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From the home garden agroforestry to commercialized khat crops a promise for men and a peril for women in Southern Ethiopia?

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ABSTRACT

Traditional home gardens in southern Ethiopia are acknowledged for equitable gender involvement in agriculture. However, these age old traditional home gardens are changing towards commercialization of khat. Smallholders commercialization to khat may affect the gender participation in agricultural activities. Thus, the effect of change in home gardens commercialization to khat on gender participation in agricultural activities and its variation between different resource endowed farmers were studied based on a survey of 120 farm households and focus group discussions. The study revealed that men played major role in land preparation, planting and management of all crops grown within home gardens. The involvement of men in all khat related activities were higher than all crops whereas women's involvement in khat was the least of all crops. Women were involved more on management and harvesting of vegetables and root crop and harvesting of enset. Land preparation of coffee, cereal crops and root crops involved more of both men and women as compared to other crops. The involvement of both men and women in the harvesting of coffee and annual cereals were higher than other crops while harvesting of khat and fruit trees were dominated by men. Resource endowment caused variation in gender participation in agriculture as women in large farm households involved more on the harvesting of enset while those in medium and small farm household more on land preparation for enset and annual cereals. Understanding the effect of commercialization to khat on gender participation helps to design tailored sustainable development options to enhance gender participation in agriculture.

Keywords: Commercialization; Gender; Home gardens; Khat; Resource endowment

Introduction

Agroforestry system is a practice of integrating woody vegetation with crops and/or animals for the economic and ecological benefits derived from their interactions [1]. An estimated 1.2 billion rural people worldwide practiced agroforestry on their farms and depend on its products. Worldwide, nearly a billion hectares of agricultural landscapes already have more than 10% tree cover, from which approximately 560 million people drive their means of living [2]. Agroforestry systems are practiced for their multiple benefits includes rising the economic status of the farming community, efficient resources utilization within the farm and environmental resilience to climatic change. However, the type and composition and extent vary from place to place because of varied topography, biophysical attributes and socioeconomics. Agroforestry systems would be practiced in many forms, including improved fallows, home gardens, growing multipurpose trees and shrubs, boundary planting, farm woodlots, orchards, plantation/crop combinations, shelterbelts, windbreaks, conservation hedges, fodder banks, live fences, trees on pasture and tree apiculture [3].

A home garden agroforestry system is one of the predominant land use type practiced particularly in humid tropical countries [4]. Home garden agroforestry systems are a complex multi stratum land use type and it is defined as

combined production of multipurpose trees and shrubs in intimate association with annual and perennial crops together with livestock around the homestead on small plots of land which are mainly managed by family labour [5]. In Ethiopia, one of the tropical counters home gardens are predominantly practiced in densely populated areas of southern Ethiopia. These home gardens are recognized by a unique combination of two major native perennials such as coffee (*Coffea arabica* L.) and Enset (*Enset ventricosum* Welw. Cheesman) and it is traditionally called enset coffee home gardens. In southern Ethiopia, home gardens are the prevalent land use system covering about 576,000 ha, which is 31% of the region's cultivable land. Within the traditional 'enset coffee' home gardens enset and coffee occupy more than 65% of the farm. Enset is an herbaceous, multipurpose crop and a staple food for more than 15 million people. Enset leaves are a key livestock feed and used as mulch to reduce soil erosion and runoff. Hence, enset fulfills both productive and protective functions. Coffee is mainly a cash crop, but is also consumed [6].

Practicing polyculture home garden systems are believed to enhance the equitable involvement of family members in participating in agricultural activities and income use decision. In rural Ethiopia, men are mainly involved in cultivating land, livestock herding and cash crop production, including its harvesting and marketing. On the other hand, women are involved in managing, harvesting and marketing of food crops, vegetables and livestock products such as milk and butter [7]. However, in home garden agroforestry systems where food and cash crops are grown together combined with trees are believed to enhance the participation of both men and women in agriculture as its management commonly taken place simultaneously [8].

