



Is Gender Mainstreaming Viable? Empirical Analysis of the Practicality of Policies for Agriculture-Based Gendered Development in Ethiopia

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Abstract

Gender mainstreaming is a global strategy to ensure gender-equality in agriculture and other economic sectors. However, the operationalization of gender mainstreaming is often contested in the global south. Using a concurrent mixed method design, this study investigates if the gender mainstreaming narratives embedded in agricultural extension and food security policies in Ethiopia are practical for improving agriculture-based gendered development among smallholder users of climate-smart agricultural technologies. Results demonstrate that women smallholders' needs that are essential to the use of agricultural technologies are overlooked. Despite they are "users" of agricultural technologies; women's access to agricultural inputs and extension services is restricted. There is a lack of synchronized activities and strategies to guide the implementation of gender mainstreaming, as well as separate gender budgets to address gendered agricultural problems. Increasing agricultural production is a national policy goal, although gender equality in production growth is not a key priority in the implementations of agricultural policies. Although improvement in the institutionalization and implementation of the GAD approach for addressing strategic gender needs is a priority in gender mainstreaming, an interchangeable and concurrent institutionalization and implementation of the Women in Development approach for addressing practical gender needs and the Women Culture and Development approach for addressing constraints that emanate from the multiple realities and identities of women are also required. Identifying and addressing the practical gender needs of women and problems that emanate from their multiple identities and realities are essential prerequisites for the practicality of gender mainstreaming for gender equality in agricultural development. Furthermore, there is a need to design and implement locally specific gender-mainstreaming strategies that address the distinct needs of women smallholders, as well as separate gender budgets to reach local contexts.

Keywords Gender-mainstreaming · Agriculture policies · Gender-equality in agricultural development · Agricultural technologies · Ethiopia

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Introduction

In Ethiopia, the struggle for gender equality was part of the students' movement from 1967 to 1974 [55]. Despite it being politically driven and considered women oppression as only a class oppression, the communist *Derg* regime facilitated the establishment of local women's organizations. The current regime endorsed the first National Policy on Ethiopian Women in 1993 [40]. The NPEW states that women shall not be discriminated against in terms of development and its outcomes, and tangible works should be implemented to secure women's economic, social and political rights [16]. After the 1995 Beijing conference on women, mainstreaming gender issues in policies became an indispensable approach. Major national policies that underlined the need to address gender issues in agriculture were developed [31, 38]. These included the Participatory Demonstration and Training Extension System (PADETES), the 2002 Food Security Strategy, and the Productive Safety Net Program (PSNP). The Growth and Transformation Plan (GTP I), which was planned for the 2010/2011–2014/2015 budgeting years, states that efforts should be undertaken to improve the economic and social development of Ethiopian women [34]. It also highlights the importance of increasing the productivity of men and women smallholders by using best agronomic practices. However, GTP II, which is planned for 2015/2016–2019/2020, reports that success in mainstreaming gender in agriculture is low, particularly in terms of addressing the needs of women smallholders for credit and agricultural extension [39].

This study assesses whether gender mainstreaming is practical in facilitating the use of conservation agriculture (CA) and Small Scale Irrigation Schemes (SSIS). CA encompasses zero tillage (ZT), mulching and intercropping of legumes with maize. Mulching protects soil moisture; ZT conserves soil organic matter content whereas intercropping facilitates nitrogen fixation and thereby increases yields [27]. CA in Ethiopia was formally introduced in 1998 by Sasakawa global 2000 and Makobu private enterprise with regional agriculture offices on 77 farmers plots of maize, sorghum, and *teff* [21]. SSIS are those that cover 200 hectares and less. In Ethiopia, the use of SSIS has been a common agricultural practice for centuries, with the aim of improving food security and livelihoods, using rivers, groundwater, streams, and lakes [3]. CA and SSIS are two forms of the Climate Smart Agriculture (CSA) approach. CSA is based on the principles of increasing production and income, developing resilience to climate change impacts and reducing Green House Gas (GHG) emissions [22]. The uptake level and success of these technologies however, depend on access to inputs, land, and credit [47, 53].

Although Ethiopia has no clearly stated CSA only policy, major agriculture-related policies are directly and indirectly linked and expected to facilitate the CSA practices [21]. However, these policies are often too general and do not pay attention to the differentiated needs and experiences of women and men smallholders. Furthermore, the restricted transformation of smallholder agriculture [44], envisaging gender mainstreaming as “crosscutting” in policies, contest

the feasibility of the gender-mainstreaming narratives of policies. Studies have found that Ethiopian women face restrictions in terms of access to and control over agricultural land and other agricultural inputs, information, and extension services [2, 7, 11, 20, 43, 51]. The Ethiopian People's Revolutionary Democratic Front (EPRDF) that has been in power over the past decades controls land. The state-controlled land tenure system limits smallholders' ability to use land as collateral for accessing the amount of credit required for buying agricultural inputs [44], and this is a reality for both men and women smallholders.

Despite that agricultural policies incorporate some principles from the Gender and Development (GAD) approach and underline the need to address gender issues in agriculture in general terms, the practicality of these policy narratives are often uninvestigated. The purpose of this study is to investigate the extent to which gender-mainstreaming narratives specified in national policies in general, the PADETES and the Food Security Strategy, in particular, succeed in enhancing gender equality in agricultural development. The practicality of gender mainstreaming in terms of enhancing gendered agricultural development is evaluated by investigating women smallholders' access to and control over agricultural inputs and access to rural agricultural institutional services. Contextual findings of the study are further utilized to evaluate the practicality of the gender mainstreaming narratives of the PADETES and the Food Security Strategy. The gendered impacts of the political environment of the country are also analyzed. The study intends to inform policymakers and development planners and implementers about the status of gender mainstreaming in agriculture. The investigation provides information useful to design a more feasible gender mainstreaming policies and strategies for gender equality in agricultural development.

Conceptualizing Gender Mainstreaming in Agriculture Through the GAD Approach

Gender mainstreaming is about recognizing, identifying and addressing the differentiated needs, roles and experiences of women and men in all development activities. The GAD approach of development is considered the best approach to implement gender mainstreaming to enhance gender equality in development. GAD evolved from socialist feminists' thoughts on gender relations and accepts men as actors of change [8]. The approach is characterized as vital for identifying and addressing strategic gender needs that emanate from the subordinate position of women [36]. Studies show that Ethiopian women smallholders have limited access to agricultural inputs and services mainly due to their subordinate position in their households and societies [11, 19, 51]. As a result, this study used GAD to conceptualize and analyze how the subordinate position of women that is based on their gender identity is affecting gender mainstreaming in agriculture.

