drought, and conflicts (MoE, 2018).

About 17% of water sources in Oromia are piped and 63% of households use improved drinking water sources, marginally fewer than the national average of 65% (CSA, 2016). 28% of households spend more than 30 minutes bringing water to their houses compared with the national average of 32% - reflecting progress in water infrastructure and the availability of water sources. As elsewhere in the country, women and girls are mostly responsible for fetching water (UNICEF, 2017a).

Lack of water supply and proper facilities, as well as hygiene products in schools, are major challenges for girls, leading to girls missing (and some even dropping out of) school due to menstruation. 90% of schools never have water available and 100% of schools never have soap available. There is a clear need for a gender-inclusive approach to improving water supply, sanitation and hygiene infrastructure in schools, in order to address school absenteeism, performance and completion (UNICEF, 2017b).

Dependency on land and weather for agricultural and livestock production is a key vulnerability for many households in Oromia (World bank, 2015). Climatic shocks contribute to increased internal conflicts because of trans-boundary competition over resources, such as grazing land, arable land, and water (UNICEF, 2014).

There was an increase in the average median age of marriage in Oromia between 2000 and 2011; however, progress has since stagnated and currently stands at 17.4 years. There has also been a decline in child

marriage rates, from 58% in 1991 to 48% in 2016 – but still well above the national average of 40% (CSA, 2016).

In coming decades, rising temperatures, extraordinary rainfall events and more intense and prolonged droughts and floods are projected (World Bank, 2010). The high prevalence of poverty, high rates of malnutrition, high population growth and low climate adaptive capacities increase vulnerability to climate change (World Bank, 2010). Women and girls experience greater risks, burdens, and impacts of climate change, as emergencies exacerbate existing gender inequalities (CEDAW, 2018). During climate change-induced emergencies, formal and informal protection mechanisms break down and human rights abuses increase, resulting in increased gender-based violence that affects women and girls disproportionately (UNICEF, 2019b).

As in most other regions of Ethiopia, Oromia Regional State has a patriarchal society in which men hold primary power in private and public life. Women and girls have traditionally performed their roles in the domestic sphere, and these activities are often considered inferior. Women and girls are labelled nurturers and carers, with the result that childcare responsibilities often fall exclusively on them (UNICEF, 2019b).

In line with the national average, in Oromia 35% of women (aged 15-49) decide for themselves to marry, while parents make the decision for 61% (CSA, 2016).

Borana zone

Borana zone is located in the southern part of Oromia Region. The population of the project area is estimated at about 347,000, of whom 50.3% are male and 49.7% are female. There is a total of approximately 43,000 households, of which approximately 30,00 are male-headed and 13,000 are female-headed. Of the total population, only 11% live in urban areas, while 89% reside in rural areas. The average family size is about 5.6 (OWMEB, 2018).

The climate of the area is characterized as arid and semi-arid. The average annual temperature ranges from 14.5 to 31.7°C. Average annual rainfall ranges from 450-550 mm. There are two short rain seasons in a year for crop production and the growth of pasture for livestock: Ganna, March to May; and Birraa, September to October (OWMEB, 2018).

The topography is characterized by an expanse of flat lowlands and hills at certain intervals, with variation of ground elevations, which range from 1,100 up to 2,495 meters above sea-level (masl). Broadly, the area is divided into three main physiographic regions; namely, the eastern mountainous ridge and associated valleys, the central valley plain, and the western plateau (OWMEB, 2018).

The land-use patterns of Borana Zone consist of grazing land, built-up areas, protected forest land, shrub and bushland, marshy areas, cultivable land, waterbodies, and lava. Traditionally, land is communally held, used, and administered by clan chiefs in Borana society. All members of the society have equal access and rights to land and water in Borana Zone, with no gender, age, or social discrimination. However, there is now a gradual tendency towards individual land holdings and private pastureland, partly because of scarcity of resources and partly because of the desire to accumulate wealth (OWMEB, 2018).

The livelihood of the Borana people is based on agro-pastoral activities, which includes mostly animal husbandry and small crop production. Other supplementary off-farm activities, such as petty trades, sales of charcoal and firewood, and daily labor in towns, are also undertaken by some households (OWMEB, 2018).

Crop production is often constrained by poor soil fertility, unreliable rainfall, and termite infestation. The crops produced in small pockets include teff, maize, haricot bean, sorghum, and sugarcane. However, lack of rain and limited supply of inputs such as fertilizer and tractors further constrain crop production (OWMEB, 2018).

The Borana people have traditionally depended on livestock rearing. It is a source of cash, milk, and meat, as well as prestige. However, the number of livestock is declining due to scarcity of feed and water. Land degradation, genetic erosion, climate change and prevalent diseases are cited as key reasons for the increased scarcity of feed and water. The sales of livestock and their products at local markets constitute a significant portion of household income. However, reductions in weight of livestock and corresponding low market prices, weak market linkages and pastoral extension services are among the challenges the community is facing. As a result, many people in the semi-arid agro-climatic areas are temporarily or permanently in a state of food insecurity and depend on food aid (OWMEB, 2018).

The average monthly income of about 82% of the households in both urban and rural areas in the region is below Birr 3,000, while about 10% of households earn between Birr 3,000-5,000, and only about 6% of households earn over Birr 5,000 (OWMEB, 2018).

There is water shortage in the zone and is extreme in the low-lying areas, in terms of quantity, quality and access. In these areas, rainfall is irregular, and streams are rarely available – and, if present, are usually seasonal. As a result, individuals, and sometimes even all family members, often migrate or travel long distances to obtain water for their families and livestock. Communities share the same sources of water with livestock and wildlife because of tradition as well as scarcity (OWMEB, 2018).

As a coping mechanism for water scarcity and other external shocks, man-made traditional ponds, *Eela*, which are used as the major sources of water for both humans and livestock, are very common. As an additional coping mechanism, farmers often seasonally migrate from the south toward the north of the zone with their herds, where grazing is better. Both people and livestock spend long hours under tree or bush shades during intense ‘sun storms’ (OWMEB, 2018).

The existing sources of water include man-made water wells or ponds (*Eela*), groundwater harvesting, cisterns, unprotected springs, roof-water harvesting, unprotected wells, protected wells, and public taps. Of these water sources, ponds account for 49%, public taps 21% and unprotected springs 11%. Most of the sources have been developed by NGOs and the government, at different times, to supply water to the surrounding populations, including livestock. However, these water sources are few in number (21 deep wells, 21 hand dug wells and 6 developed springs) and have low capacity to serve the entire community. About 26.4% of the community has access to private and public tap, and protected wells and springs. 16.3% of the community use unprotected wells and springs, while 3.2% harvest rainwater. The remaining obtain their water from ponds and rivers. Many people – typically, women – walk at least 15 kilometers to obtain potable water. In addition, they pay up to 30 ETB /20 liters of water to local vendors in many localities (OWMEB, 2018).

In times of need, the Borana community migrate to other areas within the Borana zone, to the adjacent West-Guji zone and even beyond to the Southern Nations, Nationalities and Peoples Regional State. During drought and other climate shocks, migration in search of water for up to 40km (6 hours or more) is common. Women and girls are the most affected groups, and they have the highest share in search of water from long-distant sources (OWMEB, 2018).

Based on the responses collected during a 2018 survey, the daily amount of water consumed per household is in the range of 6-26 liters. Approximately half (52.7%) of households use between 6-10 liters per day, 15% use 12-20 liters and 2.3% use 25-26 liters. The mean average consumption is 10 liters per day (OWMEB, 2018). The WHO defines 5.3 liters/person/day as inadequate access with very high health concern (Howard G. et al., 2020).