However recently, enset and coffee, keystone components of traditional home gardens are replaced by cash crop khat. Khat is grown for its economically important leaves and twigs, which are chewed as stimulant. In the study areas of Wondo Genet woreda, khat was expanded from 5% to 35% per farm and in response, the share of farm area devoted to both enset and coffee decreased from 45% to 25% period from 1991 to 2013. The new transition to cash crop khat cultivation is claimed for exclusion of women in agriculture and access and control over farm resources [9]. Most studies on the home gardens of southern Ethiopia claimed that expansion of khat has resulted in homogenization of the structure and composition of the traditional land use systems which resulted in decline in soil fertility Yet, little is known about how the systems shift to cash crop khat influenced gender in agricultural activities participation and how that vary between different resource endowed farmers. Thus, this study was conducted in transition to khat hotspot areas of Wondo genet district of Sidama region [10]. With a wider aim to contribute to designing equitable and effective development programmes that ensure that the newly introduced cash crop khat to agroforestry practicing community create more benefits than burdens for both women and men, this paper aims to: i) Assess the effect of commercialization to khat on gender participation in agriculture; ii) To assess how the shift to khat causes variation on gender participation in agriculture between different resource endowed farmers [11].

Materials and Methods

The study area

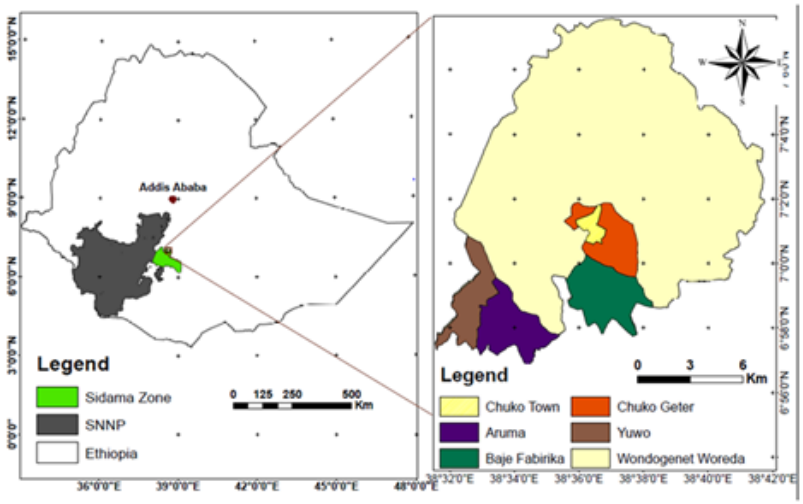
The study was conducted in transition to khat hot spot areas of Wondo genet district of Sidama region. Sidama region is representative region with the prevalence of enset coffee home garden agroforestry systems. These home gardens are characterized by the production of enset, coffee and multi-purpose trees, accompanied by root crops, vegetables, annual cereal crops and livestock keeping. Sidama is located within 5°45′–6°45′N and 38°5′–39°41′E, covering a total area of 7672 km^2 with 3.50 million inhabitants. Most kebeles (smallest Ethiopian administrative unit, also called peasant association or PA) in sidama are classified as 'rural'. The rainfall distribution is bimodal with a long (June to September) and short (March to May) rainy season [12].

Sidama region straddle two agro ecological zones, the moist mid-altitude (In Amharic: Woinadega) and the moist highland (In Amharic: dega). The moist mid-altitude zone ranges in elevation from 1500 to 2300 m a.s.l. and receives 1200–1600 mm rainfall annually; the average annual temperature ranges from 16 to 22°C. The moist highland zone comprises an elevation range of 2300–3200 m a.s.l.; mean annual rainfall amounts to 1600–2000 mm and the average annual temperature ranges from 15°C to 19°C. The soils in the mid-altitude and highland agro-ecologies are mainly characterized by clay loam to silt loam and loam to sandy clay textural classes respectively [13].

