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Gender Roles in Crop Production and Management Practices: A Case Study of Three Rural Communities in Ambo District, Ethiopia

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ABSTRACT A research on gender in agriculture was conducted in Ambo district, Ethiopia, between July and September 2007 to assess gender roles in crop production and management. This article is the first of two papers resulting from this research. The second article is on "Improving Access to Productive Resources and Agricultural Services Through Gender Empowerment: A Case Study of Three Rural Communities in Ambo District, Ethiopia". A key premise of this first article is that female farmers contribute more significant to crop production and management than their male counterparts. The paper identifies and examines the roles of female and male farmers in crop production and management through a thorough analysis of secondary information and primary data collected in Ambo District with the help of questionnaires, interviews, observations, focus group discussions, participatory rural appraisal, gender analysis and case studies (life histories). Statistical package for social science (SPSS) and excel spreadsheet functions were used to treat and analyze the data. The results of the analysis indicate that female farmers contribute more than their male counterparts in crop production and management. However, despite their significant role in agriculture, the triple roles of female farmers are not well recognized or valued in the district. The promotion of sustainable agricultural development in the district requires that the needs of both rural male and female farmers are addressed in a comprehensive and systemic manner.

1. INTRODUCTION

Gender relates to socially assigned roles and behaviours attributable to men and women; it refers to the social meaning of biological sex differences. Gender roles are roles that are played by both women and men and which are not determined by biological factors but by the socio-economic and cultural environment or situation (ICA-ILO 2001; Mollel and Mtenga 2000). Gender affects the distribution of resources, wealth, work, decision-making, political power as well as the enjoyment of rights and entitlements within the family and in public life (Welch et al. 2000). Women from poor households engage in a variety of income-generating and expenditure-saving activities. In some cases, these activities supplement the contribution by males while in others they are the primary or the sole source of household livelihoods (Kabeer 2003). Women are twice as likely as men to be involved in agriculture-related activities (Odame et al. 2002). Whatever the culturally ideal position of men and women may be, major economic and social transformations taking place in the globalized world are rapidly and substantially changing household formations and patterns of obligations (Jiggins 1986).

According to Fernando (1998), activities, resources and opportunities of people are significantly influenced by gender- that is, by the socio-economic and cultural dimension of being male or female. Moreover, different types of activities and tasks are generally allocated to women and men within the family in terms of subsistence production and production for the market. In most societies, reproductive tasks or tasks related to child bearing and care and maintenance of the household (cooking, fetching water and firewood) are assigned to women. In addition, women also manage community resources while men participate in formal community politics (Fernando 1998).

Development policies and programmes in most developing countries continue to contain assumptions regarding gender roles that place

women in stereotyped work such as housewives and secretaries (Bhatta 2001). In order to enable women to actively participate in the sustainable development process of Ethiopia and the other developing countries, there is a great need to promote changes in policies, laws, structures and attitudes and development programmes.

Since 1993, the government of Ethiopia committed itself to promoting gender empowerment through the implementation of the Beijing platform of action. Institutional mechanisms for advancing the course of women involves capacity-building financed by a proper institutional development fund; paying special attention to women fuel wood needs; increasing the access of women/girls to education; improving participation in decision-making and in local and national elections; and other measures taken by the government of Ethiopia to improve the employment situation of women are indicative of the country's commitment to improving gender roles in national development (United Nations 2002).

The existing low level of consciousness about the roles women play in the development of Ethiopia; the deep-rooted cultural beliefs and traditional practices that prevent women from playing their full roles in the development process of the country; lack of appropriate technology to reduce the workload of women; shortage of properly qualified female development agents to understand, motivate and empower rural women by eliminating the major constraints hindering their progress (United Nations 2002) motivated the writing of this paper and a follow-up article on "Improving Access to Productive Resources and Agricultural Services Through Gender Empowerment: A Case Study of Three Rural Communities in Ambo District, Ethiopia."

2. BACKGROUND

Ethiopia is the tenth largest country in Africa, covering an area of 1.1 million km ^{2} with considerable geographical diversity consisting of deserts, lush plateaus, tropical lowlands, high altitude mountains and plains below sea level. The climatic conditions also vary with the topography, and temperatures range between 47°C in the Afar depression and 10°C in the highlands (Cherinet and Mulugeta 2003; Deressa 2007). About 16.4 million hectares (14%) of the total land area are suitable for producing annual and perennial crops. About eight million hectares (7%) of the arable land area are used for rainfed crops (Deressa 2007). Small-scale farmers are the largest group of the poor people in Ethiopia. The average land holding is less than 1 ha. Rainfed crop production is the basis of small-scale subsistence farming in most parts of the country which accounts for more than 95% of the land area cultivated annually. In general, farming is mixed; both animal and crop production are practised (Deressa 2007).

Gender division of labour in rural Ethiopia varies in terms of farming systems, cultural settings, location and the different wealth categories (Abera et al. 2006; Mollel and Mtenga 2000). Gender roles in the country also vary according to ethnicity, income, and status. Moreover, as has already mentioned, Ehiopian women are largely responsible for nearly all reproductive tasks such as fetching fuel wood and water, cooking, washing, cleaning and child care. In most cases, men are the heads of households and are therefore the principal decision-makers in the household although some consultation with women may take place. Ethiopian women have longer working hours than men; they carry much of the burden of reproductive work in addition to their productive activities (JICA 1999). They are commonly responsible, along with their children, for taking care of small livestock, production and marketing of butter, cheese, and vegetables. They also engage in non-farm income activities such as petty trading, beer brewing and leather work. However, certain agricultural activities such as ploughing and threshing are mostly done by males in male headed households (FAO 1997). Rural women in Ethiopia often face social, cultural and at times legal constraints that limit their capacity to effectively participate in farming, natural resources management and decision-making. Moreover, the traditional role of women puts gender specific constraints on access to resources such as fuel wood, water resources, post-harvest activities, and livestock management (Dejene 2003; Teshome and Devereux 2005).

3. OBJECTIVES AND CONCEPTUAL FRAMEWORK

The key objective of this paper is to identify the constraints facing both male and female farmers in Ambo district, to analyze their needs and interests and to recommend appropriate policy measures and strategies for effectively

redressing the identified challenges. The conceptual framework on which this paper is anchored is the role of rural women in crop production and management practices. The principal premise of the paper is that Ethiopian rural women are overburdened by the productive, domestic and community work they undertake at the household and community levels. The challenges caused by social and economic transformations make their situation even worst. Figure 1 depicts the relationships between the social, economic, productive and domestic roles of rural female farmers. The components of the framework are briefly described in the next sub-sections.