GAD, on the other hand, has been criticized for not recognizing women as knowledge holders of the gender issues they encounter [46],—and that politically-assigned officials or a group of technocrats often use GAD to design gender-mainstreaming policies without involving women whose lives are affected by gender issues in a

top-down approach [13]. Third world feminists, in particular, contest the idea that perceives African, and other third world women, as a homogenous group without distinct experiences and identities [35, 46]. Postmodern feminists assert that gender identity is not the only cause of gender inequality and multifaceted identities, including class, age, education and culture contribute to the problem [24, 41]. However, the gender-mainstreaming policies,—that often assume GAD as a development approach,—do not consider the intersectionality of inequalities. Such policies tend to focus only on the social construction of gender identity [52]. The thoughts of the third world and postmodern feminists later paved the way for the emergence of an approach called Women Culture and Development (WCD) [10, 46], also called the “Identities of Women Framework”. WCD is considered to be an approach that deliberates on locally specific and distinct identities of women and it does not classify women as merely the results of the social construction of gender [46].

The Women in Development (WID) approach was originated from the idea that women’s contributions in agriculture have not been recognized in national development plans [5]. WID was popular prior to GAD and includes various policies such as welfare, equity, anti-poverty, efficiency and empowerment [37]. The welfare policy focuses on women’s reproductive roles and attempts to address associated problems using women’s organizations. The equity policy is about attaining equity for women in the development process, whereas the anti-poverty policy focuses on reducing the income inequality of women. The efficiency policy attempts to optimize development initiatives through women’s contributions, and the empowerment policy attempts to mobilize women around practical gender needs that are immediate and can be fulfilled using a bottom-up approach [37].

Despite that, WID has been criticized for its disinclination to identify and address patriarchal norms that constrain equality in gender relations and women’s economic development, the approach is useful to identify and address practical gender needs. It is plausible that the successful use of agricultural technologies among women farmers can be fulfilled only if women’s practical gender needs are addressed. Furthermore, women’s success in using agricultural technologies can be shaped by their multiple identities and realities that are in addition to their gender identity. It means that the gender-mainstreaming narratives of policies that are expected to be implemented through the GAD approach can better be facilitated if the practical gender needs and the intersectionality of inequalities that are emanated from the multiple identities and realities of women smallholders are addressed.

Development policies in Ethiopia tend to mention GAD and WID approaches, although they exhibit elusive practicality on the ground. NGOs frequently try to use the WID policies of welfare and empowerment, while public institutions are expected to apply gender mainstreaming using the GAD approach. The WCD approach has not been narrated in policies, as it is not well developed in the mainstream gender and development literature. Although gender inequality in development is primarily emanated from the patriarchal system and the many gender norms associated in rural Ethiopia, problems related to the multiple identities and contextual realities of women farmers exacerbate gender inequality in agricultural development. Women smallholders have limited access to basic livelihood capitals that can be considered as practical gender needs such as access to credit due to not only

gender norms, but also their diverse experiences and realities within their social contexts. Hence, proper gender mainstreaming through the GAD approach requires prioritizing and addressing women's practical gender needs and problems related to their diverse realities and identities.

Mainstreaming gender in agriculture and other development sectors is vital for transforming gender inequality. Practicality is often, however imprecise in developing nations caused by many general and specific social, economic and political problems. As a result, gender mainstreaming is often depicted as mythical, rather than real [17, 48]. In this study, the GAD approach of development is primarily used to conceptualize and analyze the extent to which women smallholders' subordinate position that is based on their gender identity is affecting the practicality of gender mainstreaming in agriculture. The study investigates whether agricultural development policies that incorporate GAD as a development approach, are practical or not to enhance gender equality among smallholder men and women users of CSA. Furthermore, the study investigates if the practical gender needs of women and problems associated to their diverse identities and realities affect gender mainstreaming in agriculture.

International, National, and Sector-Specific Policies

Ethiopia among the state parties voted for the adoption of the 1948 UDHR (Universal Declaration of Human Rights) and the 1979 CEDAW (Convention on the Elimination of Discrimination against Women). Both informed development policies to endorse women's economic rights as human rights. The NPEW is established based on the principles of UDHR and CEDAW. NPEW provides an encompassing framework for all sector-specific policies to identify and address women's economic problems through planned development [16]. Ethiopia also adopted the Millennium Development Goals (MDGs) and the Sustainable Development Goals (SDGs) and both included an objective of reducing gender inequality in development. GTP I included MDGs and GTP II integrated SDGs. However, a wide gap has been identified in mainstreaming gender in agricultural development in Ethiopia [39].

The Ministry of Agriculture and Natural Resources (MoANR) owns the PADETES and the Food Security Strategy that integrates the 2005 PSNP program. Established in 1995/1996, PADETES is an agricultural technology-driven extension policy aimed at improving the productivity and income of smallholder farmers. The PADETES focuses on the distribution of packages that comprise agricultural technology-based information, and the provision of inputs and credit [25]. Systematically addressing the needs of women and youth is highlighted as a gender-mainstreaming strategy in the PADETES [31]. However, gender mainstreaming demands the design and implementation of a feasible methodology that functions in overall structures at different institutional levels. Unfortunately, it remains unclear how to institutionalize GAD in the extension system on the ground, and how to design gender planning and implementation procedures. It has been reported that extension services in Ethiopia inflict gender bias [7, 31]. The state is directly involved in both input and output agricultural markets and distributes inputs via a top-down

institutional service delivery model [11, 44]. The delivery system often bypasses women smallholders [43], in particular, the needs of women in male-headed households. Many legal frameworks and policies state that women have the right to use or access agricultural land. The intra-household unequal use rights of land between men and women [20], is, however one of the main gender issues constraining gender equality in agricultural development.

Furthermore, agricultural land is not a marketable commodity and land liberalization is not implemented [44] that delays capitalist agrarian transition. If land was liberalized, women (who are customarily marginalized from land inheritance, particularly, in the southern part of Ethiopia) could have the opportunity to buy land. Nevertheless, the current land law prohibits agricultural land ownership and marketing by citizens. Land ownership rights, on the other hand, would facilitate opportunities for expansion of the off-farm economy. The use of land as collateral could facilitate access to credit, enable development equality, and enhance the consolidation of plots for viable production growth [15]. Despite the absence of evidence, EPRDF argues that privatizing agricultural land would lead to the eviction of farmers by the urban bourgeoisie or middle-class people [44], although the presence of such a social class in Ethiopia is equivocal to date.

The Food Security Strategy describes the need to address gender issues through direct food production interventions that consider gender differences in agricultural input supply, credit and land tenure security [38]. Food security should be measured based not only on food availability but also on the access of individuals to food [54]. However, both the Food Security Strategy and the PSNP program within it accept the household as a single unit—assume that individuals within the household have similar experiences in accessing food. Both the Food Security Strategy and the PSNP program overlook the gender dynamics of food security within the household, thus often resulting in unequal access to food for women [26, 38].