Selection of the study site and farm households

Within Sidama region, one district (In Amharic: Woreda) characterized as hotspots of the transition towards khat was selected (Wondo Genet) and within the district, four kebels (Aruma. Baja Fabrika, Chuko center and Ywo) were purposely selected as those kebeles are dominated by khat cultivation (Figure 1). Within each kebele, 30 households, 120 households in total, were selected for household survey [14]. The districts' bureau of agriculture categorized farms as small, medium and large based on the area of their land holding and the number of livestock. Farms with >1.25 ha of land and >5 TLU were categorized as large, 0.5–1.25 ha and 1–5 TLU as medium, and <0.5 ha and 0–1 TLU as small. Stratified random sampling ensured that the number of selected households in each group was in line with their share in each of the PAs. Furthermore, one Focus Group Discussions (FGD) in each kebele, 4 FGD were conducted with a group member of 8-10 people per FGD. The FGDs were elderly, youth men and women from different wealth categories. During FGD, challenges and opportunities of khat expansion, its implication on gender involvement in agricultural activities and the future sustainable intervention options were discussed [15].

Figure 1: Map of the study areas showing the four kebeles selected within Wondo Genet district of Sidama region.



Data collection

A detailed household survey was administered between September and December 2020 with 120 farm households. We used a semi structured questionnaire to collect data on the participation of men and women in major farm management activities, processing, marketing and decision on income use. Farm management include land preparation (site selection, hoeing or ploughing, levelling of the soil), planting of crops (variety selection, establishing nursery site, sowing/planting of crops), management include applying inputs (fertilizer, irrigation, pesticide/insecticide) and weeding and harvesting is the last step of cultivation as it involves separating the crop residue and yield [16]. Data on processing (separating the marketable from unmarketable, packing and transporting), marketing (responsibility of power of deciding on the price, and amount to be sold), income use decision (the power of deciding on allocation of the income) and income use (the use power of the income utilization) were collected. Household heads were asked about demographic characteristics (family size, level of education, age, and family size), land allocation to various annual and perennial crops (Enset, coffee, khat, maize, vegetables, woodlot etc.), total land holding and herd size. Enumerators with a certificate in agriculture and speaking the local language were recruited from the localities and trained in data collection [17].

Data analysis

Descriptive statistics such as means and frequencies were applied to summarize the result. Analyses were performed using the Statistical Package for Social Sciences (SPSS) version 20.

Results

Socioeconomic characteristics and land use types

The average age of respondents were less than 50 years old in all kebeles and about half of them attended primary

school (Table 1). All households had less than 5 family members and own an average of about one hectare of land except those in Baja fabrika. Farmers in Baja fabrika allocated the smallest area of the farm to enset (11.36%) and coffee (9.47) while those in other three kebeles allocated about one third of their farm to both enset and coffee. Farmers within Chuko and Baja fabrika allocated more than half of their farm to khat while those in Yuwo and Aruma allocated one-third of their farm to khat. Root crops mainly potato, occupied about 10% of the farm in Baja fabrika followed by Aruma and Yuwo while it occupied less than 1% of the farm in Chuko. Annual crops mainly maize occupied about 17% and 13% of the farm in Yuwo and Aruma kebeles respectively. Annual crops occupy less than 2% of the farm in Chuko and Baja fabrica [18]. Wood lot occupied about 10% of the farm in Baja Fabrica followed by Aruma (6%). Grazing land occupied less than 10% of the farm in Yuwo and Baja fabrika and it occupied less than 5% of the farm in Chuko and Aruma kebeles.

Table 1: Socioeconomic characteristics and land use types of farm households in the study area (n=120).