3.1 Social and Economic Trends: The social and economic trends which influence the situation of rural women in Ethiopia are globalization, privatization, liberalization of trade, migration, feminization of agriculture, environmental degradation, structural adjustment policies, aging society, modernization of agriculture, and HIV/AIDS (*Kobayashi undated)*.

3.2 Productive Roles: Rural women's contribution to productive activities (farming, livestock, and aquaculture, off-farm income generating activities, wage labour and home gardening) is significantly higher than that of their male counterparts.

3.3 Domestic (Reproductive) Roles: Rural women are responsible for almost all domestic activities (cooking, firewood collection, family care, cleaning and washing).

4. METHODS AND MATERIALS

4.1 Study Location and Characteristics

This study was carried out in three communities in Ambo district: Awaro Kora, Senkele Farisi and Gosu Kora communities. The district is located in West Shewa zone of Oromia Regional State, Ethiopia (Fig. 2). It is located between 8^0 47' N - 9^0 21' N and 37^0 32' E - 38^0 3' E (Ambo District Finance and Economic Development Office 2007). The capital of West Shewa zone is Ambo town, which is located 125 km away from Addis Ababa, the capital of Ethiopia.

Ambo District has a mean annual temperature ranging between 23-25°C and a mean annual

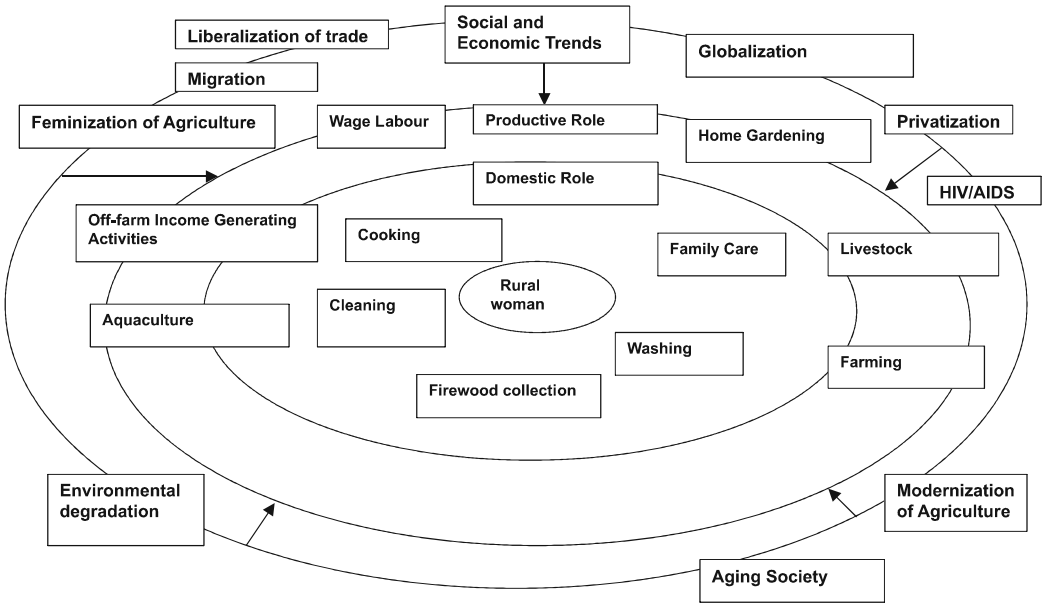

Fig. 1. Conceptual framework: The roles of rural women in sustainable development [*Adapted from* Kobayashi, undated].

rainfall of 1300-1700mm (WSZBFED 2007). The lowlands, midlands and highlands respectively cover 17%, 60% and 23% of the district. The altitudinal range of the agro-climatic zones in the district fall between 500 and 3,200 metres above sea level respectively and represent lowest point of low land and highest point of highland agro-climatic zone.

A farm in the district is considered as a system that comprises the following: people, crops, livestock, vegetation, and wildlife, socio-economic and ecological factors which interact amongst themselves and shape the farm system. Mixed agriculture in which livestock are used as a source of draft and transportation of farm produce is practised in the district. Ploughing, crop rotation, terracing, irrigation, and soil fertilization have been practised by the farmers for years as part of their traditional farming system (Hunduma 2006). A wide variety of crops constitute the agricultural system of the three surveyed communities. Cereals, pulses, and oil crops are the most important crops of the agricultural system. Cereal crops occupy the largest area. Teff is the most important food crop. However, this crop is highly delicate and fragile and requires a lot of labour and care (Hunduma 2006).

4.3 Data Collection and Analysis

Both secondary and primary data were collected from the three selected communities. An in-depth literature search was conducted to gather information on the scientific, historical, and philosophical aspects of gender roles in agriculture. This information provided guidance and insights for designing the field data collection instruments and the analysis of the data. The primary data were collected through questionnaires, interviews, observations, focus group discussions, participatory rural appraisal and gender and life history analysis. Purposive