Student enrollment and participation rates at primary and secondary schools are below 75%. The net enrollment rates at primary (65%) and secondary (15%) schools in Borana are lower than those at the national level, which are 97% and 25% for primary and secondary schools, respectively (OWMEB, 2018).

Borana zone has a total of 502 primary and secondary schools, 3 technical and vocational education and training (TVET) institutions and 1 university. In the primary and secondary schools, 53% of the students are male and 49% are female. However, in the TVETs and university the participation of female students is

low: 13% and 14%, respectively. Only 29% of the teachers in the entire education system are female (OWMEB, 2018).

The main reasons for the low enrollment and participation rates are demand for child labor, the distance of schools from residential areas, occasional conflicts, lack of school facilities (houses for students and teachers) and early marriage, along with low awareness of the importance of education (OWMEB, 2018).

In addition, no education institutions have permanent water supply services or sources. For example, Borana University uses truck-mounted tankers to supply water. A small number of schools try to collect rainwater with the support of NGOs operating in the area; however, their reservoirs are small and can only be used for urgent cases (OWMEB, 2018).

Both water-borne (diarrhea, cholera, typhoid, giardiasis, amebiasis) and vector-borne (malaria) diseases are prevalent in Borana. However, no health institutions have water supply and this needs to be addressed urgently for effective services, including child delivery and treatments (OWMEB, 2018).

Women spend more time on cooking food, cleaning houses, collecting firewood, fetching water and childcare, as well as buying and selling at local markets, whereas men spend more time on preparing farmland, tending livestock, construction of houses and road maintenance. Estimated daily average working hours for men are between 8-12 hours; for women, it is 12 hours or more. Although men also participate in household tasks, the extent of their support varies and depends on individual inclination. For example, whereas 79% of adult women state they have responsibility for fetching water, only 3% of adult males indicate that fetching water is their responsibility (OWMEB, 2018).

In rural areas, lack of time, lack of access to safe water, shortage of credit and saving services to establish small enterprises, and lack of experience in establishing small enterprises are the challenges cited by women. In urban areas, there are some experiences in participating within cooperatives and unions organized around agriculture and saving and credits. There is also potential for women participate in water users' associations and benefit from water supply projects (OWMEB, 2018).

V. Sexual Exploitation, Abuse and Harassment

The Government of Ethiopia through its Ministry of Women and Social Affairs (MoWSA) has drafted a Women Empowerment and Gender Equality policy which has provisions for Gender Based Violence. The policy is currently under review and once approved all public institutions including Ministry of Finance (MoF) are required to apply it.

The Ministry of Finance (MoF) has an employee code of conduct which states:

- Committing, attempting or facilitating conditions for sexual harassment, abuse, and/or violence, against a colleague or customer shall be penalized;
- Employees and heads shall not abuse their authorities and apply such authorities to get personal interests.

Further, in order to ensure Sexual Exploitation, Abuse and Harassment (SEAH) does not undermine the well-being of the communities and other stakeholders who will be involved in this project, guidelines are recommended to be in place. Specifically, the following potential risks are identified along with recommended mitigation actions:

1. Lack of awareness of what SEAH constitutes and how it needs to be addressed
Create awareness on prevention, handling and monitoring of SEAH in collaboration with MoWSA and its regional and woreda level offices. This will be done to all those involved at federal, region and woreda levels by having dedicated sessions during project implementation team meetings.

2. Risk of SEAH during project delivery including trainings, irrigation system placements etc.
- Put in place a screening process to identify project activities that might have high risk of SEAH.
 - Ensure any contracts to be signed between the project and partners (including project personnel) contain SEAH clauses.

3. Risk of violence against women within household due to increased women empowerment
- Have a dedicated SEAH sessions during community consultations including women-only consultations.
 - Ensure they are clear on who to contact (and how) in case of any incidence.

4. Lack of reporting system

- Develop a Grievance Redress Mechanism for the project and ensure all stakeholders are aware of it.
- Ensure the reporting mechanisms are simple and safe.
- Ensure all stakeholders including contracted partners, project staff, government counterparts are required to report suspected or actual SEAH cases.
- Establish a safeguarding team at the project management level at the beginning of the project.
- Assign SEAH focal point both within the communities, project staff and women and social affair offices at the woreda level who will assist in reporting cases to the safeguarding team; this will support smooth communication and provide a sense of security to community members.
- Make different channels are available for reporting including telephone, in-person, police, community elders etc.
- The safeguarding team to advise on how to resolve reported cases and refer it to the police if necessary.
- All SEAH reports will be kept confidential to protect those involved.

5. Lack of follow up and proper documentation

- As part of its project monitoring, the AE will monitor the proper follow up of reported cases and how they are being kept.
- Reported cases will be included in the project report.
- Lessons learned through this process will be documented and be used to improve the project processes as well as future projects and programs of the AE.

VI. Recommendations

This gender assessment and gender action plan is prepared based on information from the available literature and stakeholder consultation. For Kobo, consultation has indicated irrigation as the priority of the community while potable water and irrigation were identified for Borana. Based on the challenges identified and prioritized during the stakeholder consultation, the following actions are recommended to contribute towards the empowerment of women and female headed households.

1. Gender analysis and baseline setting

Carry out gender analysis and establish baseline within the first two quarters of project implementation. It is recommended that a team which comprises at least the region and woreda project officers, the region and woreda women and social affair experts and the CRGE Facility gender specialist be established to carry out and oversee the gender analysis. This team will design the gender analysis process including key actors to be consulted in the process. Community representatives, women association representatives, relevant regional and woreda level government and non-government institutions, and any other relevant stakeholder need to be engaged in the process. Consultations planned under 2.1.1 and 2.1.2 on the GAP will be used to share and gather relevant information. The outcome of the gender analysis will be used to update/adjust the GAP as needed. Changes that are recommended, if any, will be shared with the GCF.

2. Project Implementing Team – Gender expertise

The CRGE Facility gender specialist will support the project coordinators at the federal level and provide oversight and guidance to ensure the implementation of the gender action plan (GAP).

MILLs Programme Coordination team will include a gender expert. A representative from the women and social affairs directorate of the ministry will be assigned to support and follow up on the project delivery focusing on the gender action plan.

The project officers at the region and woreda level will work with sector bureau and offices including the women and social affairs departments to implement the project. The assigned gender experts will be responsible to follow up the day-to-day implementation of the project focusing on the GAP and will have a necessary budget to support the project.

3. Consultations

All project consultations should take into consideration the importance of inclusive participation (with at least 33% of women participation in the first year and reaching 50% in subsequent meetings). Consultations should present and discuss the project activities, gender action plan, SEAH, roles and responsibilities of various stakeholders and the progresses made and challenges faced. It should also be used as a platform to sensitize men and boys in gender issues and ways to support women and girls in their households. Any lesson learned through this process will inform the project implementation throughout the life of the project.

Led by woreda and region project officers, and the region and woreda gender office representatives, at least one women-only consultations (at least 35% of members of `coops are women) per year will be organized at the project sites for the first two years of project implementation. This will enable women not only to voice their needs, ideas and challenges freely but also helps them to fully understand what their roles, responsibilities and rights are as members of the different cooperatives, including what they can do and whom to contact in case of SEAH incidents.

4. Access to irrigation and potable water

water user groups should make sure that at least 35% of the members (with the aim of reaching 50% by the end of the project) and 33% of the executive committee are women. This could be female headed households or female in male headed households. This is to ensure, that women are part of the decision-making process and that irrigation activities include women priorities.

In Borana, where the project also focuses on potable water, at least 50% of the female headed households should be able to access water from the rehabilitated wells.