Socioeconomic attributes		Study Kebeles			
		Chuko	Yuwo	Baja fabrika	Aruma
Education	Age (years)	47	45	45	49
	Illiterate	12 (40%)	7 (23%)	6 (20%)	4 (13%)
	Read and write	1 (3%)	1 (3%)	5 (17%)	2 (7%)
	Primary school	15 (50%)	13 (43%)	12 (40%)	17 (57)
	Secondary school	2 (7%)	6 (20%)	5 (17%)	6 (20)
	TVT diploma	0	1(3%)	1 (3%)	0
	University degree	0	1 (3%)	1 (3%)	2 (7%)
	Family size (no)	4	3.6	4.2	4
	Farm size (ha)	1	1.2	0.6	1.1
Land use types (%)	Enset	27.73	19.2	11.36	22.36
	Coffee	12.11	13.21	9.47	13.97
	Khat	55.53	35.7	51.12	34.97
	Annual cereals	1.47	17.38	1.31	12.72
	Fruit trees	0	0	1.62	2.09
	Root crops	0.88	4.51	8.66	6.11
	Vegetables	0	2.1	0	0.85
	Wood lot	0.88	1.43	10	3.69
	Grazing land	1.4	7.47	6.46	3.24

Gender participation in major farm management activities

The study revealed that men played major role in land preparation, planting and management of all crops grown within agroforestry system (Table 2). The involvement of men in the land preparation, planting, management and harvesting of khat were higher than all crops grown in the home gardens whereas women's involvement in khat was the least of all crops [19]. Women were involved more on management and harvesting of vegetables and root crop and harvesting of enset was manly performed by women. Land preparation of coffee, cereal crops and root crops involved more of both men and women as compared to other crops grown in the home gardens. Furthermore, the involvement of both men and women in the harvesting of coffee and annual cereals were higher than other crops while harvesting of khat and fruit trees were dominated by men.

Table 2: Gender participation in land preparation, management and harvesting of crops grown in the home gardens of Wondo Genet, Sidama region (n=120).

Crops	Land preparation			Planting			Management			Harvesting		
	Men	Women	Both	Men	Women	Both	Men	Women	Both	Men	Women	Both
Enset	47.5	14.2	38.3	93.3	1.7	5.1	79.1	9.2	11.7	37.5	55	7.5
Coffee	43.4	8.3	48.3	75.8	12.5	11.7	70.8	7.5	21.7	32.5	28.4	39.1
Khat	55.8	6.7	37.5	92.5	1.7	5.8	83.4	1.6	15	75	1.7	23.3
Cereals	37.5	14.2	48.3	55.4	26.7	17.9	52.5	10.8	36.7	27.5	30	42.5
Fruit trees	50	15.8	34.2	76.3	22	1.7	64	10	26	44.2	16.7	39.1

Root crops	17.5	35.8	46.7	55	25	20	45	46.7	8.3	28.3	40.8	30.9
Vegetables	53	14	33	45	35	20	35	60.8	4.2	38.4	57.5	4.1

Gender participation in processing, marketing and income use decision for farm products

In the study area, processing of enset was almost given to women while processing of khat to men. The respondents indicated that 92.5% of enset processing activity was entirely accomplished by women while their involvement in khat processing was almost nil. The processing of khat, which involves separating the marketable leaf from un marketable leaf and wrapping it with fresh enset leaf with the aim to maintain its quality was dominantly performed by men whereas women were dominantly involved in the processing of coffee, fruits, and root and vegetable crops than men. Marketing of home garden products such as enset (89.2) coffee 50%), fruits (58.4), root crops (57.5) and vegetables (52,5) were mainly carried out by women while marketing of khat (78.3) was mainly done by men.

The decision on income of home garden products vary between men and women. Women are the one who decide on the income from enset (78.9%) while men had an authority of deciding on the income from khat (68.3%) (Table 3). Furthermore, women had more authority in deciding on the income from coffee (46.7%), fruits (53.3%), root crops (46.7%) and vegetables (47.8%) than men. The incomes from annual cereals were decided by mainly both men and women. Given the fact that the income generated from home garden products are expected to fulfil the demands of households, the higher involvement of both men and women on the decision to what to expend the income is vital.