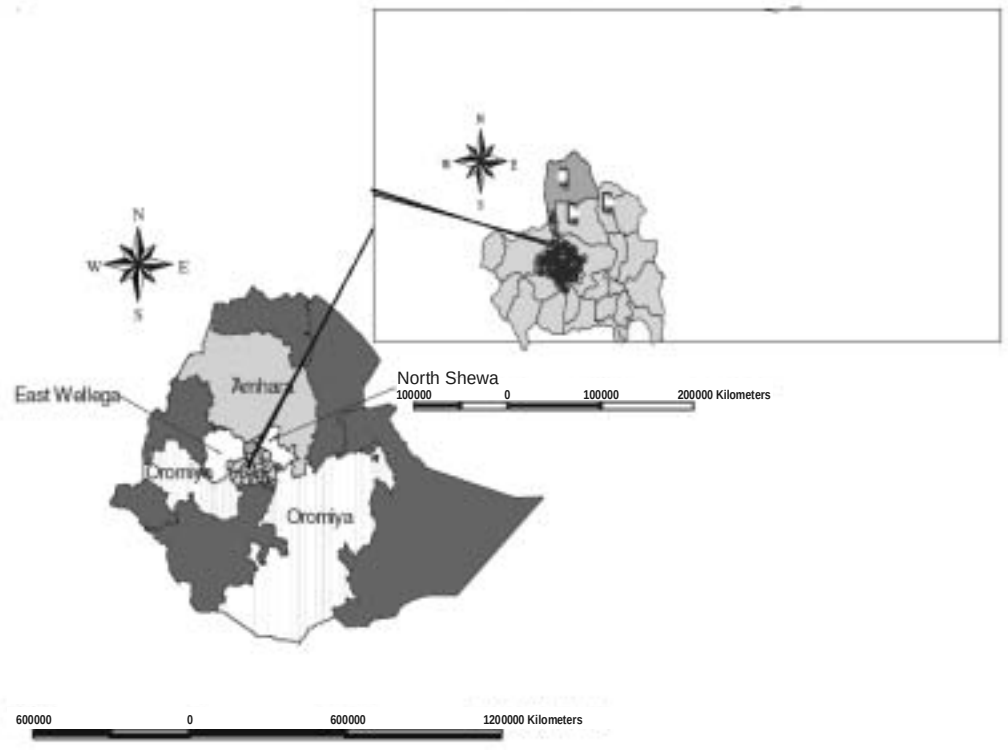

Fig. 2. Map of Ethiopia and West Shewa Zone showing Ambo District
[*Source:* Adapted from Hunduma 2006].

sampling was used to select three highly productive rural communities while stratified random sampling was used to select male-headed and female-headed farming households from each community. Farmers from both male- and female-headed households were picked through simple random sampling. An equal number of females (125) and males (125) farmers were interviewed from the three communities. The key questions used to qualitatively analyze gender roles in crop production and management practices were the following:

- Are women's and men's farm activities divided by task, crop, and place?
- Do women and men grow separate crops on separate fields, simultaneously or in rotation?
- Do women and men play complementary roles for the same crops?
- Who has the major responsibility for the following tasks per crop: land clearing, land preparation, choice of seeds, sowing, transplanting, choice of fertilizers, application of fertilizers, weeding, choice of herbicides, application of herbicides, harvesting, threshing, transporting, storing, processing and marketing?
- Who has the primary responsibility for post-production activities, namely the selection, processing, and preservation of seed varieties?
- Who is responsible for the various tasks in and around the homestead: carrying water and fuel wood, caring for domestic animals, feeding and caring for the family, house construction and maintenance, construction of latrines, etc.?
- What social and economic trends are affecting women and men?
- Given the gender division of labour by task, crop, and place (and the gender division of roles, rights, and responsibilities) what kinds of agricultural and environmental knowledge do women/men possess?
- Is there a commitment toward cooperation amongst stakeholders working in the areas of agriculture, environment, and social equity?

The collected data were quantified and inputted as nominal or ordinal data into the Statistical Package for Social Science (SPSS, Version 11.5) and the results presented through simple descriptive statistics such as cross tabulations, frequencies and graphs. Depending on the appropriateness of the test measurement scale and the relatedness of variables, non-parametric tests of statistical significance (the chi-square test and the Kruskal-wallis test) were performed. The Kruskal-Wallis test was used to analyze multiple independent ordinal variables while differences between nominal variables were determined through chi-square test. To analyze the data collected through focus group discussions, participatory rural appraisal and interviews, excel spreadsheet functions were used.

5. RESULTS AND DISCUSSION

The results of the data analysis include the socio-economic characteristics of the respondents, the roles of females and males at the household level, gender related constraints in crop production and management practices, socio-economic and environmental changes in the three surveyed communities and the wealth of the farmers.

5.1 Socio-economic Characteristics of the Respondents

Fifty percent of the respondents were males and the other 50% were females. In terms of age composition, 74.8% of the respondents were between 31-50 years old followed by 51 years old and above (18.8%) and between 18-30 years old (6.4%). Fifty percent of the respondents were married; the widowed (42.8%); divorcees (6.4%); and singles (0.8%). The same proportion of male household heads and female household heads were covered in the survey. The majority of respondents were from Oromo ethnic group (95.2%) while the remaining came from Amahara ethnic group (4.8%). The majority of the respondents were Orthodox Christians (87.2%) followed by 12.4% Protestant Christians and 0.4% indigenous Oromo Religion- "Wakefata" believers.

About 44.4% of the respondents had non-formal education followed by primary education (44%) and secondary education (12%). Fifty percent of the respondents have an annual income of between 1,001-5,000 Ethiopian Birr (76-384 Euros), followed by those earning between 5,001-10,000 Ethiopian Birr (385-769 Euros) (28%); those earning below 1,000 Ethiopian Birr (76 euros) (16.8%); and those earning more than 10,000

Ethiopian Birr (769 Euros) (5.2%). About 70% of the farming households earn their income from farming activities while 30.4% of the respondents earn their income from both farming and non-farming activities (See Annex 1).

5.2 Males' and Females' Roles at the Household Level

The responses of the male and female surveyed farmers as regards their respective roles in reproductive, productive and community work reveal a significant statistical difference between the two sexes ($P < 0.05$) (Table 1).

On the other hand, there was no significant statistical difference between the males' and females' response to the latter's contribution to reproductive work ($P > 0.05$) (Table 2). A greater proportion of both males (80.8%) and females (87.2%) confirmed that females' contribution to reproductive work at household level is very large.

5.3 Gender Related Constraints in Crop Production and Management Practices

Forty-nine percent (n=61) of the female respondents reported land shortage to be a major constraint for crop production and management practices compared to 29% (n=36) mentioned by their male counterparts. Another 49% (n=61) of the male respondents indicated high price of agricultural inputs to be a principal constraint to crop production and management practices compared to 16% (n=20) reported by the female respondents. Thirty six percent (n=44) of the female respondents confirmed land shortage and high price of agricultural inputs to be problematic compared to 22% (n=27) by the male respondents (Fig.3). A significant statistical difference exists between the constraints of female farmers and those of male farmers in crop production and management practices in the surveyed communities ($\chi^2=32.267$, df=3, $p<0.05$). Gender responsive agricultural and rural development interventions are urgently needed to address the needs of male and female farmers in the three surveyed communities.