5. Training

The project should carry out needs assessment and provide a number of trainings to make sure implementing personnel as well as beneficiaries have the capacity to fully deliver and benefit from the project. The following trainings are proposed:

- Technical and leadership trainings should be organized for elected officers (irrigation and water user groups) based on capacity needs
- Financial Literacy training should be organized for cooperative officers with additional training for women officers and members.
- Trainings targeting women specific needs, based on capacity needs, should be delivered for women officers and members.
- Region Women and Social Affairs bureau in collaboration with the CRGE facility to provide guidance for project delivery personnel (including region and woreda officers and key federal, region, woreda and kebele government offices) on how to deliver the GAP and align with the GCF gender policy
- Increased participation of women in all vocational training programs for local technicians of the project (at least 35%)

6. Lessons / knowledge sharing

Gender results, challenges and gaps identified through the project implementation should be documented and shared to inform subsequent initiatives.

7. Grievance

There should be a safeguard desk/committee established for the project with both men and women as part of the team responsible for receiving grievances. The grievances should be recorded and reported.

8. Monitoring and evaluation

Project activity and M&E reports include sex disaggregated data and gender results are evaluated and reported.

VII. Conclusion

As captured in this gender assessment, in Ethiopia women are given the majority of household responsibilities, including provision of water supply, energy for cooking and heating, and food security, in addition to the substantial amount of time they are required to spend on farming and livestock rearing. These responsibilities are more demanding for female-headed households, which have less labor and assets at their disposal. As a result, rural women are more vulnerable to, and less able to adapt to, drought, uncertain rainfall, floods and many other climate-related hazards.

Despite their significant role in supporting their households and the community at large, evidence shows that women have long been marginalized in major decision-making processes and have been exposed to norms and practices that further disempower them from being active, self-sufficient members of society.

These conditions have contributed to women's generally low access to education, health services and workforce participation, as well as other key resources and services.

A number of actions, both at policy and on-the-ground levels, have been implemented by different actors to address these challenges. Although commendable successes have been recorded in different sectors, considering the dire situation rural women are in, much more needs to be done if women are to be equal contributors to the country's social, environmental, and economic development while equally benefiting from the gains of development.

The GCF project aims to contribute towards baseline efforts on the ground by identifying actions that will equally benefit women, especially in the context of access to drinking water and irrigating farmland in the project area.

VI. References

- Abera, K., Crespo, O., Seid, J. & Mequanent, F., 2018. Simulating the impact of climate change on maize production in Ethiopia, East Africa. *Environ. Syst. Res.* 7 (4). doi:10.1186/s40068-018-0107-z. <https://environmentalsystemsresearch.springeropen.com/articles/10.1186/s40068-018-0107-z>
- African Union (AU), 2012. African Gender, Climate Change and Agriculture Support Program (GCCASP), A program of the NEPAD Planning and Coordinating Agency (NPCA) of the African Union. Ethiopia Consultation Report. GeoSAS Consulting Service PLC, Addis Ababa, Ethiopia.
- Agajie, G. and Derese, T., 2011. Assessing the potential role of small-scale women food producers in a climate smart agricultural development in Ethiopia. The case of mixed farming systems in Amhara region. Oxfam America, Addis Ababa.
- Aklilu Amsalu, Desalegn Wana, Mesfin Kassa and Negash Teklu, 2013. Climate change impacts on Pastoral Women in Ethiopia: some evidence from the Southern lowlands, PHE Ethiopia Consortium. https://phe-ethiopia.org/pdf/Final_Brief_CC_women.pdf
- Alebachew Adem, 2011. Climate Change and Rural Livelihoods in Northern Ethiopia Impacts, Local Adaptation Strategies and Implications for Institutional Interventions, Forum for Social Studies (FSS), FSS Monograph No. 7. <https://www.fssethiopia.org/wp-content/uploads/2011/12/FSS-Monograph-No-7.pdf>
- Amdissa Teshome, 2018. How the Gender Equality Strategy for Ethiopia's Agriculture Sector can improve outcomes for all. Agriculture Knowledge, Learning Documentation and Policy (AKLDP) Project, Ethiopia Technical Brief. https://agri-learning-ethiopia.org/wp-content/uploads/2015/10/AKLDP_Gender_Technical-brief_-online.pdf
- Arbache, J.S, Kolev, A. and Filipiak, E., eds., 2010. "Gender Disparities in Africa's Labor Market." Washington, DC: World Bank.
- Asfaw, A., Simane, B., Hassen, A. & Bantider, A., 2018. Variability and time series trend analysis of rainfall and temperature in northcentral Ethiopia: a case study in Woleka sub-basin. *Weather Climate Extremes* 19, 29–41. doi:10.1016/j.wace.2017.12.002. <https://www.sciencedirect.com/science/article/pii/S2212094717300932?via%3Dihub>
- Azeb Assefa Mersha and Frank Van Laerhoven, 2016. A gender approach to understanding the differentiated impact of barriers to adaptation: responses to climate change in rural Ethiopia. *Regional Environment Change* 16, 1701-1713. <https://link.springer.com/article/10.1007/s10113-015-0921-z>
- Azeb Assefa Mersha and Frank Van Laerhoven, 2019. Gender and climate policy: a discursive institutional analysis of Ethiopia's climate resilient strategy. *Regional Environment Change* 19 (5). <https://link.springer.com/article/10.1007/s10113-018-1413-8>
- Bedaso Taye, 2021 Gender Analysis for Ethiopia's Updated Nationally Determined Contribution, Environment, Forest and Climate Change Commission and UNDP.
- Behrman, J.A., 2015. "The Effect of Increased Primary schooling on Adult Women's HIV Status in Malawi and Uganda: Universal Primary Education as a Natural Experiment." *Social Science & Medicine* 127: 108–15. <https://pubmed.ncbi.nlm.nih.gov/24985789/>
- Birara, H., Pandey, R. P. & Mishra, S. K., 2018. Trend and variability analysis of rainfall and temperature in the Tana basin region, Ethiopia. *J. Water Clim. Change* 9 (3), 555–569. jwc2018080, 10.2166/wcc.2018.080. <https://iwaponline.com/jwcc/article/9/3/555/38989/Trend-and-variability-analysis-of-rainfall-and>