Methods

Study Areas

Ethiopian women smallholders have limited access to agricultural land and other agricultural inputs and extension services [2, 7, 11, 20, 43]. Study areas were selected because they are parts where these problems are common. In addition, the study is part of a research project called “Research and Capacity Building in Climate Smart Agriculture in the Horn of Africa,” that promotes CSA practices through research and capacity-building activities in the study *Woredas*. Furthermore, the status of the viability of the gender mainstreaming narratives of agriculture-related policies was not studied and documented among agriculture technology users in the study areas.

The study covers three *Woredas*: Loka-Abaya, Halaba, and Ziway. A *Woreda* is an administrative unit that incorporates not less than 30 *Kebeles*—the smallest administrative units. Case 1, Loka-Abaya CA scheme is located in the Southern Nations, Nationalities and Peoples’ Regional (SNNPR) state of Ethiopia where smallholders

practice CA comprising zero tillage, mulching and intercropping of legumes with maize for decreasing soil degradation and increasing production. Case 2 is the Halaba gravity-based SSIS, located in SNNPR, where smallholders use water from the *Bilate* River. Major crops include onion and potato. Case 3 is the Ziway pump-based SSIS located in the Oromia regional state. Water is used from Lake Ziway. Farmers' use both centrally managed large, and individually owned small pumps to produce onions, tomatoes, green beans, cabbage, pepper, and maize. The common extension package to all users of CA and SSIS includes fertilizers and seeds (for which farmers pay) and training some agronomic practices. NGOs support users on an intermittent basis. They provide herbicides to selected CA users, and small motor pumps for few organized farmers among pump-based SSIS users. Eighty-seven percent of Ethiopian farmers plow less than two hectares and are therefore referred to as "smallholders" [45]. Participants in this study are smallholders practicing CSA technologies to improve their productivity and thus their livelihoods. Loka-Abaya and Halaba are located in the southern part of Ethiopia whereas; Ziway is located in central Ethiopia. Given the many socio-economic and cultural norms of societies, this study can be generalized in the above-stated areas but some common issues shared by all smallholders can be generalized in the country.

Study Design

A concurrent mixed method approach that uses triangulation of data from quantitative and qualitative approaches was adopted [50]. Quantitative and qualitative data were concurrently collected and the data were compared with regard to difference and similarity, or combination in the analysis. The quantitative investigation assesses the gender inequality in access to and control over agricultural inputs and access to agriculture-based institutional services. Qualitative data explores detailed contextual gender and other issues that constrain the operationalization of gender mainstreaming in agricultural development. The gendered impacts of the current political environment for agricultural development were investigated by analyzing both the qualitative and quantitative data.

Fifteen *Kebeles* were selected as they are widely practicing CSA technologies from the three user *Woredas*. Sampled CA users are those managed to adopt at least two of the CA packages for 3 consecutive years. SSIS users are consistent users over many years as they have irrigated land within schemes. Previous studies show gender inequality that disadvantaged women in access to and control over agricultural inputs and in access to agricultural services in rural Ethiopia [18, 31, 43]. As a result, we assume a higher proportion for women users and small for men users as a control group for sample variance estimation. Proportional stratified random sampling method was applied to select individual women and men users from male and female-headed houses from technology users' lists in *Kebeles* with the help of DAs (development agents). The required sample size was obtained using $n = (Z_{\alpha/2} + Z_{\beta})^2 * (p_1(100 - p_1) + p_2(100 - p_2)) / (p_1 - p_2)^2$ with 80% power that determines number of observations or events per variable. Survey data was collected from 252 women and 92 men CA and SSIS users from all study areas. Among the

252 women, 60 are CA and 192 are gravity and pump-based SSIS users. Ninety-two men users also responded to the survey among which 30 are CA, and 62 are gravity and pump-based SSIS users. A total of 344 respondents were involved in responding to the survey.

A purposeful selection was used to select 28 women users, 18 DAs, and 7 agricultural development officers, among which two are gender focal persons involved in in-depth interviews. Two-land administration officers also participated in in-depth interviews from the agriculture offices in Halaba and Ziway. Neither a gender focal person nor a land administration officer was present in Loka-Abaya. Purposeful sampling was used to conduct interviews with an expert from the gender directorate of MoANR, an expert from the gender directorate office of the Ministry of Finance and Economic Commission (MoFEC), and another expert from the Ministry of Children and Women's Affairs (MoCWA). These interviewees were selected because they are responsible to facilitate the implementation of the gender mainstreaming narratives of agricultural policies. Informed consent was obtained from all participants and anonymity was used in analyzing data.

The study investigates the practicality of the gender-mainstreaming policies. The term practicality in this study refers to gender equality in access to and control over agricultural inputs and access to institutional services, for improved gendered agricultural livelihoods and food security. This is because gender mainstreaming is about identifying, recognizing and addressing the differentiated needs, roles and experiences of women and men for enhanced gender equality in development. Independent variables were selected based on context-based experiences and from available studies.

Data Sources and Analysis

Survey, in-depth interviews, and policy document analysis were utilized to collect data. Data collection and document reviews of policies were conducted between 2015 and 2017. Same questionnaire was administered in separate sessions for women and men farmers. Different interview guides were used for women users, DAs and officials. Analysis of the quantitative data was conducted using mean comparison and binary logistic regression analysis. Variables that are significant in mean comparison (t test) but have less predictive power when combined with other variables were not included in the logistic model. The logistic model was crafted to predict if men and women users of CSA are equally accessing agricultural inputs and services to further decide on the status of the practicality of the gender mainstreaming narratives of agricultural policies. Individual men and women users were used as a unit of analysis and women speak and respond for themselves as the study applied a feminist research approach to generate new liberatory information to the wider audiences and policymakers.

Let the binomial logistic regression has a dichotomous dependent variable or two values that are labeled as women users (1) and men users (0). The probability of the event occurred and not occurred is predicted from X or independent variables under a Bernoulli trial and is given as:

$$p(Y = 1|x) = \pi. \quad (1)$$

The predictor variables produce dichotomous categorical response variables coded as Yes (1) or No (0). $\text{logit}(p)$ refers to the occurrence or the non-occurrence of women users accessing agricultural inputs and institutional services compared to men users. The logistic regression model has a linear form under the logit transformation:

$$\text{logit}(p) = \text{natural log (odds)} = \ln\left(\frac{\pi}{1-\pi}\right) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k \quad (2)$$

where β_0 = the intercept constant, $\beta_1 - \beta_k$ or coefficient of each independent variable obtained from the change in the logit as a result of the change in each unit in the predictor. Predictors included in models were checked for multicollinearity. The model is fitted using Hosmer and Lemeshow test where the Chi square test is required to be significant as it determines whether observed event rates match expected event rates in subgroups of the model population [30]. Age and education may have a confounding effect on men and women users' access to agricultural inputs and institutional services. In order to control the influence of these confounders, crude odds ratios of covariates have been adjusted for age and education status. The model coefficients (β_i) are estimated by the Maximum Likelihood (ML) method. ML is an explicit non-linear function of unknown parameters [1]. ML finds parameters of the model that best describe the data in order to yield the highest likelihood that explains the data. The odds ratio is the ratio of the odds for $X = 1$ to the odds for $X = 0$ [30] is given by:

$$\text{odds ratio} = \frac{\pi}{1-\pi}. \quad (3)$$

The dichotomous response variable coded as 1 and 0 can be displayed in the 2×2 table or the additive logit model that provides a multiplicative model for the odds ratio. Exponentiation of the logit difference [28] is given by:

$$\pi = \frac{e^{X\beta}}{1 + e^{X\beta}} \quad (4)$$

where e is the natural logarithms and $X\beta = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k$ can be transformed to a multiplicative model for the odds ratio. The odds ratio in this study estimates the independent variables predicting or not predicting that means if women are equally accessing or not accessing agricultural inputs and services compared to men users of the same technologies. The investigation exposes information on whether the gender mainstreaming narratives of agricultural policies are implemented or not.

The qualitative data was analyzed using thematic analysis, after transcribing, coding and categorizing concepts and by sorting out ideas that contribute to emerging themes [49]. The document analysis was done after carefully reading policy documents followed by interpretations using the thematic analysis [6]. Furthermore, findings obtained from interviews and survey were used to triangulate data from the document analysis. Qualitative validity is preserved through

prolonged fieldwork, triangulations of data sources and theories and by showing thick descriptions of the problems [12].

Results and Discussion

The results and discussion section analyzes and discusses the identities of participants, and the gendered access to and control over agricultural inputs and access to agriculture-based institutional services. The effects of the political environment on the operationalization of gender mainstreaming in agriculture are also analyzed and discussed. Based on the findings from the survey and in-depth interviews, this section also presents evaluation of the gender mainstreaming narratives of the PADETES and the Food Security policies.

The Identities of Participants

Of the 223 women in male-headed households, 77.1% are living in monogamous marriages, and 22.9% are in polygamous marriages. In-depth interviews indicate that first wives in polygamous marriages have better decision-making position on the use of land and access to extension services, compared to women in monogamous marriages as they often live separately from the husband (the household head) on a plot of land assigned by the husband. From 252 women CSA users, 178 are between 19 and 40 years of age and 74 of them are between 41 and 73 years. Among the 92 men CSA user participants, 43 of them are between 19 and 40 years of age and 49 of them are between 41 and 73 years. The majority of women are younger than the majority of men. A significant difference has been identified from the mean comparison of the age of men and women groups (Table 1) that demonstrates a relationship between age and other covariates in the model. The interpretation of continuous variables in logistic regression is not straightforward. Age in the model is, $\exp(-0.85)=0.42$ odds ratio (Table 2). Because 0.42 is less than one, any odds being multiplied by 0.42 will decrease. Therefore, the older the individual is in years or those between 41 and 73 years (men) have less chance of being constrained by lack of access to agricultural inputs and agricultural services compared to those between 19 and 40 years (women). Qualitative findings demonstrate that age shapes the decision-making ability of women in terms of access to land and food within the household, as young wives traditionally expected to be more submissive compared to older women.

Among 252 women respondents, 212 of them had never attended school and only 40 of them attended elementary and above. From 92 men participants, 32 men have never been to school and 56 of them had attended elementary and above. The majority of women participants never went to school. A significant difference was identified from the mean comparison of the education status of men and women users (Table 1). This shows a relationship between education status and other covariates in the model. Education is $\exp(-2.04)=0.13$ odds ratio (Table 2). The interpretation is men who have better educational status are less likely to be affected by

Table 1 Mean comparison of explanatory variables. *Source:* fieldwork

Variable	Women users		Men users		<i>p</i> value
	Mean	SD	Mean	SD	
Age	1.29	0.45	1.53	0.50	0.000***
Education	1.16	0.36	1.61	0.49	0.000***
Access to land	0.26	0.44	0.01	0.10	0.000***
Access to credit	0.62	0.48	0.17	0.38	0.000***
Access to collateral	0.59	0.49	0.39	0.49	0.001***
Off-farm income	0.83	0.37	0.85	0.35	0.571
Control over irrigation water	0.98	0.10	0.62	0.48	0.558
Membership in cooperatives	0.80	0.39	0.18	0.39	0.000***
Access to extension	0.84	0.36	0.80	0.39	0.000***
Access to skill training	0.91	0.28	0.13	0.33	0.000***
DAs identify and address your technology needs	0.93	0.24	0.60	0.49	0.000***
Access to extension from women DAs	0.97	0.16	0.98	0.10	0.261

Value=Dummy equals 1 if yes and 0 otherwise. Table contains means. Numbers in parentheses are standard deviations. Test statistics are two-tailed *t* statistics for unequal variances. Women users=252 (223 women from male-headed households and 29 women from female-headed households) Men users=92. N=344

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Table 2 Predictors of the likelihood of the viability of gender-mainstreaming policies, in terms of access to agricultural inputs and institutional services, women versus men CSA users. *Source:* fieldwork

Variables	Coeff.	SE	<i>p</i> value	Adjusted odds ratio (95% confidence interval)
Age	-0.85	0.45	0.057	0.42 (0.17–1.02)
Education	-2.04	0.46	0.000	0.13 (0.05–0.32)
Access to land	3.04**	1.16	0.009	21.00 (2.14–205.67)
Access to credit	2.43***	0.52	0.000	11.44 (4.06–32.18)
Access to off-farm income	-0.60	0.58	0.303	0.54 (0.17–1.72)
Access to collateral	0.09	0.50	0.844	1.10 (0.41–2.94)
Access to extension	2.94***	0.48	0.000	18.95 (7.38–48.66)
Access to extension from women DAs	-3.32	1.05	0.002	0.03 (0.00–0.28)
DAs identify and address your needs	-1.78	0.66	0.007	0.16 (0.14–0.62)

Model: Chi Square is (7) of 10.43, *p* value 0.162 ($p > 0.05$), Model fit=Classification table overall percentage=95. - 2 Log likelihood. 97.03. Pseudo R-Square=0.85. Women users=252. (223 women from male-headed households and 29 women from female-headed households) Men users=92. N=344

Significant at *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

limited access to agricultural inputs and agricultural services compared to women with low educational status. Interviewed DAs and women users demonstrate that the lower education status of women affects the extent to which they apply agricultural

technologies. Applying herbicides and pesticides, for instance, requires a reading skill. Hence, both age and education status limits the practicality of gender mainstreaming in agriculture in the study areas.