5.4 Crop Production and Management Practices in the Surveyed Communities

The major crop production and management practices identified in the three surveyed communities include farming (land preparation, planting, weeding, application of herbicides and fertilizers, harvesting, storage, and pest management); soil and water management practices (soil conservation and management, water conservation and management); food processing and preparation (harvesting of crops, collection of edible and medicinal plants, processing of food crops and wild plants in edible form and cooking) and marketing and seed selection and preservation (on-farm seed selection, seed drying, seed storage and exchange). The crop production and management practices in the three communities,

Table 1: Perception of respondents on males' contribution to different kinds of work at household level by gender.

Kind of work	*Males' Contribution (%)*								χ^2	*P*
	Very large		*Large*		*Small*		*Not at all*			
	Male	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*		
Reproductive work			8.8	4.8	91.2	8.0	-	87.2	197.69	<0.05
Productive work	89.6	-	5.6	4.8	4.8	7.2	-	88.0	222.67	<0.05
Community work	84.0	-	8.0	7.2	8.0	9.6	-	83.2	209.3	<0.05

Source: Field Data 2007.

Table 2: Perception of respondents on females' contribution to different kinds of work at the household level by gender.

Kind of work	*Females' Contribution (%)*						χ^2	*P*
	Very large		*Large*		*Small*			
	Male	*Female*	*Male*	*Female*	*Male*	*Female*		
Reproductive work	80.8	87.2	18.4	12.8	0.8	-	2.56	>0.05
Productive work	-	90.4	92.0	9.6	8.0	-	206.53	<0.05
Community work	-	100.00	23.2	-	76.8	-	250.00	<0.05

Source: Field Data 2007.

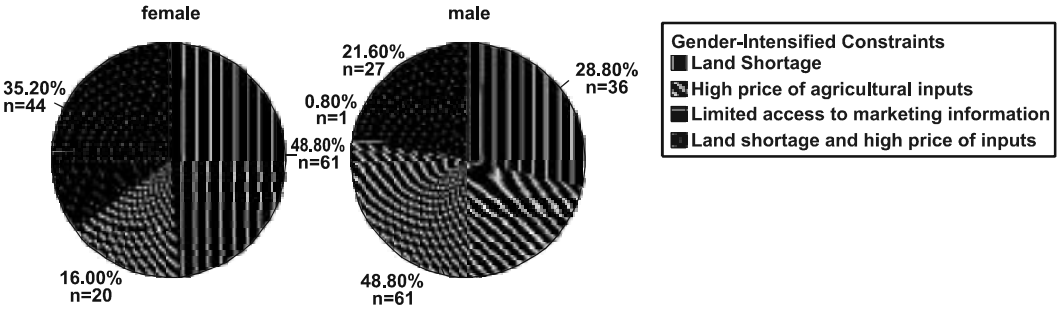

Fig. 3. Gender-intensified constraints on crop production and management practices in the three communities
[*Source:* Field Data 2007].

including the contribution of males and females, tend to be similar. Table 3 summarizes the gender activity chart for crop production and management practices in the three communities.

5.5 Gender Roles in Crop Production and Management Practices

5.5.1 ***Males' and Females' Contribution to Rain-fed Crop Production and Management Practices:*** To reflect the relative contribution of males and females to each rain-fed crop production and management activity, ten points were allocated to the two sexes on the basis of gender division of labour. The results of a focus group discussion, field observation, key informant interviews and PRA conducted in the three communities indicate that females play a more significant role than males in manual weeding, threshing and transportation of farm produce. However, both males and females play equal roles in planting, soil conservation and management, application of fertilizers and herbicides, storage and marketing of farm produce (see Fig. 4 and Annex 2).

5.5.2 Gender Roles in Gardening along River Banks: To determine the relative role of males and females engaged in gardening along the river banks, ten points were allocated each to the female and male farmers on the basis of gender division of labour. The results reveal that the contribution of females is much higher in planting, weeding

Table 3: Gender activity chart for crop production and management practices in the three communities

Farming	*Activity*	*Contribution by gender (%)*		*Location*	*Time (Seasons)*	
		Male	*Female*		*Dry*	*Wet*
	Land preparation	50	50	Farm		■
	Planting	50	50	Home to farm		■
	Weeding	25	75	Farm		■
	Application of herbicides	50	50	Farm		■
	Fertilizing	50	50	Farm		■
	Harvesting	50	50	Farm	■	
	Storage of harvested crops	50	50	Home to farm	■	
	Pest management	50	50	Farm to home	■	■
Soil and Water	Soil management and conservation	50	50	Farm	■	■
Management	Irrigation water management	50	50	Farm	■	
Food/Plant processing and	Harvesting of crops	25	75	Farm	■	
Preparation	Collection of edible and medicinal plants	50	50	Road side, forests	■	■
	Processing of food crops and wild plants in edible form	25	75	Around home	■	■
	Cooking	0	100	Around home	■	■
Marketing	*Sale of crops and seed to local/ regional markets*	50	50	*Local/ regional markets*	■	■
Seed selection and preservation	*On-farm selection*	50	50	*Farm/home*	■	
	Seed storage and exchange	25	75	*Around home*	■	■

Source: Field Data 2007.

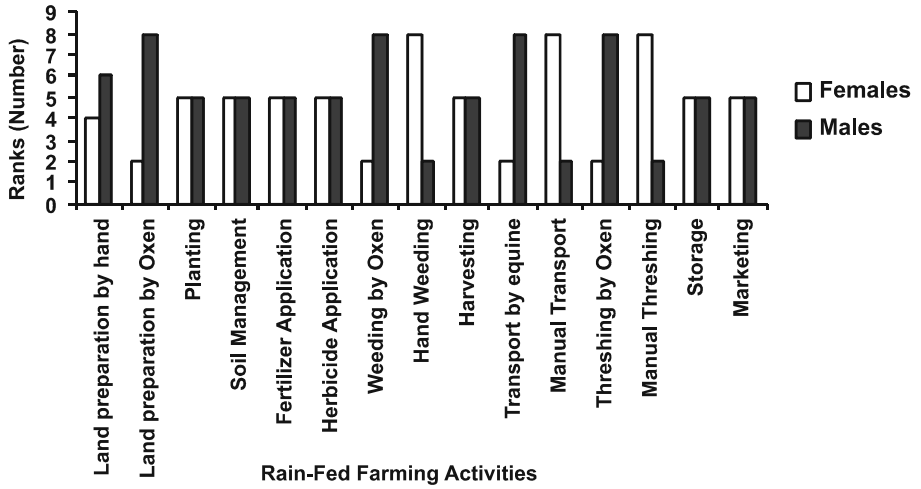

Fig. 4. Contribution of males and females in rain-fed crop production and management [*Source:* Field Data 2007].

and watering. On the other hand, land preparation and harvesting draw equal contribution by the male and female farmers (Fig. 5).