- Bishaw, Alemayehu, 2015. Assessing Gender Mainstreaming to Ensure Gender Equity and Equality in Education, Social and Economic Sectors. The Case of Amhara Region, Ethiopia. CICE Hiroshima University, Journal of International Cooperation in Education, Vol.17 No.2 (2015) pp.37 - 54
<https://cice.hiroshima-u.ac.jp/wp-content/uploads/2016/03/17-2-4.pdf>
- Buehren, N. and Salisbury, T.V., 2017. "Female Enrollment in Male-Dominated Vocational Training Courses: Preferences and Prospects." Washington, DC: World Bank.
<https://openknowledge.worldbank.org/handle/10986/27481>
- Cech, E.A., 2013. "Ideological Wage Inequalities? The Technical/Social Dualism and the Gender Wage Gap in Engineering." Social Forces 91(4): 1147–1182.
<https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.862.7008&rep=rep1&type=pdf>
- Convention on the Elimination of all forms of Discrimination against Women (CEDAW), 2018. Committee, General recommendation No. 37 on the gender-related dimensions of disaster risk reduction in the context of climate change.
https://tbinternet.ohchr.org/Treaties/CEDAW/Shared%20Documents/1_Global/CEDAW_C_GC_37_8642_E.pdf
- Central Statistical Agency (CSA), 2014. Ethiopia time use survey 2013: How women and men spend their time. Addis Ababa, Ethiopia.
https://www.timeuse.org/sites/ctur/files/public/ctur_report/9414/ethiopian_time_use_survey_report_2014.pdf
- Central Statistical Agency (CSA), 2016. Ethiopia Demographic and Health Survey (EDHS), 2016.
<https://dhsprogram.com/pubs/pdf/FR328/FR328.pdf>
- Central Statistical Agency (CSA), 2017a. Mini demographic and health survey of 2016. Addis Ababa, Ethiopia.
<https://dhsprogram.com/pubs/pdf/FR328/FR328.pdf>
- Central Statistical Agency (CSA), 2017b. 2017 projection based on the 2007 Census; Central Statistical Agency.
- Central Statistical Agency (CSA), 2017c. Living Standards Measurement Study. Integrated Surveys on Agriculture, Ethiopia Socioeconomic Survey (ESS) 2015/16.
- Central Statistical Agency (CSA), 2019. 2019 projection based on the 2007 Census, Addis Ababa.
- Central Statistical Agency (CSA), 2020. Ethiopia Socioeconomic Survey (ESS) 2018/19. Addis Ababa, Ethiopia
- Central Intelligence Agency (CIA), 2021. World Factbook: Ethiopia <https://www.cia.gov/the-world-factbook/countries/ethiopia/>
- Clark, S., Koski, A., and Smith-Greenaway, E., 2017. "Recent Trends in Premarital Fertility across Sub-Saharan Africa." Studies in Family Planning 48(1): 3–22.
<https://onlinelibrary.wiley.com/doi/epdf/10.1111/sifp.12013>
- Crippa, M., Oreggioni, G., Guizzardi, D. Muntean, M., Schaaf, E., Lo Vullo, E., Solazzo, E., Monforti-Ferrario, F., Olivier, J.G.J., Vignati, E, 2019. Fossil CO2 and GHG emissions of all world countries. EUR 29849 EN, Publications Office of the European Union, Luxembourg, 2019, ISBN 978-92-76-11100-9, doi:10.2760/687800, JRC117610. <https://publications.jrc.ec.europa.eu/repository/handle/JRC117610>
- Desalew M.M. and Bhat, H. G., 2021. Climate change and its implications for rainfed agriculture in Ethiopia. Journal of Water and Climate Change. 12.4. <https://iwaponline.com/jwcc/article/12/4/1229/75872/Climate-change-and-its-implications-for-rainfed>

Ethiopian Public Health Institute (EPHI), 2021. Ministry of Health, and Central Statistical Agency, mini demographic, and health survey of 2019. Addis Ababa, Ethiopia
<https://www.dhsprogram.com/pubs/pdf/FR363/FR363.pdf>

Federal Democratic Republic of Ethiopia (FDRE), 2000. The Revised Family Code, Federal Negarit Gazette Extra Ordinary Issue No. 1/2000 The Revised Family Code Proclamation No. 213/2000.
<https://www.refworld.org/pdfid/4c0ccc052.pdf>

Federal Democratic Republic of Ethiopia (FDRE), 2000. Ethiopian Water Resources Management Proclamation, Federal Negarit Gazette No. 197/2000. <https://chilot.me/wp-content/uploads/2011/08/proc-no-197-2000-ethiopian-water-resources-management.pdf>

Federal Democratic Republic of Ethiopia (FDRE), 2003. Land Registration Act.

Federal Democratic Republic of Ethiopia (FDRE), 2007 Kobo-Girana Valley Development project, detailed design project, Volume V, Socioeconomics, Ministry of water resources

Federal Democratic Republic of Ethiopia (FDRE), 2011. Climate Resilient Green Economy (CRGE) Strategy, Green Economy Strategy, Addis Ababa.
https://www.mofed.gov.et/media/filer_public/9e/23/9e23b2bc-0f3f-4035-ac8a-f0009b5b704a/crge_strategy.pdf

Federal Democratic Republic of Ethiopia (FDRE), 2015a. Climate-Resilient Strategy for Agriculture and Forestry. https://www.mofed.gov.et/media/filer_public/7a/1d/7a1d4fcb-5c44-49f9-9abf-30e5bfcd7a10/agri-and-forestry_cr.pdf

Federal Democratic Republic of Ethiopia (FDRE), 2015b. Climate-Resilient Strategy for Water and Energy. https://www.mofed.gov.et/media/filer_public/05/cf/05cf1525-f484-4ff2-93dc-9ba0b8b7e060/water-and-energy_cr.pdf

Federal Democratic Republic of Ethiopia (FDRE), 2015c. Climate-Resilient Strategy for Transport. https://www.mofed.gov.et/media/filer_public/15/31/153174c3-b472-4339-b3bb-fb2c48cad629/transport_cr.pdf

Federal Democratic Republic of Ethiopia (FDRE), 2017. National Planning Commission, Ethiopia's Progress Towards Eradicating Poverty: An Interim Report on 2015/16 Poverty Analysis Study.

Federal Democratic Republic of Ethiopia (FDRE), 2019. Ethiopia's National Adaptation Plan (NAP-ETH). <https://www4.unfccc.int/sites/NAPC/Documents/Parties/NAP-ETH%20FINAL%20VERSION%20%20Mar%202019.pdf>

Federal Democratic Republic of Ethiopia (FDRE), 2020. National Adaptation Plan Implementation Roadmap, Environment, Forest, and Climate Change Commission. <https://napglobalnetwork.org/wp-content/uploads/2020/08/napgn-en-2020-Ethiopia-climate-resilient-green-economy-nap-roadmap.pdf>

Federal Democratic Republic of Ethiopia (FDRE), 2021. Updated Nationally Determined Contribution. https://unfccc.int/sites/default/files/NDC/2022-06/Ethiopia%27s%20updated%20NDC%20JULY%202021%20Submission_.pdf

Fikru, F., Dereje, H., Agizew, N., and Assef, M.M., 2018. Climate change impact on the hydrology of Tekeze basin, Ethiopia: Projection of rainfall-runoff for future water resources planning. Water conservation science and engineering. <https://doi.org/10.1007/s41101-018-0057-3>.

Fiwa, L., Vanuytrecht, E., Wiyo, K. & Raes, D., 2014. Effect of rainfall variability on the length of the crop growing period over the past three decades in central Malawi. Clim. Res. 62, 45–58. doi:10.3354/cr01263. <http://www.int-res.com/abstracts/cr/v62/n1/p45-58/>

Frost, M. and Rolleston, C., 2013. "Improving Education Quality, Equity and Access: A Report on Findings from the Young Lives School Survey (Round 1) in Ethiopia." Oxford, UK: Young Lives. https://ora.ox.ac.uk/objects/uuid:bc1ae7c0-7c7b-4a98-8c6a-aa1f6d2dbcf0/download_file?file_format=pdf&safe_filename=Young%2BLives%2BWorking%2BPaper%2B96&type_of_work=Working+paper

Gebrechorkos, S. H., Hülsmann, S. & Bernhofer, C., 2019. Longterm trends in rainfall and temperature using high-resolution climate datasets in East Africa. *Sci. Rep.* 9, 11376. doi:10. 1038/s41598-019-47933-8 <https://www.nature.com/articles/s41598-019-47933-8>

Gebreyes, M. and Müller-Mahn, D. 2019. Cultural political economy of irrigation management in northeastern Ethiopia: The case of the Kobo-Girana Valley Development Programme. *Water Alternatives* 12(3): 836-852. <https://www.water-alternatives.org/index.php/alldoc/articles/vol12/v12issue3/492-a12-3-1/file>

Getachew Demie, Mulugeta Bekele and Berhanu Seyoum, 2016. Water accessibility impact on girl and women's participation in education and other development activities: the case of Wuchale and Jidda Woreda, Ethiopia. *Environmental Systems Research* (2016) 5:11. <https://environmentalsystemsresearch.springeropen.com/articles/10.1186/s40068-016-0061-6>