The multiple identities of women such as education status, age and marriage style and problems associated to these identities are affecting success in mainstreaming gender in agriculture. Hence, implementation of gender mainstreaming that is expected to be applied using the GAD approach should further consider age, education status and the type of marriage they are involved in, as gender identity is not the only impediment against gender-equality in agricultural development in study areas. Interview findings show that rural institutions that are assumed to implement the gender-mainstreaming principles of policies, do not conduct investigations and implement strategies to minimize the negative influences resulting from the diverse identities of women on agricultural development. Identifying and addressing the heterogeneity of women smallholders' experiences and their multiple identities that are interwoven with their gender identity, are preconditions to the proper implementation of gender mainstreaming in agriculture. Hence, the WCD or the *Identities of Women Framework* [10, 46] that underlines the significance of addressing women's multiple cultural and other identities and realities, should be included in the current agricultural policies and their implementation strategies at the local level to better attain gender mainstreaming in agriculture.

Gendered Access to Agricultural Inputs

Women's access or use rights, to agricultural land, is a key to implement gender mainstreaming in agriculture as land rights facilitate women's uptake of agricultural technologies for improved gendered livelihood outcomes and food security. This study, however, found that women have restricted access to agricultural land (Tables 1, 2). Men have 21 times better odds ratio regarding access or use rights to agricultural land compared to women ($p < 0.009$). The finding demonstrates the presence of gender inequality in accessing land between men and women users of CSA in the study areas.

In-depth interviews confirm that since the household head is culturally accepted as the real landowner, women have limited use rights over agricultural land. Moreover, women themselves do not feel that they have legal rights over land. Interviewed women reported that husbands inherit land from their fathers, and they consider that men to have more rights concerning family land. These findings demonstrate that the gender issues that affect women's use of rights to land are not addressed in the study areas. A study that uses an individual as the unit of analysis, indicates that awareness of land rights is more restricted for women, compared to men in SNNPR [29]. Results of the in-depth interviews in this study further show that even if women are aware of their legal rights, they encounter challenges in accessing legal services, often located in towns. They cannot afford the required transport, accommodation and service fee demanded by the legal system. Women can be displaced if they become divorced or widowed unless they have children from the marriage.

Interviewed land administration officers indicate that they identified cases where relatives of deceased husbands removed land from women who had no children.

The study did not find a difference between women and men's involvement in off-farm income activities (Tables 1, 2). The finding is an indicator of the generally limited expansion of the off-farm economy. This can be linked to the restricted land ownership of farmers as the government controls land in current Ethiopia. Women smallholders hence have limited opportunity to improve their access to agricultural inputs through the income from the off-farm economic activities. The state-controlled land tenure system is one of the reasons why farmers' have restricted opportunity to use land as collateral. Men users have better access to collateral that is outside of land (Table 1). However, the regression model does not show a difference between men and women's access to collateral (Table 2). These findings demonstrate that the gender mainstreaming narratives of the GAD approach stated in the Food Security Strategy, that is gendered land tenure security and employment support schemes that include off-farm investments will be promoted [38] were not found practical (see also Table 4).

Gendered Agricultural Services

Rural financial institutions could play a vital role in enhancing gender-equality in agricultural development. However, a relative comparison of men and women users access to credit indicates that men have 11.44 times better odds ratio in accessing credit from rural institutions compared to women ($p < 0.000$) (Table 2). Access to credit is restricted for women; the only exception identified is a few "women-only" associations that were provided credit up to a maximum amount of 2000 Ethiopian Birr. Beneficiaries often use the money for funeral and other social purposes, as the amount is inadequate to support the use of agricultural technologies. In-depth interviews indicate that married women's access to credit depends on their husband's will, as husbands must sign the loan agreement.

A good social network or sufficient social capital is required to establish a group consisting of 5–10 members, as it is a requirement to get credit from financial institutions. However, very often, the time-consuming reproductive, productive and community triple gender roles of women do not allow them to be involved in social networks that are necessary in order to organize a formal women's group for accessing the limited amount of credit. Moreover, local financial institutions trust men more than women, as men are culturally accepted as the main decision-makers within a household. Thus, many gender issues that emanate from the subordinate position of women linked to gender norms limit women's access to credit. The GAD strategy highlighted in PADETES states that women's needs that include credit will be systematically addressed by extension packages [31]. The Food Security Strategy also states that credit that addresses gender differentials will be facilitated for improved agricultural production and productivity [38]. Contrary to these narratives of policies, this study found that such gender mainstreaming narratives are far from practical in the study settings (see Tables 1, 2, 3, 4).

Table 3 Evaluation of the practicality of gender-mainstreaming interventions based on the PADETES policy

Policy	Selected components and assumed strategies related to gender mainstreaming	Implementation gaps identified from data	Proposed implementation strategies
PADETES	Systematically addressing women and youth by extension services	Absence of gender-responsive institutional strategies and gender planning to guide extension implementation at the local level	Design gender planning and clearly stated institutional strategies and rules to institutionalize GAD for gender equality in the extension provision Identify and address women's practical gender needs through WID and problems related to the multiple identities and realities of women through WCD in the extension provision by gender specialists at <i>Woreda</i> and <i>Kebele</i> levels for better implementation of gender mainstreaming Distinguish whether constraints in the gender planning of extension are cultural, economic or technical Develop feasible gender-mainstreaming methodologies and implementation procedures and strategize gender mainstreaming based on informal meetings with women and other community members Design mechanisms to create strong legitimization of gender mainstreaming within all administrative structures and rural institutions Negotiate and persuade <i>Woreda</i> and <i>Kebele</i> agents to allocate a gender budget for addressing gender issues within the agricultural extension delivery system

Table 3 (continued)

Policy	Selected components and assumed strategies related to gender mainstreaming	Implementation gaps identified from data	Proposed implementation strategies
		<p>Women in male-headed households are excluded from agricultural extension and agronomy-related skills training services</p>	<p>Allocate a gender budget in its own right for operationalizing gender mainstreaming in agricultural extension provision</p> <p>Allocate incentives for DAs to make them work on gender issues in the agricultural extension system</p> <p>Recognize women's triple gender roles and schedule time for women's access to extension and skills training</p> <p>Apply a collaborative approach between technocrats and women smallholders to restructure PADETES and advocate legal frameworks on the operationalization of gender mainstreaming in agriculture</p> <p>Establish coordination among pertinent sectors and administrative structures</p>
Promoting technologies for women	<p>Women are envisaged as being 'lesser' farmers by rural institutions and DAs</p> <p>Fertilizers and seeds are distributed from above by public rural institutions and often bypass women's needs</p> <p>When training sessions are given (infrequently) at the farmers' training centers in <i>Kebeles</i>, trainers often assume that women's extension needs are in the area of home gardening, that excludes crop-related skills</p> <p>Not clear who is responsible for promoting technologies to women farmers</p>		<p>Provide gender training to DAs and all agricultural development workers at the local level</p> <p>Recognize women's contribution to agriculture and facilitate advocacy at the <i>Kebele</i> level to deconstruct traditionally accepted views that perceive women as being economically dependent on men</p> <p>Identify women's needs for technologies from their own words and avoid presuppositions derived from cultural biases</p> <p>Place responsible individuals in suitable positions to promote technologies for smallholder women at local levels</p>