5.6 Socio-economic and Environmental Changes in the Surveyed Communities

Historical timeline analysis was done in the three communities to identify the socio-economic and environmental impacts of crop production and management practices. Participants of PRA sessions, focus group discussions, and key informant interviews conducted in the study locations reported both positive and negative socio-economic and environmental changes (See Table 4). The negative socio-economic and environmental impacts experienced since the 1980s included: forceful settlement of farming households in one residential area, death of livestock due to severe drought, increased population growth, increased soil erosion and land degradation, expansion of farmland, increase in the number of landless people, expensive agricultural inputs, and an increase in deforestation and desertification. Achieving sustainable agricultural and rural development in the three communities

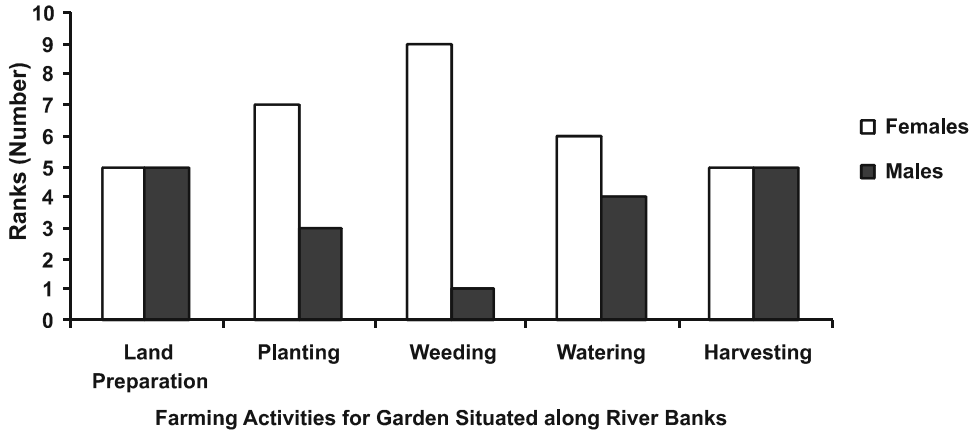

Fig.5. Females' and males' contribution in garden farming situated along banks of rivers [*Source:* Field data 2007].

requires the application of a holistic approach that permits an understanding of these challenges and their effective mitigation.

5.6.1 Wealth and Livelihood of Farmers: The nature of agricultural production, ownership of assets, sources of income, number of meals taken per day, ability to educate children, access to extension workers, ability to hire external labour and secure descent housing were used as the criteria for determining the extent of poverty reduction and livelihood improvement. Wealth and livelihood improvement in the three surveyed communities are similar. The factors accounting for the progress made by some members of the three communities included production of surplus food for sale, successful off-farm business, increase in household assets, support from relatives, increase in awareness on gender equality and wide popularization of agricultural extension packages. However, the largest portion of the sampled population in all the three communities is poor. Poor male-headed households (MHHs) in Senkele Farisi, Awaro Kora and Gosu Kora were respectively 55%, 40% and 50% of the poor. On the other hand, female headed households (FHHs) in the three communities respectively accounted for 50%, 50% and 55% of the poor (see Figs. 6-8 and Annexes 3-5). The factors responsible for the decline in the livelihoods of the majority of the members of the three communities include loss of major assets, inability to meet loan repayments, death of key household members, large number of orphans to support, old age, ill-health of household heads, degradation of natural resources, and rapid growth of the population.

5.7 Analysis of Stakeholders in the Three Communities

Table 5 shows the major activities of stakeholders in relation to gender roles in crop production and management, key gender issues, knowledge available, major achievements, challenges and recommendations suggested for improving the situation of rural farmers. The recommendations include effective interaction amongst stakeholders; systemic and participatory gender analysis; training both female and male farmers on integrated agricultural production and

Table 4: Environmental and socio-economic changes in the three communities

Time / Period	*Key Factors Influencing Environmental and Socio-economic Change*	*Trend*	
		Positive	*Negative*
1980s	Severe drought		√
	Forceful settlement of farming households in one residential area		√
	Number of human population increased		√
	Death of livestock due to severe drought		√
Early 1990s	Involuntary cooperative movement collapsed	√	
	Gender equality awareness created	√	
	Harmful traditional practices condemned	√	
	Number of human population increased		√
	Primary education in local language	√	
Late 1990s	Extension packages widely popularized	√	
	Agricultural production increased	√	
	Voluntary cooperative movement reinitiated	√	
	Expansion of farmland		√
	Number of human population increased		√
2000 to 2007	Agricultural and health extension workers trained and deployed	√	
	Primary Agricultural Cooperative Society and Farmers' Cooperative Union established	√	
	Farmers' Training Centres established	√	
	Farmers' knowledge in crop and livestock production and management increased	√	
	Number of NGOs and Saving and Credit institutions increased	√	
	Gender equality awareness increased	√	
	Tree Plantation Campaign for the New Ethiopian Millennium	√	
	Soil erosion and land degradation increased		√
	Deforestation increased		√
	Number of landless people increased		√
	Price of agricultural inputs drastically increased		√

Source: Field Data 2007.

management practices; improving females' access to productive resources and agricultural services; mainstreaming gender analysis into rural development programmes; formulating and implementing effective gender policies and strategies; awareness creation on gender equality and empowerment; ensuring adequate and timely budgets; improving female farmers' access to agricultural extension services through affirmative actions; and the use of organic fertilizers in place of the unaffordable and unsustainable chemical fertilizers.