Girvetz, E., Ramirez-Villegas, J., Claessens, L., Lamanna, C., Navarro-Racines, C., Nowak, A., Thornton, P. & Rosenstock, T. S., 2019. Future climate projections in Africa: where are we headed? In: *The Climate-Smart Agriculture Papers* (T. S. Rosenstock, A. Nowak & E. Girvetz, eds). Springer International Publishing, Cham, pp. 15–27. doi:10.1007/978- 3-319-92798-5_2. https://link.springer.com/chapter/10.1007%2F978-3-319-92798-5_2

Godana, Jatani Bonaya and Sisay Demeku Derib, 2021. Assessment of Indigenous Water Management System: A Case Study of Borana Community, Southern Ethiopia. *Civil Environ Eng* 11 (2021): 371 <https://www.hilarispublisher.com/open-access/assessment-of-indigenous-water-management-system-a-case-study-of-borana-community-southern-ethiopia-53524.html>

Hatfield, J.L. and Prueger, J.H., 2015. Temperature extremes: Effect on plant growth and development. *Weather and Climate Extremes*, Volume 10, Part A. <https://www.sciencedirect.com/science/article/pii/S2212094715300116>

Hallward-Driemeier, M., 2013. "Enterprising Women: Expanding Economic Opportunities in Africa." Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/13785>

Hallward-Driemeier, M and Gajigo. O., 2013. "Strengthening Economic Rights and Women's Occupational Choice: The Impact of Reforming Ethiopia's Family Law." Policy Research Working Paper 6695, World Bank. <https://documents1.worldbank.org/curated/en/259861468021600567/pdf/WPS6695.pdf>

Holden, S.T., Deininger, K. and Ghebru, H., 2011. "Tenure Insecurity, Gender, Low-Cost Land Certification and Land Rental Market Participation in Ethiopia." *Journal of Development Studies* 47: 31–47. <https://pdf.zlibcdn.com/dtoken/5ccf1fa23b9f4e7c031ba8ddae748668/00220381003706460.pdf>

Howard G, Bartam J, Williams A, Overbo A, Fuente D, Geere JA, 2020. Domestic water quantity, service level and health, second edition. Geneva: World Health Organization; License: CC BY-NC-SA 3.0 IGO. <https://www.who.int/publications/i/item/9789240015241>

International Organization for Migration (IOM), 2022. Ethiopia National Displacement Report 11. Site Assessment Round 28 & Village Assessment Survey Round 11: December 2021 — February 2022, Ethiopia. https://displacement.iom.int/sites/default/files/public/reports/DTM%20Ethiopia%20National%20Displacement%20Report%2011_Online.pdf

Israel K, and Merkinah M, 2020. Challenges, Experiences and Opportunities of Water Resource Management in Ethiopia. Journal of Resources Development and Management, ISSN 2422-8397. <https://iiste.org/Journals/index.php/JRDM/article/view/51360/53060>

JICA, 2006. Ethiopia: Country Gender Profile. Wabekbon Development Consultant PLC. Addis Ababa, Ethiopia. https://www.jica.go.jp/english/our_work/thematic_issues/gender/background/pdf/e06eth.pdf

Kashangaki John, and Ericksen Polly, 2018. Cost–benefit Analysis of Fodder Production as a Low Emissions Development Strategy for the Kenyan Dairy Sector. Nairobi: International Livestock Research Institute (ILRI). <https://cgspace.cgiar.org/bitstream/handle/10568/97426/LED%20investment%20plan%20final.pdf>

Lefore, N.; Weight, E.; Mukhamedova, N., 2017. Improving gender equity in irrigation: Application of a tool to promote learning and performance in Malawi and Uzbekistan. Colombo, Sri Lanka: International Water Management Institute (IWMI). CGIAR Research Program on Water, Land and Ecosystems (WLE). 31p. (WLE Research for Development (R4D) Learning Series 6). <https://cgspace.cgiar.org/bitstream/handle/10568/89017/WLE%20Research%20for%20Development%20Learning%20Series%206.pdf?sequence=5&isAllowed=y>

Leulseged K., Gashaw T., Abate, James W. Caitlin K., 2015. Patterns of Agricultural Production among Male and Women Holders: Evidence from Agricultural Sample Surveys in Ethiopia, International Food Policy Research Institute (IFPRI) Addis Ababa, Ethiopia. <https://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/129856/filename/130067.pdf>

Likimyelesh, N.; Barron, J.; Haile, A. T.; Lefore, N.; Gowing, J., 2018. Gender dimensions of community-based groundwater governance in Ethiopia: using citizen science as an entry point. Colombo, Sri Lanka: International Water Management Institute (IWMI). 24p. (IWMI Working Paper 184). doi:10.5337/2018.222. http://www.iwmi.cgiar.org/Publications/Working_Papers/working/wor184.pdf

Likimyelesh, N, Nicole L., Petra S., and Alan N., 2017. Gender and water technologies: Water lifting for irrigation and multiple purposes in Ethiopia. International Water Management Institute, East Africa and Nile Basin Office, Addis Ababa. International Livestock Research Institute (ILRI). https://cgspace.cgiar.org/bitstream/handle/10568/79989/AR_Ethiopia_gender_water_feb2017.pdf?sequence=1&isAllowed=y

Maharjan, K.L and Joshi, N.P., 2013. Climate Change, Agriculture and Rural Livelihoods in Developing Countries. Springer Tokyo.

Ministry of Agriculture and Natural Resource (MoANR), 2017. Gender Equality Strategy for Ethiopia's Agriculture Sector. <https://sdr-africa.com/serverspecific/sdr-africa/images/Image/Documents/ExtensionMaterialLibrary/2017AgrSectorGenderEqualitystrategyMoAETH.pdf>

Ministry of Education (MoE), 2008. "National Report on the Development and State of the Art of Adult Learning and Education (ALE)." Addis Ababa: Ethiopia. https://moja2.imgix.net/uploads/National-report-on-the-development-and-state-and-art-of-Adult-Learning-and-education-in-Ethiopia-2008_2021-03-09-100216.pdf

Ministry of Education (MoE), 2018. Education Statistics Annual Abstract (ESAA), 2010 E.C. (2017/18).

Ministry of Finance (MoF), CRGE Facility, 2019. Assessing Gender Issues for the CRGE Facility's Initiative and Develop Framework that Facilitate Gender Integration. CRGE Facility.

Ministry of Finance (MoF), CRGE Facility, 2020. Climate Resilient Green Economy Facility, Gender Mainstreaming Strategy, https://www.mofed.gov.et/media/filer_public/34/21/342166cd-bb00-4e0a-aa9d-ceb79137e12f/ethiopia_crge_gender_mainstreaming_strategy_final_doc.pdf

Ministry of Finance (MoF), CRGE Facility, 2021a. Gender Audit on Integration of Gender Equality Consideration in the Operations of the CRGE Facility

Ministry of Finance (MoF), CRGE Facility, 2021b. National Community of Practice for Gender Equality and Social Inclusion in Climate Change, first meeting report.

Ministry of Water Resources (MoWR), 2001a. Ethiopian water resources management policy. Addis Ababa, Ethiopia.

Ministry of Water Resources (MoWR), 2001b. Ethiopian water sector strategy. Addis Ababa, Ethiopia.

Ministry of Women, Children and Youth Affairs (MoWCYA), 2013. National Strategy and Action Plan on Harmful Traditional Practices (HTPs) against Women and Children in Ethiopia. http://www.africanchildforum.org/clr/policy%20per%20country/2018%20Update/Ethiopia/ethiopia_http_2013_en.pdf

Ministry of Women and Children Affairs (MoWCA), 2017a. Women Development and Change Package.

Ministry of Women and Children Affairs (MoWCA), 2017b. Women Development and Change Strategy.