Table 3 (continued)

Policy	Selected components and assumed strategies related to gender mainstreaming	Implementation gaps identified from data	Proposed implementation strategies
Making inputs available through credit, and local public administrative structures are expected to arrange collateral issues	Women DAs are absent	Train sufficient women DA graduates at the national level, as happens in the health extension system Include subjects in DA training curricula that focus on issues such as how to strategize and implement gender mainstreaming at the local level	
	Men are traditional buyers of inputs As long as their husbands access inputs and credit, it is perceived as if the women also have access Women farmers' needs regarding inputs and credits are not identified as women in male-headed households are not members of cooperatives	Involve women as responsible input buyers Provide women the opportunity to identify their needs for inputs and credit Organize possibilities that provide separate credit and input services for women in male-headed households	Enforce local laws that oblige cooperatives to involve women in male-headed households and make sure that they are able to access all the services offered by cooperatives

Table 4 Evaluation of the practicality of gender-mainstreaming interventions based on the Food Security Strategy

Policy	Selected components and assumed strategies related to gender mainstreaming	Implementation gaps identified from data	Proposed implementation strategies
The Food Security Strategy	<p>Direct food production intervention programs through facilitating an agricultural package intervention, conditions, and services such as</p> <p>Land tenure security</p> <p>Agricultural research</p> <p>Input supply</p> <p>Gender differentials</p>	<p>Gender planning and gender-mainstreaming strategies to guide food production intervention programs are absent at the local level</p> <p>Women are customarily prohibited from inheriting agricultural land and have limited use of rights or decision-making power on how to use agricultural land</p> <p>It is not clear who is responsible for identifying and addressing gender differentials in the area of land tenure security, input supply, and agricultural researches</p> <p>Agricultural research that deals with the socioeconomic problems of farmers commonly use household heads as the only knowledge holders of problems in agriculture</p> <p>Women have restricted access to agricultural inputs</p>	<p>Design gender planning and develop clearly stated gender mainstreaming strategies and rules to institutionalize and implement the GAD principles narrated in policies at all administrative levels</p> <p>Consider the institutionalization of the WID approach to identify and address practical gender needs and the WCD approach to identify and address the diverse identities of women and associated problems that are limiting the practicality of gender mainstreaming in the use of agricultural technologies at <i>Woreda</i> and <i>Kebele</i> levels</p> <p>Enforce informal, specific local laws to include women in customary land inheritance, facilitate women's use rights and legal access to land, and implement a collaborative approach with men and community elders to improve the situation</p> <p>Allocate the task of implementing women's land rights and their access to agricultural inputs and the needs of women in male-headed households, to gender focal persons, DAs, and cooperatives</p> <p>Include all relevant stakeholders (including women's affairs offices) in implementing the Food Security Strategy and the PSNP program at the local level</p> <p>Accept individual women and men as units of analysis and knowledge holders of problems in agriculture-based applied researches and link gendered research with policy designs and implementations</p>

Table 4 (continued)

Policy	Selected components and assumed strategies related to gender mainstreaming	Implementation gaps identified from data	Proposed implementation strategies
	<p data-bbox="248 1090 365 1478">Facilitate a collaborative approach between technocrats and women and men smallholders to restructure the Food Security Strategy, based on the differentiated needs of women and men smallholders</p>		<p data-bbox="248 296 365 596">Facilitate a collaborative approach between technocrats and women and men smallholders to restructure the Food Security Strategy, based on the differentiated needs of women and men smallholders</p>
	<p data-bbox="381 1090 451 1478">Consider and address the heterogeneity of families in gender planning that addresses agricultural input needs</p>		<p data-bbox="381 296 451 596">Consider and address the heterogeneity of families in gender planning that addresses agricultural input needs</p>
	<p data-bbox="466 1090 513 1478">Collect sex-disaggregated data within the household and use the data when distributing inputs</p>		<p data-bbox="466 296 513 596">Collect sex-disaggregated data within the household and use the data when distributing inputs</p>
	<p data-bbox="529 1090 599 1478">Facilitate women-only public credit systems and establish grassroots women's organizations to facilitate credit and market opportunity for women smallholders</p>	<p data-bbox="520 737 538 1037">Women's access to credit is limited</p>	<p data-bbox="520 296 591 596">Facilitate women-only public credit systems and establish grassroots women's organizations to facilitate credit and market opportunity for women smallholders</p>
	<p data-bbox="627 1090 698 1478">Consider land liberalization reform, as small family plots do not allow production and productivity growth owing to land fragmentation. Land liberalization would also expand the off-farm economy thereby widening women's access to employment and involvement in off-farm businesses that in turn would enhance their access to agricultural inputs</p>	<p data-bbox="627 613 698 1037">Land is state-controlled which hinders the expansion of the off-farm economy and employment opportunities, thereby restricting women's involvement therein, which is vital to develop women's capacity to buy agricultural inputs</p>	<p data-bbox="627 296 698 596">Consider land liberalization reform, as small family plots do not allow production and productivity growth owing to land fragmentation. Land liberalization would also expand the off-farm economy thereby widening women's access to employment and involvement in off-farm businesses that in turn would enhance their access to agricultural inputs</p>
	<p data-bbox="726 1090 797 1478">Practically support the creation of competitive markets by reducing state domination to create openings for women and men to access inputs at affordable prices and based on their needs</p>	<p data-bbox="839 613 910 1037">Absence of a competitive market and excessive state intervention in input distribution that restrict input and price options, thereby limiting women's need and choice for technologies</p>	<p data-bbox="726 296 797 596">Practically support the creation of competitive markets by reducing state domination to create openings for women and men to access inputs at affordable prices and based on their needs</p>

Table 4 (continued)

Policy	Selected components and assumed strategies related to gender mainstreaming	Implementation gaps identified from data	Proposed implementation strategies
Entitlement promoting programs such as	Only a few NGOs facilitate petty trading for women; employment opportunities are absent	Do not leave the task of creating petty employment schemes to NGOs as they cannot operate on large scales—public rural institutions should design petty trading schemes for women	Do not leave the task of creating petty employment schemes to NGOs as they cannot operate on large scales—public rural institutions should design petty trading schemes for women
Employment support schemes	No nutrition interventions for women by public institutions were identified	Recognize that women farmers perform triple gender roles and need nutrition intervention services to enhance their productivity	Recognize that women farmers perform triple gender roles and need nutrition intervention services to enhance their productivity
Targeted nutrition intervention programs	The intra-household unequal gendered access to food is not taken into consideration	Consider and address the heterogeneity of families including marriage styles, age, education and class status in the gender planning of food entitlement programs within the household	Consider and address the heterogeneity of families including marriage styles, age, education and class status in the gender planning of food entitlement programs within the household
Resource transfer to chronically food-insecure households	Although the PSNP program transfers resource to chronically food-insecure households, the amount is too small and does not consider women's needs and challenges in producing and accessing food, since the program is mainly household centered	Facilitate welfare planning under the WID to address practical gender needs such as access to water, health care, credit, etc.	Facilitate welfare planning under the WID to address practical gender needs such as access to water, health care, credit, etc.
The PSNP program		Increase the amount of resource transfer by the PSNP program and connect resource transfer to women's needs in terms of improving their ability to produce and access food	Increase the amount of resource transfer by the PSNP program and connect resource transfer to women's needs in terms of improving their ability to produce and access food