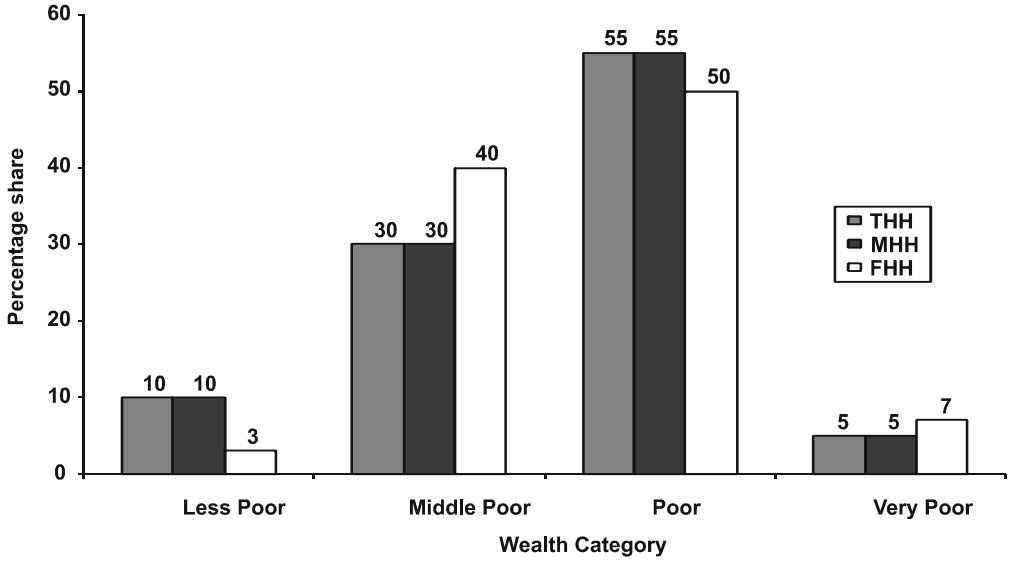

Fig. 6. Wealth category of respondents by household in Senkele community
[*Source:* Field data 2007]

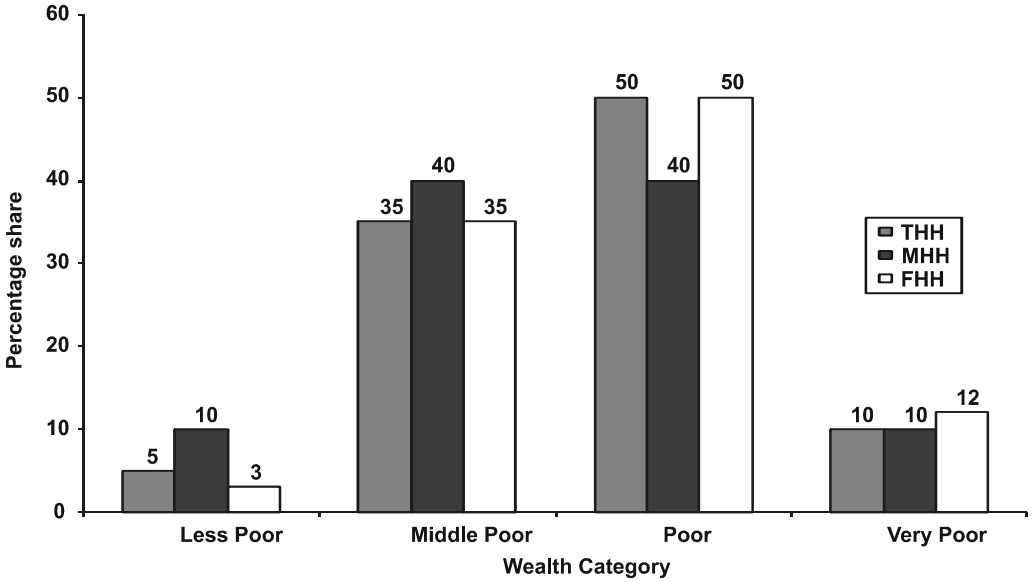

Fig. 7. Wealth category of respondents by household in Awaro Kora community
[*Source:* Field Data 2007]

Table 5: Stakeholders in gender roles in crop production and management practices in the three communities

Stakeholders	*Major activities*	*Gender issues recognized*	*Strategy*	*Knowledge possessed*	*Major achievements*	*Stakeholders' recommendations*
Ambo District Women's Affairs Office	Awareness creation on gender equality	Unequal decision making power	Affirmative action to encourage females	Gender studies, legal procedures	Both male and females are aware of gender equality	*Effective linkage amongst; stakeholders and Systemic and participatory gender analysis.*
Wisdom Micro Finance Institution	Provision of credit to both male and female farmers.	Limited access of female farmers to credit facilities.	Equal access of male and female farmers to credit.	Knowledge of financial management and accounting.	60% of beneficiaries were females.	*Training both female and male farmers on how to improve their livelihood on sustainable basis.*
Eshet Microfinance Institution	Provision of credit to both male and female farmers and training beneficiaries on loan procedures.	Needs of farmers not properly addressed.	Equal access of male and female farmers to credit facilities.	Knowledge of financial management and accounting	Relative improvement of livelihood of beneficiaries	Improve females' access to productive resources and agricultural services and mainstreaming gender analysis in rural development programmes.
Jimma University, Ambo College	Awareness creation on gender equality and production and distribution of seeds to farmers.	Income gap between males and females.	Affirmative action both in academic and community spheres.	Knowledge of sociology, psychology, anthropology and gender study.	Relative improvement of livelihood of beneficiaries.	*Effective gender policies and strategies; effective linkage amongst stakeholders and training on gender equality awareness for sustainable rural development.*
Ambo Plant Protection Research Center	Participatory technology demonstration and dissemination.	Male-oriented extension system andSocio-cultural barriers.	Equal access of males and females to improved technologies	Knowledge of crop production, crop protection, and gender studies.	Number of female farmers participating in research and extension activities increased.	*Mainstreaming gender analysis in agricultural research planning.*
Ethiopian Rural Self Help Association	On-farm trial of different crop varieties.	Unequal decision making power.	Economic empowerment of women farmers.	Knowledge of agriculture, gender studies and NGOs	Effective and efficient training on agricultural practices.	Awareness creation on gender equality and empowerment and mainstreaming gender analysis in all rural development programmes.

Table 5: Contd....