Mukasa, A.N., Simpasa, A.M., and Salami, A.O., 2017. "Credit Constraints and Farm Productivity: Microlevel Evidence from Smallholder Farmers in Ethiopia." ADB Working Paper Series No. 247. Abidjan, Côte d'Ivoire: African Development Bank. https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/WPS_No_247_Credit_constraints_and_farm_productivity_in_Ethiopia.pdf

Mulugeta M. Ayalew and Lealem Mersha, 2020. ETHIOPIA'S RESPONSE TO CLIMATE CHANGE AND GENDER – scoping report. Climate and Development Knowledge Network (CDKN). <https://cdkn.org/sites/default/files/files/Jun-20-Scoping-Report-Ethiopias-Response-to-Climate-Change-and-Gender-Final-1-2.pdf>

Ng'ang'a, Stanley; Gordon Smith; Chris Mwungu; Sintayehu Alemayehu; Evan Girvetz; and Eric Hyman., 2020. Cost-Benefit Analysis of Improved Livestock Management Practices in the Oromia Lowlands of Ethiopia. Washington, DC: Crown Agents USA and Abt Associates, with the International Center for Tropical Agriculture (CIAT), Prepared for USAID. https://pdf.usaid.gov/pdf_docs/PA00X1KT.pdf

O'Sullivan, M., Rao, A., Banerjee, R., Gulati, K., and Vinez, M., 2014. "Leveling the Field: Improving Opportunities for Women Farmers in Africa." Washington, DC: World Bank. <https://documents1.worldbank.org/curated/en/579161468007198488/pdf/860390WP0WB0ON0osure0date0March0180.pdf>

Oromia Water, Mineral and Energy Bureau (OWMEB), 2018. Gelchet-Sarite WSP Feasibility Study, Socioeconomic Study, Addis Ababa.

Paluck, E.L. and Ball, L., 2010. "Social Norms Marketing to Reduce Gender-Based Violence." IRC Policy Briefcase. <https://static1.squarespace.com/static/5186d08fe4b065e39b45b91e/t/52d1f24ce4b07fea759e4446/1389490764065/Paluck+Ball+IRC+Social+Norms+Marketing+Long.pdf>

Pankhurst, A., Crivello, G. and Tiemelissan, A., 2016. "Children's Work in Family and Community Contexts: Examples from Young Lives Ethiopia." Oxford, UK: Young Lives.

<https://assets.publishing.service.gov.uk/media/57a0895ce5274a31e0000036/YL-WP147-Childrens-work.pdf>

Plan and Development Commission, 2021. The Ten-Year Development Plan (2021 – 2031), Federal Democratic Republic of Ethiopia

Rettberg, S., Gabriele B., Margitta M., and Anja S., 2017. Ethiopia's Arid and Semi-Arid Lowlands: Towards Inclusive and Sustainable Rural Transformation. Berlin: Centre for Rural Development (SLE). <https://edoc.hu-berlin.de/bitstream/handle/18452/18671/03.pdf?sequence=1>

Rodrik, D., 2016. "The Return of Public Investment." <https://www.projectsyndicate.org/commentary/publicinfrastructureinvestment-sustained-growthby-dani-rodrik-2016-01>

Samuel Lumborg , Samuel Tefera , Barry Munslow and Siobhan M. Mor, 2021. Examining local perspectives on the influence of climate change on the health of Hamar pastoralists and their livestock in Ethiopia. Pastoralism: Research, Policy, and Practice. (2021) 11:10. <https://pastoralismjournal.springeropen.com/track/pdf/10.1186/s13570-021-00191-8.pdf>

Serdeczny, O., Adams, S., Baarsch, F., Coumou, D., Robinson, A., Hare, W., Schaeffer, M., Perrette, M. & Reinhardt, J., 2017. Climate change impacts in Sub-Saharan Africa: from physical changes to their social repercussions. Reg. Environ. Change 17, 1585–1600. Doi:10.1007/s10113-015-0910-2. <https://link.springer.com/article/10.1007%2Fs10113-015-0910-2>

Shapiro, B., Gezahegn A., Solomon D., Getachew G., Henok M., Asfaw N., and Kidus N., 2017. Ethiopia Livestock Sector Analysis. Nairobi: Ethiopia Ministry of Livestock and Fisheries and the International Livestock Research Institute (ILRI). https://cgspace.cgiar.org/bitstream/handle/10568/92057/LSA_Ethiopia.pdf?sequence=3&isAllowed=y

Solomon, R., Simane, B., & Zaitchik, B. F., 2021. The Impact of Climate Change on Agriculture Production in Ethiopia: Application of a Dynamic Computable General Equilibrium Model. American Journal of Climate Change, 10, 32-50. <https://doi.org/10.4236/ajcc.2021.101003>

Tadele, F. and Shiferaw, K., 2015. "Economic Growth and Employment Patterns, Dominant Sector, and Firm Profiles in Ethiopia: Opportunities, Challenges and Prospects." Swiss Programme for Research on Global Issues for Development. R4D Working Paper 2015/2. https://www.wti.org/media/filer_public/84/49/84499f1d-a087-4183-b4af-71c84118e2c9/wp_2015_02_ethiopia-country-paper.pdf

Terry, M., Anthony, B.K., and James, M.R, 2022. 2022 Index of Economic Freedom, the Heritage Foundation, USA. https://www.heritage.org/index/pdf/2022/book/2022_IndexOfEconomicFreedom_FINAL.pdf

Tesfamichael Wossen, 2016. Gender-Differentiated Impacts of Climate Variability in Ethiopia - A Micro-Simulation Approach. Environment for Development. Discussion Paper Series, EfD DP 16-24. <https://media.rff.org/documents/EfD-DP-16-24.pdf>

Transitional Government of Ethiopia, 1993. National Policy on Ethiopian Women, the Prime Minister's Office, Women's Affairs Sector, Addis Ababa

United Nations Children's Fund (UNICEF), 2014. Eastern and Southern Africa Region, Briefing Note on Climate Change in Eastern and Southern Africa.

United Nations Children's Fund (UNICEF), 2017a. Integrated WASH/MUS/CBN Programme Baseline and Midline Survey Report.

United Nations Children's Fund (UNICEF), 2017b. Development Research and Training, Report on KAP Baseline Survey on Water, Sanitation and Hygiene in Eight Regions of Ethiopia. <https://www.cmpethiopia.org/page/3208>

United Nations Children's Fund (UNICEF), 2018. Amhara Regional State Budget Brief 2007/08 – 2015/16, Ethiopia. <https://www.unicef.org/esa/sites/unicef.org.esa/files/2019-05/UNICEF-Ethiopia-2018-Amhara-Regional-State-Budget-Brief.pdf>

United Nations Children's Fund (UNICEF), 2019a. Situation Analysis of Children and Women: Amhara Region, Ethiopia. <https://www.unicef.org/ethiopia/media/2551/file/Amhara%20region%20.pdf>

United Nations Children's Fund (UNICEF), 2019b. Situation Analysis of Children and Women: Oromia Region. <https://www.unicef.org/ethiopia/media/2391/file/Oromia%20region%20.pdf>

United Nations Development Programme (UNDP), 2020. Human Development Report 2020. <http://hdr.undp.org/en/2020-report>

UNOCHA, 2019. Humanitarian Requirements Document (HRD), Relief Food Beneficiary Analysis (2013-2018).