Table 3: Gender participation in processing, marketing, income decision and income use of homegarden products in Wondo Genet, Sidama Region (n=120).

Crops	Processing			Marketing			Income decision			Income use		
	Men	Women	Both	Men	Women	Both	Men	Women	Both	Men	Women	Both
Enset	2.5	92.5	5	3.3	89.2	7.6	8.3	78.9	12.8	9.2	21.5	69.1
Coffee	5	46.7	48.3	15	50	35	18.7	46.7	34.6	15.8	21.5	62.7
Khat	74.2	2.5	23.3	78.3	1.7	20	68.3	5.9	25.8	30.9	7.5	61.6
Cereals	15.9	26.7	57.4	20.8	31	48.3	15.4	35.5	49.1	31	32.4	36.6
Fruit trees	17.3	46.9	35.8	4.1	58.4	37.5	7.5	53.3	39.2	18.3	30	51.7
Root crops	26.7	43.3	30	19	57.5	23.5	17.4	46.7	35.9	20	31	49
Vegetables	22	46	32	5.8	52.5	41.7	35	47.8	17.2	18.3	20	61.7

Variation in resource endowment and its effect on gender participation in major farm management activities

The gender participation on different farm management activities were summarized for different wealth categories of the farm households. In large and medium farm households, about half of the respondents reported that, land preparation for enset planting is performed by men while it was about one third of the respondents for small farm households (Table 4). More women in small farm households involved in enset land preparation than the medium and large farms. Enset planting and management were mainly performed by men regardless of their resource endowment categories. In medium and large farm households, more than half of the respondents reported that, enset harvesting was executed by women while, the involvement of women in enset harvesting was reported by less than half of the respondents in small farm households. Although seed bed preparation, planting, management and harvesting of coffee mainly performed by men in the three resources endowed farmers, in more than half of the large farms, women dominated the harvesting of coffee. On the other hand, women had no role in any of khat related activities in large farm households whereas in medium and small farm households, women had little involvement. Women have larger participation in land preparation of annual cereals (maize) in medium and small farm households compared to large farm households. Fruit tree related agricultural activities are mainly performed by men regardless of their differences in resource endowment while root crops involve more of both men and women. In large farm households, harvesting of vegetables are mainly performed by women while every activity related to vegetables are performed by men in medium and small farm households.

Table 4: Gender participation in land preparation, planting, management and harvesting of crops for the different.

Crops		Large (n=19)											
		Land preparation			Planting			Management			Harvesting		
	n	Men	Women	Both	Men	Women	Both	Men	Women	Both	Men	Women	Both
Enset	19	47	11	42	100	0	0	84	5	11	37	53	10
Coffee	18	39	6	55	94	0	6	83	11	6	44	28	28
Khat	18	50	0	50	100	0	0	100	0	0	89	0	11
Cereals	11	36	46	18	91	0	9	91	0		28	0	27
Fruit trees	17	41	12	47	100	0	0	82	12	6	5	18	29
Root crops	4	0	25	75	50	25	25	50	25	25	25	25	50
Vegetables	8	62	13	25	50	13	37	75	25	0	44	56	0
	Medium (n=70)												
Enset	70	57	10	33	97	0	3	79	10	11	34	61	5
Coffee	56	45	9	46	93	2	5	70	5	25	34	18	48
Khat	67	54	6	40	9	2	6	72	1	14	75	1	24
Cereals	32	9	85	6	97	3	0	75	0	25	31	10	59
Fruit	51	57	6	37	73	23	4	76.5	2	22	34	18	37
Vegetables	19	63	11	26	53	16	31	90	5	5	48	26	26
Root crops	6	17	33	50	0	67	33	67	0	33	50	0	50
	Small (n=31)												
Enset	31	33	27	40	73	3	24	77	10	13	47	40	13
Coffee	26	27	19	54	84	8	8	73	8	19	4	19	35
Khat	28	50	14	36	89	4	7.1	79	4	18	71	4	25
Cereals	9	0	89	11	78	11	11	56	11	33	33	11	56
Fruit	17	47	12	41	88	12	0	65	12	23	47	12	41
Root crops	8	0	12	88	50	25	25	67	0	33	67	0	33
Vegetables	5	60	0	40	40	60	0	100	0	0	80	20	0

