
**Rural women's role in agriculture and household workloads: the case of North Shewa
Amhara Region, Ethiopia**

Abiro Tigabie^{1*}, Beneberu Tefera², Yehuala Kasa², Dejene Mamo² Amsalu Abe² and Tekilemaryam Ayele²

^{1*}International Center of Agricultural Research in the Dry Areas, Addis Ababa, Ethiopia

²Debre Birhan Agricultural Research Center

Corresponding author email: abirotgb723@gmail.com

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ABSTRACT

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The study depicted the roles of women in agriculture and other livelihood improvement activities compared to the workloads of household members. The study was conducted in Bassonawerana, Moretinajiru, and Kewot districts in the 2018 production year. Quantitative data was collected from 252 randomly selected women through face-to-face interviews. The qualitative data was also collected using Focus Group Discussions (FGD) and Key Informant Interviews (KII). Descriptive statistics and Harvard gender analysis techniques were used to evaluate the status of the most important study variables. The Tobit econometric model was used to analyze the factors that affected the participation of women in agricultural production activities. The study indicated that the majority (95%) of household income is generated from crop, livestock, and natural resource production and management. Female family members contributed 42.8%, 57.2%, and 82% to the production, community, and reproductive roles of household labor requirements, respectively. In general, women covered 64 percent of household labor requirements. Women's working hours are more than men in household lives. Men worked seven hours per day while women worked about fourteen working hours per day throughout the year. Age, social capital, and marital status affected women's roles and participation in agricultural production. Mobilizing women to participate in agricultural production activities increased their workloads. Interventions through technological support and extension services targeting women will help reduce the workloads and improve the production and productivity of agricultural resources, household income and livelihood status in the entire community.

1. INTRODUCTION

Rural women worked longer hours than men in both paid and unpaid work. Rural women play various roles in agricultural production to increase productivity and enhance economic growth and reduce poverty (Sraboni et al 2014). Women participate in the entire agricultural value chain activities; as producers, distributors, and processors (Tahseen and Rasheld 2013). Women were involved in farm and nonfarm enterprises and covered labor demands of rural farming households (Buehren et al 2019). Their labor force participation steadily increased worldwide (Miles 2016). Rural women of all ages spent most of their time engaged in domestic chores. According to the Food and Agricultural Organization (FAO 2011), women represented 50% of the agricultural workforce in Africa.

It is known that women typically take on three types of roles in terms of the paid and unpaid labor they undertake. The triple roles are i) The productive role: which refers to commercial or subsistence production undertaken by women which generate an income to help in the maintenance of their family, ii) The reproductive role refers to the childbearing and child-rearing responsibilities borne by women, and iii) The community management role: refers to activities undertaken by women to ensure the provision of resources at the community level, as an extension of their reproductive role. In some developing countries, women are major contributors to the agricultural workforce, either as family members or as women heading households, and make a large share of the agricultural labor (World Bank 2013; Sraboni et al 2014). Messay (2012); Aklilu et al (2014) mentioned rural women accounted for the agricultural

workforce.

Gender serves as a strong predictor of workforce participation gender roles and relationships influence the division of work between women and men (Lemlem et al 2010). Although women make up the largest workforce in food production, processing, and preparation, little is known about the contribution of women to household income and food security. Rural men lacked the weighted labor force allocated for livelihood improvement in their households. The community perceptions in the production constraint assessment indicated women's agricultural labor contribution is insignificant and there was a limitation on participation in agricultural activities (Abiro et al 2017). This needs to identify the roles and the workloads among men and women and the labor force contribution of men and women for livelihoods considering the socio-cultural factors affecting women's participation in agricultural activities.

Closing the gender gap in agriculture in access to technology, training, and information can help to increase agricultural product yields on farms and reduce the number of hungry people in the world, and also raise total agricultural output (FAO, 2011; Nelson et al 2012). The main objective of the study was to assess the workloads of rural women and their contributions to the household economy and the specific objectives were to identify men's and women's labor contributions to farm and non-farm activities, to evaluate the household workloads, and to identify the socio-cultural factors affected women to participate in the agricultural production activities.