UN Women, 2014. "Preliminary Gender Profile of Ethiopia." <https://africa.unwomen.org/en/digital-library/publications/2015/12/preliminary-gender-profile-of-ethiopia>

UN Women. Women in Politics: 2021 (2021). <https://www.unwomen.org/sites/default/files/Headquarters/Attachments/Sections/Library/Publications/2021/Women-in-politics-2021-en.pdf>

USAID Collaborative Research Support Programs Team (USAID), 2000. Amhara National Regional State Food Security Research Assessment Report, Ethiopia. <https://www.ctahr.hawaii.edu/sm-crsp/phase1/pdf/amhara.pdf>

Vétérinaires Sans Frontières International, 2018. "From Emergency to Development: Building Resilience through Livestock-Based Interventions." VSF International Policy Paper 4. http://vsf-international.org/wp-content/uploads/2018/02/Policy_Paper_4-livestock-emergency-web.pdf

Weldearegay, S. K. and Tedla, D. G., 2018. Impact of climate variability on household food availability in Tigray, Ethiopia. Agric. Food Secur. 7. doi:10.1186/s40066-017-0154-0. <https://agricultureandfoodsecurity.biomedcentral.com/articles/10.1186/s40066-017-0154-0>

Welteji, D. A, 2018. Critical review of rural development policy of Ethiopia: access, utilization, and coverage. Agric & Food Secur 7, 55. <https://doi.org/10.1186/s40066-018-0208-y>

World Bank. 2009a. "Ethiopia: Diversifying the Rural Economy: An Assessment of the Investment Climate for Small and Informal Enterprises." Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/3125>

World Bank. 2009b. "Ethiopia: Toward the Competitive Frontier: Strategies for Improving Ethiopia's Investment Climate." Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/3076>

World Bank, 2010. Economics of Adaptation to Climate Change, Ethiopia. <https://openknowledge.worldbank.org/handle/10986/13214>

World Bank, 2015. Ethiopia - Poverty Assessment 2014. <https://openknowledge.worldbank.org/handle/10986/21323>

World Bank, 2016a. Ethiopia - Priorities for ending extreme poverty and promoting shared prosperity : systematic country diagnostic, Washington, D.C. : World Bank Group.
<http://documents.worldbank.org/curated/en/913611468185379056/Ethiopia-Priorities-for-ending-extreme-poverty-and-promoting-shared-prosperity-systematic-country-diagnostic>

World Bank. 2016b. Toolkit for mainstreaming gender in water operations. Washington, DC, USA: The World Bank.
https://www.climateinvestmentfunds.org/sites/cif_enc/files/genderinwater_07_040416_web.pdf

World Bank, 2019a. Ethiopia Gender Diagnostic Report, Priorities for Promoting Equity.
<https://openknowledge.worldbank.org/handle/10986/31420>

World Bank 2019b. female headed households' data
<https://data.worldbank.org/indicator/SP.HOU.FEMA.ZS?locations=ET>

World Bank 2020. Female population data
<https://data.worldbank.org/indicator/SP.POP.TOTL.FE.ZS?locations=ET>

Zelege, T. T., Giorgi, F., Diro, G. T. & Zaitchik, B. F., 2017. Trend and periodicity of drought over Ethiopia. *Int. J. Climatol.* 37, 4733–4748. doi:10.1002/joc.5122.
<https://rmets.onlinelibrary.wiley.com/doi/10.1002/joc.5122>

Part II: Gender Action Plan for Kobo-Girana and Borana

Gender Action Plan for Kobo-Girana and Borana

No.	Activities	Baseline (to be established at the beginning of project)	Indicators & Targets	Timelines							Budget (USD)	Responsible Body / Remark*
				Y1	Y2	Y3	Y4	Y5	Y6	Y7		
1	Establish baseline in Kobo-Girana and Borana											
	Carry out gender analysis to establish baseline	Gender disaggregated data for current status of women's and FHH's level of participation in irrigation and agriculture cooperatives as well as proportions that have access to potable water not known	A team to design and carry out the gender analysis for each region established								20 000,00	project implementing team including woreda gender focal person + CRGE Facility**
			2 gender analysis conducted and report with recommendations produced for each region (consultations under 2.1.1 and 2.1.2 used to share and gather information)									
			Baseline established for each activity in the GAP and for any additional activity, for each region									
			GAP updated based on the outcome of the assessment (second quarter of first year)**									
2	Component 1: Increased community resilience through sustainable access to clean water											
2.1	Deployment of submersible pumps & solar PV generation in Kobo-Girana and Borana											
2.1.1	Inclusive public consultations on implementation plan and progress of the project including the gender action plan (3 times at each region)		At least 33% (first year of project implementation period) and 50% (starting the third year) of participants are women in each region								120 000,00	project implementing team including woreda gender focal person
			Consultations are held at times and places that are conducive to women participation, including availing a child care space									

			Representatives from the woreda and/or zone gender offices participate								
2.1.2	Conduct women-only consultations to ensure women freely express their views and needs		At least one woreda level women-only consultation conducted per year, in the first two years in each region							190 000,00	project implementing team including woreda gender focal person
2.1.3	Irrigation and water user groups (to manage irrigation systems in both regions and including potable water systems in Borana) formed with women participation		At least 35% of members are women							Part of project budget (under Annex 4 detailed budget 1.3.1 and 1.3.2)	project implementing team including woreda gender focal person
			Water user groups executive committees have at least 33% women representation								project implementing team including woreda gender focal person
			Water user groups' bylaws reflect a minimum of 35% female membership with the aim to increase that to 50% by the end of the project.								project implementing team including woreda gender focal person
			Water user groups' bylaw puts provisions to ensure women's membership and leadership positions are compatible with women's other responsibilities								project implementing team including woreda gender focal person
			Female representatives retained a minimum of 35% for the first year after establishment; and increased starting the 4th year to reach 50% by end of project								project implementing team including woreda gender focal person
2.1.4	Irrigation and water user group technical and leadership training conducted		Capacity needs assessed (considering potential differences based on gender)							Part of project budget (under annex 4 detailed budget 1.3.3. and 1.3.4)	project implementing team including woreda gender focal person

	(at least one per year) in each region		At least one Technical and leadership training per year delivered to all officers starting the 4th year based on capacity assessment outcome							Part of project budget (under annex 4 detailed budget 1.3.3. and 1.3.4)	project implementing team including woreda gender focal person
			At least one training per year delivered to women members and officers starting the 4th year based on capacity assessment							Part of project budget (under annex 4 detailed budget 1.3.3. and 1.3.4)	project implementing team including woreda gender focal person
2.1.5	Sex disaggregated data collected and analysed in each region		Project activity and M&E reports include sex disaggregated data							Part of project budget (under annex 4 detailed budget for M&E)	project implementing team including woreda gender focal person + CRGE Facility
2.2	Community-based water access in Borana only										
2.2.1	Ensure female headed households have access to potable water		Survey shows at least 50% of the Female headed households (FHH) in the Borana project area report better access to potable water							Part of project budget (under annex 4 detailed budget for M&E)	project implementing team including woreda gender focal person
2.2.2	M &E reports capture the extent of Burden reduction in fetching water for women and girls in the project area		Women and girls in the Borana project area report reduced burden in fetching water							Part of project budget (under annex 4 detailed budget for M&E)	project implementing team including woreda gender focal person
2.3	Resilient agricultural production by MSME businesses and cooperatives in Kobo-Girana and Borana										
2.3.1	Public consultation to address the benefits, rights and responsibilities of participation in RuSACCO and discuss progresses conducted (to be planned as part of 2.1.1) in each region		At least 33% (first year of project implementation period) and 50% (starting the third year) of participants are women in each region							Part of budget under 2.1.1 above	project implementing team including woreda gender focal person
			12 consultations are held at times and places that are conducive to women participating								project implementing team including woreda gender focal person