Variation in resourced endowment and its effect on gender participation in processing, marketing and income use decision of farm products

The gender participation on processing, marketing and income uses decision of crop products grown in home gardens were summarized for different resource endowed farm households. Women were involved in enset and coffee processing, marketing, and income use decision of enset regardless of being in different farm types. In contrary, men highly involved in khat processing, marketing and income use regardless of being in different farm types and women had no role. The processing (threshing), marketing, income use decision and income use of cereals were mainly performed by both men and women. Women had dominant role in processing, marketing, and income use decision of fruits in large farm households while they involved more on marketing and income use decision of fruits in medium and small farm households. In large farm households, processing of root crops is mainly performed by both men and women while its income use is decided mainly women. In contrast, in medium and small farm households, processing, marketing and income use decision of root crops are executed by women. Processing of vegetables was mainly performed by women in large and medium farm households while men in small farm households (Table 5). Marketing and income use decision of vegetables are performed by women in all the three farm types.

Table 5: Gender participation in processing, marketing, income decision, income use.

Crops		Large (n=19)											
		Processing			Marketing			Income decision			Income use		
	n	Men	Women	Both	Men	Women	Both	Men	Women	Both	Men	Women	Both
Enset	19	0	95	5	5	100	0	11	79	10	11	21	68
Coffee	18	0	44	56	0	61	39	0	56	44	0	6	94
Khat	18	83	0	17	89	0	11	83	0	17	28	0	72

Cereals	11	36	9	55	27	9	64	18	27	55	9	0	91
Fruit trees	17	23	59	18	6	71	23	0	71	29	6	18	76
Root crops	4	0	25	75	0	50	50	25	50	25	25	75	0
Vegetables	8	33	56	11	0	78	22	11	56	33	11	33	56
	Medium (n=70)												
Enset	70	1	94	5	0	91	9	4	73	23	5	29	66
Coffee	56	7	39	54	2	55	43	5	41	55	2	20	79
Khat	67	73	3	24)	73	2	25	65	6	28	27	6	67
Cereals	32	3	19	78	9	28	63	39	28	63	6	6	88
Fruit	51	2	35	63	0	59	41	4	57	39	12	27	61
Vegetables	6	17	50	33	17	33	50	25	50	25	33	67	0
Root crops	19	26	42	32	0	90	10	11	58	32	11	68	21
	Small (n=31)												
Enset	31	3	90	7	7	83	10	10	67	20	7	27	67
Coffee	26	8	46	46	8	50	42	12	50	38	8	38	54
Khat	28	71	4	25	71	4	25	68	4	29	41	3	52
Cereals	9	11	11	78	11	11	78	22	22	56	11	22	67
Fruit	17	12	18	70	0	53	47	6	65	29	12	29	59
Root crops	8	13	75	13	0	75	25	25	50	25	25	63	12
Vegetables	5	80	0	20	20	60	20	0	60	40	20	80	0

Discussion

Is commercialization to cash crop khat a promise for men and a peril for women in Southern Ethiopia?