2. MATERIALS AND METHODS

2.1. Description Of the Study Sites

The study was carried out in the Bassonawerana, Kewot and Moretinajiru districts. The study areas were selected based on the coverage of the Agricultural Growth Program II (AGP II) by considering their representatives of different agricultural practices, agro-ecologies, and socioeconomic setups (Figure 1).

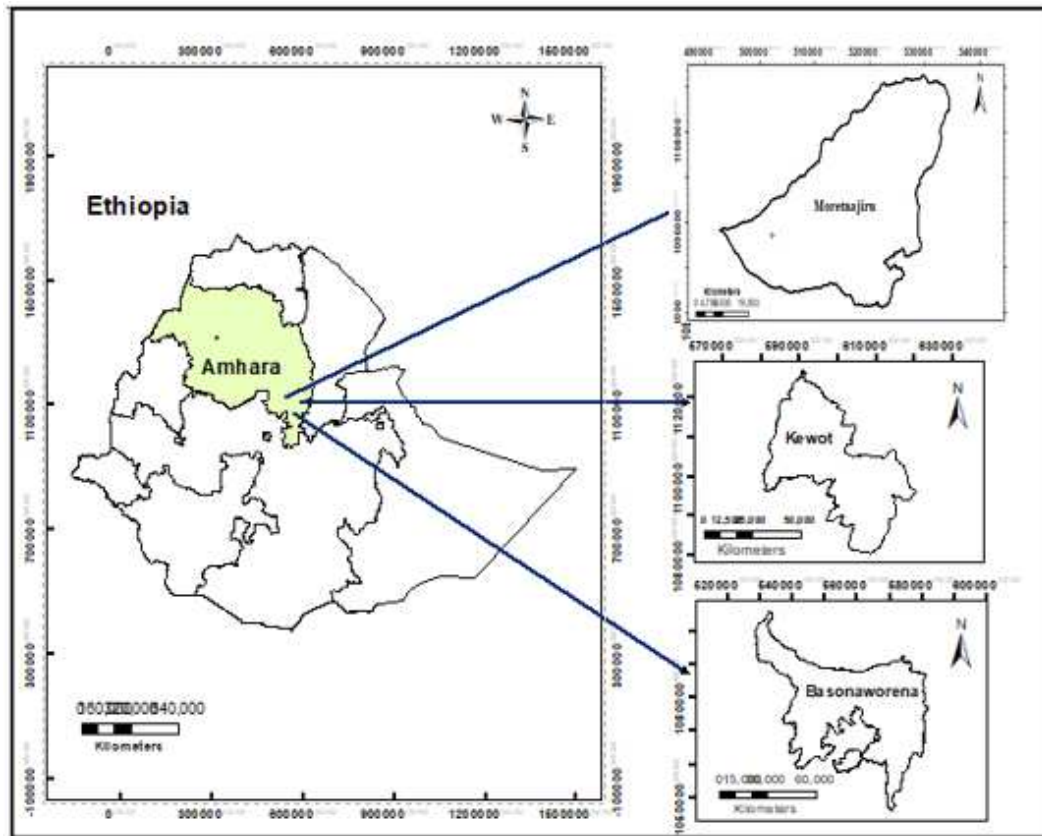


Figure 1. Map of the study area

Furthermore, the study areas represented different agroecologies of Bassonawerana for high, Kewot for low, and Moretinajiru for mid-altitudes. A total of 252 respondents were selected from three districts according to the proportion of probability to the population (Table 1).