Some NGOs assist women users in the case of pump-based SSIS. These NGOs use the women empowerment policy of the WID approach and target women's agriculture-based livelihoods. Since public agricultural institutions do not implement "women-only" agricultural projects, women's practical gender needs such as access to credit are not addressed. A specific local NGO provides small motor pumps to women's groups and facilitates access to credit for women pump-based SSIS users by creating a linkage between women and financial institutions. Unfortunately, credit provided by loan institutions sometimes causes intricate outcomes for women smallholders. In-depth interviews indicate that husbands often use and control the loan money, and some loan organizations force women to pay 24% interest. According to findings from the in-depth interviews, many farmers encounter problems in paying back the loan and interest, particularly during dry seasons when the amount of irrigation water is reduced. Low levels of rainfall resulting in recurrent droughts mean that growing vegetables becomes a risky business, thus adversely affecting the ability to repay loans. Such complications make it difficult for women to access credit essential to buy inputs necessary for the use of SSIS.

Women smallholders have restricted access to extension services (see Tables 1, 2, 3). Men have 18.95 times higher odds ratio in accessing agricultural extension services compared to women ($p < 0.000$) (Table 2). Crop cultivation in general, and the use of agricultural technologies, in particular, is linked mainly to household heads in the extension delivery system. This demonstrates that formal rural institutions continue to perpetuate the patriarchal thought that perceives men as "the proper farmers". Excluding women in male-headed households from extension services is a common practice. The usual "justification" that was given by development agents (DAs) during the in-depth interviews, is that if husbands access the service, they will deliver information to their wives. Interviewed DAs also indicated that since women in male-headed households live under the control of their husbands, and men are traditionally regarded as the main taxpayers on agricultural land, they are not obliged to provide extension services to women since "they are not taxpayers". DAs also indicated that they do not talk to wives without the presence of their husbands, as this is customarily prohibited. Moreover, there are no specifically designed strategies for DAs to address women's issues in the extension system in any of the study contexts.

Although the PADETES model is said to be "participatory" [31], the ongoing extension provision regarding the provision of fertilizers, improved seeds, credit, and agricultural training in study areas is given in a top-down approach by considering farmers as "passive receivers" of inputs and agronomic knowledge. As a result, the extension system falls short of addressing farmers' needs [44] in general, and women's needs in particular. Although female extension agents are more likely to reach women farmers, most extension agents are men (Tables 1, 2). In the 15 *Kebeles* assessed in this study, only one woman DA was identified. A significant difference has been identified between men and women's access to skills training (Table 1). The GAD approach that is narrated and intended to be implemented via PADETES, states that women's needs of extension will be systematically addressed, agricultural technologies will be promoted for women, inputs will be availed for women through credit, and local public administrative structures will arrange collateral issues for

gender equality in agriculture, were not found practical. As most of the findings demonstrate, the narratives of the Food Security Strategy that is developing infrastructure, promoting credit services, encouraging competitive marketing of input and outputs, were not also practical particularly when it comes to women smallholders (see Tables 1, 2, 3, 4).

Cooperatives are expected to identify local input needs, link farmers with *Kebele* and *Woreda* administrations for accessing inputs, and create market opportunities for smallholders [42]. However, membership and the services offered by cooperatives are often directed to male household heads (Table 1). Findings from the in-depth interviews further show that men are traditionally considered as input buyers, which is connected to women's restricted access to and control over household incomes. Farmers purchase agricultural extension inputs such as fertilizers and seeds, by paying half the price upon collection and signing an agreement paper compelling them to pay the other half within an allocated time span. Thereafter, the *Woreda* or *Kebele* agents distribute agricultural inputs based on the lists of farmers reported through cooperatives. However, since cooperatives only address men in male-headed and women in female-headed households, women's needs are not considered separately from the needs of the household head in male-headed households. The findings show that in the study environments, DAs and cooperatives are not involved in identifying and addressing women's needs regarding the use of agricultural technologies (Table 1). This is required in order to implement the GAD approach of development for enhancing gender equality in agricultural development.

In-depth interviews indicated that cultural norms determine individuals' access to food within the household. Women are perceived to be resilient to hunger and are not often accessing nutritious food. Entitlement promotion programs in the form of nutrition interventions are indicated to be provided to farmers in the Food Security Strategy. The reality is, however far from the gender mainstreaming policy directives, with the exception that a few NGOs occasionally intervene in the area of child nutrition enhancement in the study environments. Women's restricted access to credit and extension services, limited access to skills training on agricultural technologies, and restricted access to food within the household, provide empirical evidence of the limited operationalization of the gender-mainstreaming narratives in the PADETES and the Food Security Strategy (Tables 1, 2, 3, 4).

The Gendered Impacts of the Political Environment in Agriculture

The government that has been in power in Ethiopia over the last decades claims to be “a developmental state” [23]. Accordingly, policies and their implementation strategies are designed based on the principles of a developmental state. Chibber [9] claims that administrative rationality and appropriate power relations between structures and agencies that are responsible for implementing policies are required to reduce non-developmental outcomes in the developmental state model. The national Agriculture Development Led Industrialization (ADLI) policy, for instance, has not been implemented in a way it transforms smallholder agriculture [32, 39, 44]. The ineffectiveness of gender mainstreaming in agriculture can also be viewed as the

result of the lack of cohesiveness, smooth linkages and power relations between administrative structures and policy implementers, as well as the lack of administrative or bureaucratic rationality.

Developing specific gender mainstreaming institutional strategies, institutionalizing them, and assigning responsible implementers in each administrative structure are measures desired to implement the GAD development approach for gender equality in agriculture. The descending order of the current administrative structure is federal–regional–zonal–*Woreda*–*Kebele*. The MoFEC developed sectoral gender budget guideline that dictates regional governments to allocate and evaluate gender budget in agriculture. Zonal offices are expected to supervise the implementation of policies, and *Woredas* and *Kebeles* are anticipated to operationalize the gender-mainstreaming narratives of policies in local contexts. In-depth interviews show that only one gender desk officer is assigned, at the *Woreda* agricultural development offices in the study areas. However, no gender budget is allocated to run gender-mainstreaming activities in agriculture in any of the study areas. The gender focal persons in *Woredas* do not implement gender-mainstreaming principles and activities, as those managing the budgetary system at the regional level do not reserve specific gender budget to address gender inequalities in agriculture. Hence, in spite of PADETES and the Food Security Strategy dictating the need to mainstream gender in agriculture using GAD, a gender budget and other resources are not allocated in all administrative structures. This demonstrates that gender mainstreaming is tokenistic rather than practical.