The age old enset coffee home garden agroforestry systems are acknowledged for creating equal opportunity of gender participation as it is managed by family labour. Given variation in the types of activities in the home gardens, sharing of tasks between men and women is expected. This result revealed that, men were engaged more in land preparation, planting and management of crops while women were engaged more on harvesting and processing of crops grown in the home gardens. Similarly, studies conducted in rural Java, Indonesia indicated a clear sharing of tasks between woman and men for the management of home gardens. Vegetables and root crops were mainly managed by women whereas enset harvesting, processing and income use decision were exclusively left for women. The land preparation of coffee, cereal crops and root crops involved both men and women as compared to other crops. This confirms the hypothesis that practicing enset-coffee based home gardens create equal opportunity of gender participation. However, introduction of cash crop khat into the home gardens favoured the involvement of men in the land preparation, planting, management and harvesting and income use decision than all crops whereas women's involvement in khat related activities were the least compared to all other crops grown in the home gardens. The involvement of women in khat processing, marketing and income use decision was limited. This implies, marginalization of women in agricultural activities in response to expansion of khat at the expenses of enset and coffee where the harvesting, processing, marketing and income use decision of those two crops highly involve women.

The involvement of women was not only limited to khat related activities but also due to the replacement of crops in which women are more involved. In Chuko kebele where the area shares of khat exceeded 50% of the farm area, the area allocated to root crops, which women are involved in its production activities was almost nil. The replacement of food crop enset and annual root crops induced decline in women's involvement in agriculture could have negative implications for food availability, dietary diversity and the nutritional security of the households as traditionally women are given a responsibility of feeding the family. The area share of crops in which women are largely engaged on such as enset (89.1%), vegetable (73%), root crops (69%) annual crops (55 %) and in fruits (75.5%) were the least in area where khat occupy larger area of the farm.

Disparity in equitable involvement of women in agricultural activities and its implication for household wellbeing

Fostering gender equality is taken as a one means to contribute and enhance the speed of achieving one of the sustainable development goals, zero hunger. Many recent studies indicated the linkage between women's empowerment

ment and household livelihood outcomes. Programs that contribute to agricultural development believed to be more effective if they target women. When agricultural income is in women's hands, it is more likely to be spent on health, education and nutrition and their empowerment has a positive impact on the dietary diversity as well as food security of the households. However, the exclusion of women from agricultural activities in response to commercialization to cash crop khat in Southern Ethiopia could impose nutritional insecurity as the women participation positively linked with long term nutritional status of children. The largely market dependency of smallholder farmers, mainly on cereal crops only was reported for the study area. Furthermore, the reported decline in herd size, major protein food source in the study area, may deteriorate the nutritional status of smallholder farmers which will have negative implication for nutritional security of households.

Variation in women's involvement in agriculture was also observed for the three different resource endowed farmers. Women in small farm house holds involved more on land preparation of enset while those in medium and large resource endowed farms involved more on enset harvesting. Although coffee harvesting was dominated by men, women in large farm households involved more in coffee harvesting but they had no role in any khat related activities [20]. Women in medium and small farm households more involved in annual crops land preparation than those in large farm households while women in the latter farm types involved more on vegetable related activities than those in medium and small farm types. This implies that resource endowment had an influence on the variation in gender participation in agricultural activities in the study area. Thus, tailored awareness creation on role of involving women in agriculture on one hand and intercropping of food crops with khat on the other hand would be vital to enhance women's participation in agricultural activities of the study area where khat is being expanding.

Conclusion

We found huge variation in gender participation in agricultural activities in hotspot areas of smallholder commercialization to khat. In the area women were actively involved in the production and processing of food crops whereas men were mainly involved in cultivating land and cash crop production, including its harvesting processing and marketing. Processing of enset, coffee and vegetables were left for women although there is variation for different farm types. Women were also dominantly involved in marketing of vegetables, root crops, annual crops and fruit whereas the agricultural activities related to the newly introduced cash crop khat was dominated by men and women had no role particularly for large farm households. This result revealed that the traditional enset and coffee based agroforestry systems ensure the participation of both men and women while introduction of cash crop khat at the expenses of enset and coffee marginalized women from agricultural activities. Therefore, tailored sustainable developments which en-hance the involvement of women in agricultural activities is needed.

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Disclosure statement

The authors declare no competing interests.

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