Table 1: area characteristics and sample respondents by the study area

District	Rural households		Sample selected	Temperature (°C)		Rainfall (MM)		Altitude (masl)	
	Male	Female		Min	Max	Min	Max	Min	Max
Bassonawerana	18859	10080	88	-2	20	950	1200	1500	3200
Kewot	9992	8778	85	13.3	29	600	900	1500	2500
Moretinajiru	14932	2253	79	18	32	850	1100	1340	2960

Source Abiro et al (2017)

Data collection

Both primary and secondary data were employed from published and unpublished sources. Primary data was

collected using three evaluation methods: individual questionnaires, focus group discussions, and key informant interviews. Focus group discussions were

conducted with different age groups of women to explain an overall understanding of the systems. Key informant interview was done with the relevant institutions working on gender issues to assess their status and implementation strategies. Individual questionnaires generated an understanding of the system and who is doing what in the overall household economic activities. Data were collected using different strata of group members of male and female-headed households and male and female youth in the family, and a simple random sampling technique was used to select representative sample households from each stratum.

Data Analysis

Descriptive statistics such as mean, percent, and frequency were used to assess the status of the most important study variables. The results are explained using tables, graphs, and piecharts. Gender analysis explores and highlights the relationships between women and men in society, and the inequalities in those relationships, by asking: Who does what? The most common gender analysis framework was used to identify gender roles in the study areas. Activity profile analysis was done by using eight hours of working time bases. The framework used was the Harvard Analytical Framework, sometimes called the ‘Gender Roles Framework’, which is a simple and practical tool set to identify the type and amount of workmen and women do in a household, farm, or community (Harris-Coble 2016).

The workloads were evaluated on working days in twenty-four hours of daily work and international labor time

standards of eight hours of daily working time bases. Econometric data were analyzed using the Tobit two model to assess factors affecting women's participation in agricultural activities. The Tobit model has been used to address several questions in management research (Mario and Samuele 2021). Tobit's econometric model was employed to evaluate the factors that affected the participation of women (women and girls) in agricultural production activities. Tobit models (Tobin 1958) belong to a class of econometric techniques traditionally regarded as censored regression models (Wooldridge 2010). To start, it is worth clarifying the difference between censoring, truncation, and corner solutions. The Tobit model is widely used to deal with censored dependent variables (Mario and Samuele 2021).

Given this, the Tobit model is defined as follows:

$$y^* = X'\beta + \varepsilon, \text{ with } \varepsilon | X \sim N(0, \sigma^2), \text{ with } y = y^* \text{ if } y^* > 0, \text{ and } y = 0 \text{ otherwise} \quad (1)$$

Where y is the observed variable of interest, and y^* is the latent variable. X is the independent variable, β is the coefficient of estimation and ε is the error term in the model.

3. RESULTS AND DISCUSSION

3.1. Demographic characteristics of the respondents

The average level of education in years of schooling was 2.52 years. The average family size was 5.4 per household with 1.85 males and 1.55 females involved in agricultural activities. Most of the female family members participated in agricultural activities. Women allocated about 52.8 percent of their labor time to agricultural activities (Table 2).

Table 2: demographic characteristics and agricultural labor contribution

Variables	Mean	Err.	[95% Conf. Interval]
Male members involved in agriculture	1.85	0.08	1.68- 2.02
The female family participated in agriculture	1.55	0.07	1.41-1.69
Average family size	5.40	0.11	5.18- 5.61

Variables	Mean	Err.	[95% Conf. Interval]
The average level of formal education in years	2.52	0.25	2.04- 3.01
Years of experience in agriculture	20.14	0.65	18.86- 21.42
Respondents agricultural labor contribution	52.81	2.16	48.54- 57.08
Second family member agricultural labor contribution	73.86	2.46	69.00- 78.72
Third family members' agricultural labor contribution	26.91	2.49	21.99- 31.84
Fourth family members' agricultural labor contribution	15.19	1.82	11.59- 18.78

Marital status

Female-headed households lead their family as sole decision-makers. In this study, 22 percent were found to be female-headed households. The majority (72 percent) of the women were married. Of the married respondents, only 4 percent live away from their spouses. The remaining were single due to being divorced, widowed, and unmarried (Figure 2).