Stakeholders	*Major activities*	*Gender issues recognized*	*Strategy*	*Knowledge possessed*	*Major achievements*	*Stakeholders' recommen-dations*
Ambo District Agriculture and Rural Development Office	Training both male and female farmers on improved agricultural practices; Provision of rural land use right certificate and provision of agricultural cooperative services.	Limited access of female farmers to productive resources; and limited knowledge of both male and female farmers about significance of cooperatives.	Equal access of male and female farmers to training and other agricultural services	Knowledge of gender analysis in agriculture, agronomy, crop protection and post harvest technologies, rural land management	Both male and female farmers were trained on improved agricultural practices; issuance of rural land use right certificates for farmers; and establishment of farmers' service cooperatives.	Effective linkage amongst stakeholders; adequate and timely budget; and improve female farmers' access to agricultural extension services.
Small scale rural male and female farmers	Crop production and management.	High price of agricultural inputs for small scale farmers.	Use of indigenous soil fertility enhancement techniques.	Indigenous knowledge on agricultural practices.	Both male and female farmers contribute for house-hold level food security.	Training on compost preparationAnd sustainable ways of alleviating farmers' socio-economic and environmental challenges.

Source: Field Data 2007.

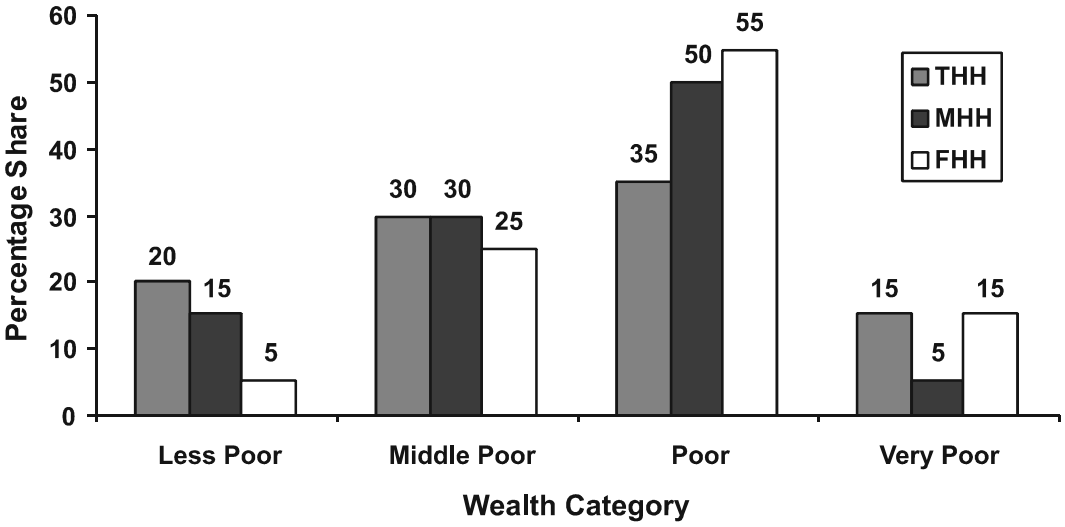

Fig. 8. Wealth category of respondents by household in Gosu Kora community [*Source:* Field Data 2007].

Table 6: Improving the productivity of small scale farmers in the three communities: Challenges and recommendations

Development constraints	*Gender challenges*	*Requirements for successful extension interventions and productivity improvement*
Lack of income and credit	Women have less access to credit than men and can only get credit if they are household heads; Lack of income/credit means that females lack agricultural inputs and ploughing oxen.	• Look into possibility of using traditional rural organizations as the link between credit institutions and farmers; • Funding proposal should be drawn up for provision of credit through traditional saving schemes.
Erratic rainfall and drought	• Work burden of males and females is increased; • Food insecurity and human sufferings increase and this has significant impacts on children and women.	• Improve the utilization of the existing water resources (irrigation system); • Introduction of short cycle variety crops.
Shortage of farm land	• Affects both males and females and leads to low yields and only limited possibilities for crop diversification; • Out-migration of males from the communities leading to increased work burden on females.	• Identify appropriate intensive farming approaches and encourage their use; • Encourage production of horticultural crops.
Lack of education	• Females are less educated than males and this has a negative impact on household management and childcare.	• Convince communities to send female and male children to school; • Design and implement an agricultural education service for females and males.
Depletion of natural resources (soil and forests)	Affects the whole family; crop yield and quality is reduced and more pests and diseases prevail. The depletion of natural resources will increase the work burden of women and girls in their search for fuel wood from a distant location from their home.	Strengthen the soil - crop management (extension); Encourage construction and use of fuel - efficient stoves; Strengthen terracing and check damming activities; Encourage plantation of indigenous tree species.
Women have limited access to extension services.	Women's lack of access to extension services results in women lacking some of the skills which men have gained from contact with extension agents. If the husband is away, then the farm may suffer leading to decreased output, family income and health.	Raise awareness within the community as to the importance of females having access to extension services; Find out the best approaches for providing extension to reach women.
Limited access to and use of agricultural technologies.	For both females and males, the potential to achieve higher yields of better quality is not realized; much time and labour is expanded for a small return.	Look for means through which agricultural inputs can be available in the locality; Raise awareness in the community as to the importance of females having access to agricultural technology.
Gender-neutral Agricultural Development Policy	Women's needs, constraints and interests not considered in technology generation and dissemination; Low productivity of female farmers; Food insecurity.	Design and implement gender-responsive agricultural development policy and strategies; Strengthen the linkages and interaction among different stakeholders for joint actions and collaborations.
An alarming human population growth rate and an alarming spread of HIV/AIDS	Women and girls suffer much from the effect of rapid human population growth rate;	Increase girls access to primary education and promote family planning programmes and projects;

Table 6: Contd....

Development constraints	*Gender challenges*	*Requirements for successful extension interventions and productivity improvement*
Inadequate research on farmers innovation and indigenous knowledge systems	The spread of HIV/AIDS at an alarming rate is a threat to agricultural sector as it affects the active labour force which is mainly females in the Ethiopian context.	Formal and non-formal education campaigns for voluntary behavioural change of both male and female partners; Promote comprehensive health and agricultural extension packages.
	Unsustainable and unaffordable external agricultural inputs at the expense of indigenous agricultural production and management practices; Females' and males' indigenous knowledge of crop production and management practices not fully integrated in agricultural research and development efforts.	Design and implement sustainable agriculture; Integrate indigenous knowledge and practices of both male and female farmers and promote farmers' innovations through farmers' experimentations.

Source: Field Data 2007 and Desk Review 2007.