			50 representatives from the woreda or zone gender offices participate								project implementing team including woreda gender focal person
2.3.2	Rural saving and credit cooperatives (RuSACCOs) formed/strengthened with women participation in each region		At least 35% of members are women							Part of project budget (under annex 4 detailed budget 1.4.1)	project implementing team including woreda gender focal person
			At least 33% of executive committees are women								project implementing team including woreda gender focal person
			At least 50% of the FHH in the project area are members								project implementing team including woreda gender focal person
			Cooperatives' bylaws reflect a minimum of 35% female membership with the aim to increase that to 50% by the end of the project								project implementing team including woreda gender focal person
			Cooperatives' bylaw puts provisions to ensure women's membership and leadership positions are compatible with women's other responsibilities								project implementing team including woreda gender focal person
			Revolving fund management and administration guideline/manual indicates 50% of beneficiaries to be women								project implementing team including woreda gender focal person
			At least 50% of the FHH in the project area report improvement of services from DAs								project implementing team including woreda gender focal person

2.3.3	Financial literacy training conducted in each region		At least one financial literacy training per year delivered to all officers in years 3, 4 and 5								Part of project budget (under annex 4 detailed budget 1.4.2)	project implementing team including woreda gender focal person
			At least one financial literacy training per year delivered to women members and officers in years 3, 4 and 5								Part of project budget (under annex 4 detailed budget 1.4.2)	project implementing team including woreda gender focal person
2.3.4	Sex disaggregated data collected and analysed in each region		Project activity and M&E reports include sex disaggregated data. Reports include information on all targets including for e.g. annual number of women beneficiaries of revolving fund with an explanation of unachieved results and ways to ensure achievement in subsequent years.								Part of project budget (under annex 4 detailed budget for M&E)	project implementing team including woreda gender focal person + CRGE Facility
3 Component 2: Enabling Environment												
3.1 Policy & regulatory improvement/introduction in Kobo-Girana and Borana												
3.1.1	For any new policy, framework strategies or standards to be introduced or improved for groundwater abstraction and use, review their gender-sensitivity and responsiveness and recommend revision as needed		Set up of two gender review committee comprising region and woreda project officers, region and woreda women and social affairs experts and CRGE gender specialist at each region								10 000,00	project implementing team including woreda gender focal person
			Policies/standards/strategies that are gender responsive adopted								project implementing team including woreda gender focal person	
3.2 Digitalization of MRV and payments in Kobo-Girana and Borana												
3.2.1	Digital technology/MRV to provide gender disaggregated data		Number and type of gender specific activities/outputs reported through the MRV system for each region								Part of project budget (under annex 4 detailed budget 2.2.1)	project implementing team including

												woreda gender focal person
3.3	Community based business models developed in Kobo-Girana and Borana											
3.3.1	Financial products designed for each region taking the different roles of men and women in agriculture and water use and benefiting both equally		During community consultation of the design process 50% of those consulted are women								Part of project budget (under annex 4 detailed budget 2.3.1 - 2.3.4)	project implementing team including woreda gender focal person
			Training on business models and financial instruments provided to beneficiaries									project implementing team including woreda gender focal person
			Cooperatives and water-user groups that fulfil all gender related measures on their by-law and have greater women and FHH participation are given preferential access to financial products									project implementing team including woreda gender focal person
3.4	Training and capacity development											
3.4.1	Increased participation of women in all vocational training (operation and maintenance) programs for local technicians in each region		At least 35% of local technician trainees are women								Part of project budget (under annex 4 detailed budget 2.4.2)	project implementing team including woreda gender focal person
3.5	Knowledge-sharing and coordination platform											
3.5.1	Gender related lessons captured and shared through different mechanisms		Identify key stakeholders and design appropriate knowledge sharing mechanism								Part of project budget (under annex 4 detailed budget 2.5.1 and 2.5.2)	project implementing team including woreda gender focal person + CRGE Facility

			Lessons captured and shared annually								Part of project budget (under annex 4 detailed budget 2.5.3)	project implementing team including woreda gender focal person + CRGE Facility
4	SEAH											
4.1	Ensure project is prepared for potential SEAH incidents at each regions		Dedicated SEAH sessions during project team meetings, community and women consultations								10 000,00	project implementing team including woreda gender focal person
			Safeguarding committee and SEAH focal points established									project implementing team including woreda gender focal person
			Checklist produced to identify/screen high risk project activities									project implementing team including woreda gender focal person + CRGE Facility

*the CRGE facility's gender specialist and representatives of the region/woreda women and social affairs offices will be part of the project team and have the required finance to carry out their responsibilities

**the gender analysis for the two regions will be finalized within the first two quarters of the first year. The findings of the assessment, as well as the revised GAP with baseline information and any other required updates will be finalized and submitted to the GCF.

Annex I: List of Consulted Individuals

This document was based on desk research and stakeholder consultations, and was shared with gender focal persons of the CRGE Facility and the Ministry of Water and Energy for initial feedback. The revised document was presented at a consultation meeting held in April 2022. Below are the names and institutions of those who were involved in these processes.

No	Name	Organization
1	Abay Husen	Oromia Water and Energy (OWE)
2	Abebe Tamru	OWE
3	Addisu Bula	Amhara Oromo Zone Natural Resource Department
4	Addisu Negash	Ministry of Agriculture (MOA)
5	Ahemd Galew Abteu	Amhara, South Wollo Zone Natural Resource Department
6	Andualem Bekele	Bureau of Finance (BoF), Amhara
7	Asnakew Yehuala	CRGE Finance coordinator, Amhara
8	Bantamlak Wondemu	CRGE coordinator, Amhara
9	Barok Kife Meshesha	Ministry of Water and Energy (MOWE)
10	Bihongn Semaw	Amhara kobo Girana coop representative
11	Daniel Reta	Borana Zone water and energy
12	Demelash Geleta	Oromia BoF
13	Dessalegn Tebratu	Environmental Protection Authority (EPA)
14	Estifanos Getachwe	Oromia Irrigation and Pastoralist Development Bureau
15	Fekadu Shentema	MOWE
16	G/medhin Shumiy	MOWE
17	Galm Adhense	Borena Yabello zone
18	Habtam Denbobn	Environmental Protection Authority (EPA)
19	Jarso Qanchon	Borena Zone Agriculture Department
20	Kapital Jemal	Kemise Agriculture Department
21	Kasahun Wakoyo	EPA
22	Kedir Hussein Seid	South wollo Agriculture Department
23	Leta Abate	Oromia Engineering corporation
24	Makeda W/Hiwot	National Disaster Risk Management Commission
25	Medhin Fissaha	CRGE Facility, Ministry of Finance (MOF)
26	Mihretu Mohammed	Borena Zone water & energy
27	Misganaw Eyassu	CRGE Facility, MoF
28	Moges Getahun	Amhara kobo Girana project
29	Moges Sisay	Amhara NRS North Wollo Zone
30	Molla Melesse	Amhara NRS North Wollo, Kobo Girana project
31	Nega Ashagrie	EPA
32	Nibertu Molla	Amhara BOF
33	Nigus Agonafir	MOWE

34	Samson Emeru	Ministry of Agriculture (MoA)
35	Sebelewerk Mulat	Amhara Bureau of Finance (BOF)
36	Senayt Zinebu	Amhara kobo Girana coop representative
37	Sisay Abebe	OWE
38	Solomon Alemu	MOA
39	Solomon Ali	OWE
40	Tafese Tesfaye	MoWE
41	Teferi Daba	Oromia pastoralist development bureau
42	Temesgen Abera	National Meteorology Agency (NMA)
43	Terefe Damessa	MOWE
44	Tesfaye Lulie	MOWE
45	Teshale Bekana	OWE
46	Tsegaye Alemu	Ministry of Irrigation and Lowland
47	Workinesh Gashie	MoWE
48	Zebene Worku	Ministry of Irrigation and Lowland
49	Zebider Alemneh	MOWE
50	Zewdu Dadi	BoF