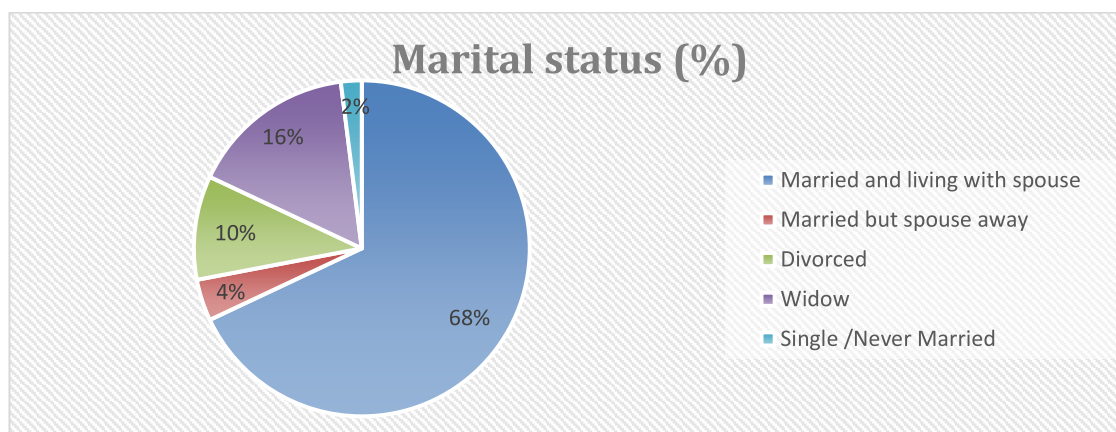


Figure 2. Marital status of the respondents (%)

Participation of rural women in livelihood improvement production activities

More than 95 percent of the respondents from the entire sample households mainly depend on agricultural activities such as crop farming, livestock rearing, and natural resource production activities. Others engaged in the self-employed off-farm and casual labor economic activities for their living. More than half of rural households had secondary occupations other than agricultural activities. Their second main occupations in the household were self-employed off-farm and casual laborer activities. The non-farm self-employed activities included petty trade, small-scale local beverage production, and other mini activities (Table 3).

Table 3: Household-level primary and secondary economic occupations

Basic economic activities	Primary (in %)	Secondary (in %)
Crop, livestock, and trees production	95.25	9.96
Self-employed off farm	1.2	23.11
Casual laborer on a farm	0.4	1.59
Casual laborer off the farm	0.8	6.38
Household chores	1.19	14.74
Others	0.79	7.57

Participation of family members in major agricultural activities

The average ages of economically active family members ranged between 14 and 40 years, which was economically active age in the rural community (Figure 3). In terms of sex category, the respondents were 100 percent women and 88 percent of the second family member was men which were 72 percent of spouses for the marrieds and others were sons for the singles. Although the majority of third and fourth-family members were also men. In general, male family members actively engaged in agricultural production and marketing activities more than their female counterparts.