The lack of coordination between responsible horizontal agencies or ministries such as MoCWA, MoANR, MoFEC (i.e. sector fragmentation) exacerbates the problem. The success of gender-mainstreaming policies in agriculture is further restricted by an absence of linkages between women's affairs offices located at the federal–regional–zonal–*Woreda* and *Kebele* levels, and sectoral offices such as the *Woreda* agricultural development offices. Thus, the lack of synchronized effort stretches vertically and horizontally across all administrative structures; and absence of internal cohesiveness between agencies and structures hinder the practicality of gender-mainstreaming policies. Hence, all the findings demonstrate that development in the “development state” is understood more from the viewpoint of increasing agricultural production and individuals' entitlement to development opportunities is not considered.

The PSNP program (within the Food Security Strategy) intends to reach chronically food-insecure households through resource transfer; however, it operates by accepting the household as a single unit without considering the gender and other dynamics of inequalities within the household [38]. The agricultural extension service also focuses on the distribution of extension packages in a top-down approach [11, 14] disregarding gender-equality in distribution. Furthermore, the distribution of extension packages targets primarily those farmers who are active supporters of the political system [4, 33], excluding women smallholders and other marginalized groups, including those who are not active in local politics. Women in male-headed households are not identified as model farmers in any of the study *Kebeles*. Interviewed women users indicated that, even in a situation where their husbands are selected as model farmers, the women are not recognized as such—this demonstrates

the extent of the patriarchal image of farming, which is being perpetuated even by formal rural institutions. Although targeting the vulnerable and the marginalized (such as women smallholders) is central in attaining sustainable food security objectives, the exclusion of women smallholders from rural institutional services demonstrate that individuals' rights to development are not recognized or addressed in any real sense. The limited opportunity women and men smallholders have in developing their agricultural and other livelihood capitals, further contributes to the limited practicality of gender mainstreaming in agriculture. Hence, policies dictate the need to address women's problems in general terms, but the findings demonstrate that it is hard to find practical implementations of context-based strategies that address women's specific needs of agricultural inputs and services. Findings confirm what Daly [13] states that is a technocratic view of gender mainstreaming often falls short of grasping the real voices and needs of women.

Policy Implications

Women's access to and control over agricultural inputs and access to agricultural institutional services are limited compared to men in study areas. The findings are in line with the conceptualization of the GAD approach that is the subordinate position of women that emanates from the patriarchal system, predominantly contributes to gender inequalities in agricultural development. Findings demonstrate absence of proper institutionalization and implementation of gender mainstreaming in agriculture. Hence, proper institutionalization and implementation of the GAD approach of development is required for the practicality of gender mainstreaming in Ethiopia's agriculture.

Findings further show that the multiple identities of women such as education status, age and marriage type constrain gender mainstreaming in agriculture. The WCD (*Identities of Women Framework*)—a relatively new approach—should be considered in designing policies and local implementation strategies, as it helps to identify problems linked to the multiple identities of women that constrain gender equality in development. The WID approach that uses the “women only” path which is found by NGOs to be practical in study areas, can also indirectly contribute to the practicality of gender mainstreaming in agriculture as such activities enhance women's access to agricultural inputs such as credit. We recommend an interchangeable and concurrent use of these approaches, based on needs and by addressing the distinct implementation challenges at the local level. Proper implementation and institutionalization of WID and WCD approaches could pave the way for enhanced practicality of gender mainstreaming for gender equality in agricultural development. Hence, careful implementation of the GAD approach that considers contextual realities is possible and required. Moreover, success in gender mainstreaming depends on the effective institutionalization and implementation of gender-mainstreaming policies and strategies on a day-to-day basis.

It is vital to set a transformative gender agenda by designing policies based on the interests and needs of women smallholders; however, those who perceive gender mainstreaming as merely technocratic often design policies in a top-down approach

which produces opposing impacts on the practicality of gender-mainstreaming. Currently, Ethiopia's policies are designed in the latter way, either by those driven by their own political interests or by technocrats who are assumed "knowledge holders" of development problems. Involving gender advocates in mainstreaming activities and strengthening solidarity among women are useful to better implement and institutionalize gender-mainstreaming policies. Unfortunately, Ethiopia is characterized by the absence of politically empowered women politicians in its real sense, and most rural women live in a poverty cycle, trapped by their daily struggle for survival and shouldering triple gender roles to sustain their families. The lack of strong women-centered grassroots organizations (besides those small associations that support women during death and marriage events) and the absence of activism regarding "agriculture for women's livelihoods and food security" further exacerbate the restricted practicality of gender-mainstreaming policies in agriculture. Hence, we recommend that grassroots women need to contribute their knowledge in designing locally-specific gender mainstreaming strategies, and grassroots women's organizations should be established in order to facilitate gender equality in agricultural development.

A unity of purpose has to be created between women and men farmers, agricultural projects, researchers, institutions, and policies, by harmonizing all relevant bodies and actors—that is currently absent. The following actions are required in order to enhance the viability of gender-mainstreaming policies in agriculture in Ethiopia: designing specific local strategies for addressing women smallholders input and other needs; identifying and addressing the multiple realities of women; allocating gender budgets to facilitate gender mainstreaming in agriculture. Reforming and practically operationalizing land laws at both national and local level, implementing a collaborative approach among government ministries, administrative structures, agricultural institutions and other stakeholders along with all proposed strategies in the evaluation of policies in this study.

Conclusions

Findings of this study demonstrate that gender mainstreaming narrated in agriculture-related policies in Ethiopia is not presently practical in the three areas under study. There are no targeted and applied guidelines or specific gender budgets in all the local administrative structures. Access to land, credit, and extension services is significantly restricted for women smallholders. Since land ownership for men and women is not allowed, the off-farm economy and employment opportunities are limited, which in turn, affects women's involvement in off-farm employment and investment prospects that could enhance their access to agricultural land and inputs. The top-down approach of the agricultural extension system that focuses on distribution exacerbates the neglect of women smallholders. Hence, we recommend that the policy and institutional environment should be restructured in order to pursue a realistic implementation of gender mainstreaming in agricultural development. It is also essential to re-establish institutional rules and strategize women's

access to and control over agricultural inputs and access to institutional services at the local level.

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Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent The research involved human participants, who were informed about the use of the data. Informed consent was obtained from all individual participants prior to accessing the research survey.

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