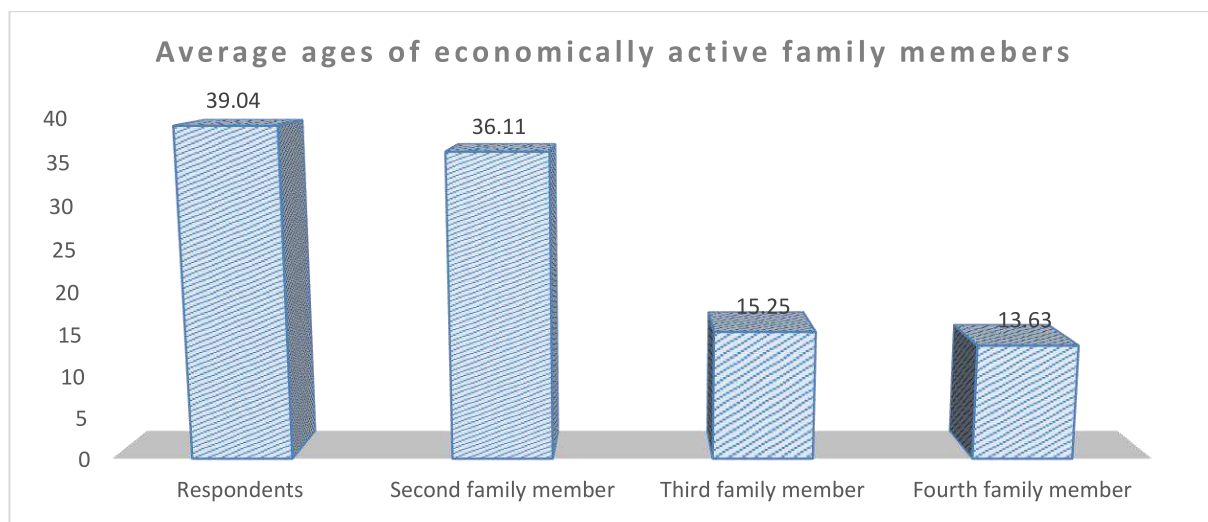


Figure 3. Average ages of the family members involved in the economic activities

Agricultural Labor Requirements and contributions

The main crops farming activities relatively required more labor forces in which more family members were involved, including tillage, planting, weeding, and harvesting. Others, such as threshing, transporting, seed cleaning, and marketing, required fewer labor forces. The men allocated 73.86 percent of their labor time for agricultural production activities and covered 57.8 percent of agricultural labor supply and

the remaining was covered by the women's labor.

Contribution of family labor to income-generating activities

Most (63%) of the respondents and their family members were involved in off-farm activities in which women had the lion's share of labor supply and operated 70% of the activities while the balance was managed by men's family members (Figure 4).

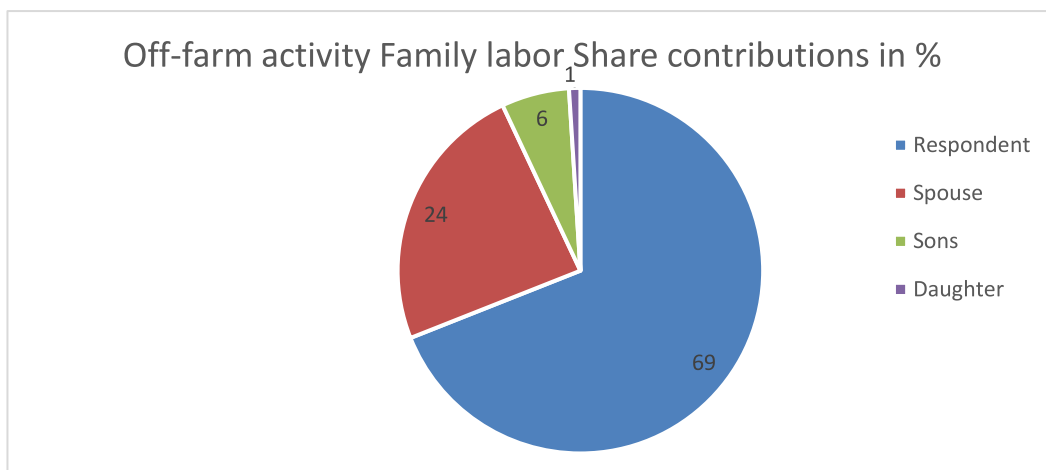


Figure 4. Off-farm activity family labor contributions

Most of the respondents and their family members participated in off-farm activities in all months and some of them implemented the activities from January to June and July to December. The majority of the off-farm activities operated in the areas were local beverage making, paid labor work, and petty trading, while a few households were involved in handcraft and other activities. Most casual labor activities were implemented by men and most income-generating activities were done by women (Figure 5).



Figure 5. Types of non-farm income-generating activities

Household labor requirements and family members' contribution

The analysis of women's triple roles in the rural households and the workloads explained the production, reproduction, and community roles in the rural households. Production roles included agriculture and other income-generating off-farm activities. Higher labor contribution of women found in livestock farming, off-farm businesses, and household core activities. The major social roles include community involvement in social gatherings like meetings, religious congregations,

wedding ceremonies, and community mobilizations. In general, women contributed a higher share of household labor requirements than men.

Activity profile analysis

The main agricultural activities in the study areas included crop farming, livestock rearing, and natural resource management. The crop farming activities in which the rural farmers dominantly performed were land preparation, planting, weeding, harvesting, threshing, and transporting. Other post-harvest activities, such as seed cleaning, storing, processing,

marketing, and purchasing of production inputs, were also performed. In crop farming activities men and women have an equal level of involvement in planting and weeding. Women were especially involved in seed cleaning and harvesting legume crops. Men were solely involved in agricultural input collection and threshing activities. The livestock farming activities were carried out by all family members. Women were mainly involved in the feeding of animals, the milking of cows, the cleaning of the barns and some herding while men were involved in the collection, marketing and most herding activities. The health management activities were carried out by both men's and women's family members.

The natural resource management activities included seedling preparation, watering, weeding, seedling transplanting, soil and water conservation, and compost preparation. Most of these activities are mainly done by men. Women's participation was minimal and was mostly restricted to compost preparation, weeding, and the watering of trees and seedlings. Similarly, women have also participated in soil and water conservation activities, such as terracing, trenching, streams, and borehole water management. The community roles found in the study areas included helping the community during accidents and other problems. Women participated in some community gatherings, such as burials, weddings, community mobilizations, and religious congregations. Women's participation in training, meetings, and workshops was lower than that of men.

Reproductive activities are the day-to-day activities or household chores.

These included childcares, firewood collection, food preparation, fetching water, cleaning, and washing activities that were mostly done by women. Men are mainly involved in firewood collection and childcare activities. The overall on-farm, off-farm, and household chore activities profile analysis indicated that 64 percent of household labor requirement was covered by women. Based on the eight hours working time per day evaluations, men worked for 335 days per year which was estimated at 7 and half hours per day. Although women worked for 641.725 labor days per year (14 hours per day) which was almost double compared to men (Table 4).

Factors affecting Women's Participation in agricultural production activities

The data used in the analysis were set as continuous variables. Participation of women and allocation of labor time to agricultural activities were mainly affected by age, marital status, and social capital. Age, social capital, and marital status affected the participation of women in the contribution of agricultural labor and access to agricultural technologies negatively and positively at levels of significance of 5%, 1%, and 1%, respectively. Girls had a chance to participate in agricultural production activities better than women. Single women are solely responsible for managing their households and participating in agricultural activities better than married women. Women who have more people relayed on critical issues receive information and credit from the people and develop confidence to involve in the sector (Table 5).

Table 4: Activity profile analysis of household labor requirements

Activities	Who and average time spent in (days/year)	
	Men/boys	Women/girls
Time allocated for household activities	335days/year	641.725days/year
Agricultural activities	194.1days/year	166.75days/year
<i>Crop farming</i>	69.25	41
Land preparation	17 days/year	4 days/year
Seed cleaning	0.25	2
Planting	7	4
Weeding	13	9
Harvesting	13	5
Threshing	8	4
transporting	4	2
Storing	2	1
Marketing	5	10
<i>Livestock farming</i>	108.81 days/year	112.25 days/year
Feeding of animals	0.5 hours/day	0.5hr/day
Milking cows	1hr/day	1hr/day
Processing milk	0.5hr/week	2hrs/week
Feed collection	8days/year	3days/year
Barn/kraal cleaning	0.2hr/day	0.5hr/day
Marketing	20days/year	5days/year
<i>Natural resources management</i>	16 days/year	13.5days/year
Seedling preparation	1day/year	0.5day/year
Seedling transplanting	2days/year	1day/year
Seedling management	13days/year	12days/year
Off-farm and communityrole activities	56.4 days/year	90.6 days/year
Paid labor on-farm activities	4days/year	1day/year
Self-employed off-farm activities	2.7days/month	6.3days/month
Community role activities	20days/year	14days/year
Reproductive roles		
Household chores	84.625 days/year	384.375days/year
Childcare	1 hour/day	3.5hours/day
Firewood collection	6hours/week	4hours/week
Cooking foods	-	2hours/day
Fetching water	-	1hour/day
Washing clothes	-	6hours/week
House cleaning	-	0.5hours/day

Table 5: Factors affecting the participation of women in agricultural activities

Variables	Coef.	z	P>z
Age	-0.39 (0.00)	-1.96	0.05**
Marital status	11.73 (2.28)	5.14	0.00***
Level of education in years	-1.28 (0.84)	-1.52	0.129
Family size	-0.65 (1.71)	-0.04	0.97
Media access	1.68 (1.60)	1.05	0.294
Number of years living in the village	0.39 (0.24)	1.62	0.105
Relatives relayed on critical issues	-0.31 (0.26)	-1.19	0.235
Non-relatives relayed on critical issues	1.62 (0.59)	2.77	0.01***
_cons	24.67 (17.67)	1.4	0.163
var(e.)	179.14 (43.04)		111.86

Socio-cultural factors influencing women's participation in agricultural activities

The quantitative responses of the FGD participants explained that girls had a better advantage than women to participate in agricultural production activities. The influences of culture and taboos disappointed the participation of girls in agricultural activities was low compared to women. But there were no community norms that supported this concept. Because of the culture/community norms, girls were harassed when involved in many agricultural activities they call it locally “*wondawond*” i.e., acting like a boy and not morally behaving. In addition to these economic statuses, social taboos and traditions hindered women from participating in various agricultural production activities. Relatively, women's participation in the rich family household was less than compared with the poor.

Challenges in Off-farm Participation

From focus group discussions and key informant interviews, we found that the major challenges include the vulnerability of women to labor abuse, social frustrations, and bias. Gender is one of the cross-cutting issues to be addressed in all aspects of the study areas but the focus to address all the issues was low. The key informant

group participants explained although there was policy support to consider affirmative actions in all development approaches, women were not well competent. This resulted from a lack of a conducive environment for competition. There were low wage prices set and paid for female laborers for the same work and working hours compared with males. There was also low attention and commitment to address all issues among lower-level political leaders. The other important challenge was lack of representativeness and less attention for women during the separation of marriages, which biased resource distributions and allocations.

Women targeted institutions and their functional supports

The various public institutions found and supported women to empower their capacity and created to access various development supports. Some of those institutes were predominantly female-oriented focusing on gender issues and others mainstreamed gender in their plan. The institutes were mostly government offices, including women and Child Affairs Office: This institution was independently established at different administration levels from the federal Ministry to the district level responsible for supporting women in different dimensions. Different experts were hired to perform targeted tasks in support and

advise women in capacity building (provision of training) and organizing women in different groups and associations. The office also coordinated women-targeted interventions and actions across all sectors and monitored them through the checklists. Office of agriculture: Gender was considered one of the components of agricultural extension service and the gender experts were hired in the two sites but not in the Kewot district. The experts were responsible for supporting women in agricultural-related services of capacity development, training, access to input, monitoring, and follow-up. A woman-targeted command post was established and led by the vice heads of the district and the kebele chairpersons to support women in all cases. Vis a vis all these efforts, the overall achievements of women-targeted planned activities in the sectors were low (57-60 percent).

Discussions

The women in the study areas were involved in on-farm, off-farm, and day-to-day household chores. They played a critical role in agricultural production activities to increase productivity and improve food security. The major agricultural activities in which women were involved required a high labor force compared to others including tillage, weeding, and harvesting. Women participated in all activities of crop production except threshing and marketing and participated solely involved in seed cleaning. They played great roles in livestock farming and few involvements in natural resource management activities. The study found women spent the great majority of labor time on agricultural activities similar to the study of Buehren et al (2019). The overall workload found the labor burdens of rural women exceeded that of men and a higher proportion of unpaid household responsibilities related to preparing food and collecting fuel and water similar to

Cheryl's (2011), study.

In this study, women contributed 42.8 percent of the average agricultural labor supply. The result was consistent with Messay (2012) and Aklilu (2014) reporting that women contributed to 46 and 66% of the labor force, respectively. Similarly, Cheryl (2011), the aggregate data showed that women comprise about 43% of the agricultural labor force globally and in developing countries. In contrast, according to the World Bank (2013), despite women's engagement in many activities related to agriculture, their productive potential remains low, but in this study, women spent 52% of their labor time on the same activities. In addition to on-farm production activities, most women participated in self-employed off-farm activities to enhance their household income. In this study on average, 70 percent of the off-farm activities were performed by female household members, and the balance was done by male family members.

Women spent most of their time on unpaid day-to-day household chores including childcare, firewood collection, food preparation, and cleaning which covered over 80 percent of the activities. These unpaid family workers assisting in the operation of on-farm and off-farm business activities are considered employed if they worked over one-third of it based on the (Assembly 1958). In labor time, men worked for about 7 and half hours daily, while women worked about 14 hours every day on household chores in addition to agricultural and off-farm activities. As shown above, women spent a lot of working hours than men in the same households. Women's participation in some agricultural production and marketing activities was influenced by various socio-cultural factors in the study areas.

The main factors that affected women's

participation in the agricultural labor contribution were age, marital status, and the number of non-relative people relayed on critical support. Unlike Haile (2016), age was affected negatively while marital status was affected positively similar to the same study. As Annet (2015), many development actors lacked the appropriate knowledge and skills to integrate gender approaches into their programs. Women supported the institutions found in the study areas to implement the women's strategic issues and empower the women's capacity, but the actual achievement and focus to address all the issues were low. That was why the achievement of women's targeted intervention plans was not successful.

4. CONCLUSION

Women in rural areas often manage complex households and pursue multiple livelihood improvement activities. Their activities typically included producing crops, tending animals, managing natural resources, engaging income-generating off-farm activities, processing and preparing food, working for wages in agricultural or other enterprises, collecting fuel and water, engaging in trade and marketing, caring for family members, participation in community and maintaining their homes. Women have significant contributions to agriculture labor demands. Most of them mainly depend on agricultural production and others are engaged in self-employed off-farm and casual labor income-generating activities. Most women participated in off-farm activities and generated additional household income. On average women spent more working hours than men on crop production, livestock farming natural resources management, and household chores activities. Sociocultural factors like community norms, economic status, social taboos, and cultures influenced women to

participate in various agricultural production activities. The main factors that affected the participation of women in agricultural production activities included age, marital status, and social capital.

The provision of women-targeted agricultural production and off-farm business management activities related to training and extension service is very important to improve the production and productivity of the resources. Awareness creation for both men and women on improving the participation of women in agricultural activities and reducing the share of other household labor requirements. The supply of labor-saving technologies to reduce women's labor time spent per day will make them more productive in production activities. In tackling gender inequality, the emphasis is that the social structures, processes, and relations that give rise to women's disadvantaged position need to be transformed. Women targeted public institutes lacked the capacity for integrated planning and monitoring of gender-inclusive interventions. The structure and implementation status of the women-supported institutions varied from place to place.

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