5.8 Women's Double Roles

The productive and reproductive roles of females in society, termed as "double-day" roles, results in a heavier workload for females than males, although this also depends on social class, age or ethnicity group (Peter 2006). Tsegaye (1997) asserts that Ethiopian rural women participate in various farm activities such as field preparation, planting, weeding, manuring, harvesting, transporting, threshing, seed selection/sorting, storage, processing and marketing agricultural produce. This assertion was also found to be true in the context of the three surveyed communities. Females in female-headed households have a heavier workload than females in male-headed households because of the additional responsibility of household headship compared to women in male-headed households.

The findings of this paper confirm that females' contribution in reproductive, productive and community work is significantly higher than that of males. In general, data suggest that African women perform about 90% of the work of processing food crops and providing household water and fuel wood; 80% of the work of food storage and transportation from farm to village; 90% of the work of hoeing and weeding; and 60% of the work of harvesting and marketing of farm produce (Olumakaiye and Ajayi 2006).

However, women's role in the economy has often been underestimated, and their work in agriculture has been invisible for a long time. While policy-makers have targeted population control, health and nutrition programmes for women, they have neglected them as productive agents (Olumakaiye and Ajayi 2006). Consequently, the productivity of females has not been enhanced. Gender roles in the three surveyed communities are constrained by an uneven distribution of resources and opportunities between women and men in the household. Where resources are scarce, women find themselves at a greater disadvantage than the male members of the family (Kabeer 2003; Suleiman 2004). In addition, shortage of farmland is more severe for females than for males.

6. CHALLENGES AND RECOMMENDATIONS

The principal development constraints and challenges facing small-scale farmers in the three surveyed communities and recommendations for improving the productivity of rural female farmers are presented in Table 6.

7. CONCLUSION

Both males and females in Ambo district participate in farming activities under close supervision of the head of the household. The basic reason is that the two sexes have joint responsibility for ensuring a good level of household food security (Abera et al. 2006). During the agriculture peak seasons, women work more than double the hours done by men. The

task of fetching water and collecting fuel wood is the sole duty of women, assisted most of the time by girls. Females' contribution to crop production and management in the three surveyed communities is significantly higher than that of males because they participate in almost all farming activities, domestic tasks and community development work. The findings of this paper support the argument that gender roles in household activities are socially constructed and not sexually determined. Gender roles are thus more responsive to changes in farming systems, economic pressure, cultural beliefs and practices.

The significant contribution of females in reproductive and productive works and community development should serve as a good guide for rural development interventionists. A clear implication of females' double workload in rural communities of Ethiopia is that policy-makers, planners and development agents must have a holistic understanding of the relative and often shifting roles of men and women in agriculture, natural resource management, decision-making, use of traditional knowledge and practices, division of labour between women and men (Upadhyay 2005).

To encourage males to share in domestic tasks, effective gender sensitization programmes are required. This could be done through non-formal educational activities, agricultural extension meetings and mainstreaming gender issues in school curricula at all levels. In addition, non-formal educational activities organized for rural farmers should take note of the heavy domestic workload of females. These activities should also be scheduled at appropriate times to enable many females to participate. There is a need for designing gender-responsive software and hardware agricultural technologies which enable females to improve the productivity of their farms. A second paper by the authors of the present article will discuss issues relating to gender empowerment in agriculture and propose appropriate strategies for enabling rural female farmers to have more access to productive resources and agricultural extension services.

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ANNEXES

Annex 1: Characteristics of the sample in three surveyed communities (Awaro Kora, Gosu Kora and Senkele Farisi)

Category	*Variables*	*Total*		*Communities*					
				Awaro Kora		*Gosu Kora*		*Senkele*	
		Count	*%*	*Count*	*%*	*Count*	*%*	*Count*	*%*
Gender	Male	125	50.0	30	50.0	58	50.4	37	49.3
	Female	125	50.0	30	50.0	57	49.6	38	50.7
Age	18-30	16	6.4	4	6.7	12	10.4	-	-
	31-50	187	74.8	32	53.4	90	78.2	65	86.7
	51 and above	47	18.8	24	40.0	13	11.3	10	13.4
Marital Status	Single	2	0.8	-	-	2	1.7	-	-
	Married	125	50.0	30	50.0	58	50.4	37	49.3
	Divorces	16	6.4	2	3.3	14	12.1	-	-
	Widowed	107	42.8	28	46.7	41	35.6	38	50.7
Household Title	Male Headed Household	125	50.0	30	50.0	58	50.4	37	49.3
	Female Headed Household	125	50.0	30	50.0	57	49.6	38	50.7
Ethnicity	Oromo	238	95.2	56	93.3	108	93.9	74	98.6
	Amahara	12	4.8	4	6.7	7	6.1	1	1.3
Source of Income	Farming Activities	174	69.6	41	68.3	76	66.1	57	76.0
	Farming and Non-farming activities	76	30.4	19	31.7	39	33.9	18	24.0
Religion	Orthodox Christianity	218	87.2	60	24.0	85	73.9	73	97.3
	Protestant Christianity	31	12.4	-	-	29	25.2	2	2.7
	Indigenous Oromo Religion (Wakefata)	1	0.4	-	-	1	0.9	-	-
Education Level	Non-formal	111	44.4	39	65.0	27	23.5	45	60.0
	Primary	110	44.0	20	33.4	63	54.7	27	45.0
	Secondary	29	11.6	1	1.7	25	21.7	3	5.0
Annual Income	Less than 1000 Birr	42	16.8	9	15.0	14	12.1	19	25.4
	1001-5000 Birr	125	50.0	34	56.6	55	47.8	36	48.0
	5001-10000 Birr	70	28.0	17	28.4	40	34.7	13	17.4
	Greater than 10000 Birr	13	5.2	-	-	6	5.2	7	9.3

Note: 1 euro= 13 Ethiopian Birr.
Source: Field Data 2007.

Annex 2: Seasonal calendar of major crops production and management practices and gender division of labour in the three communities

Months	*A*	*S*	*O*	*N*	*D*	*J*	*F*	*M*	*A*	*M*	*J*	*J*	*Gender Division of Labour*	
Rainfall													*Females*	*Males*
Rain-fed Farming														
Land preparation (by oxen)													2	8
Land preparation (by hand)													5	5
Planting													5	5
Soil management													5	5
Application of Fertilizer													5	5
Application of herbicides													5	5
Weeding (by Oxen)													2	8
Weeding(by hand)													8	2
Harvesting													5	5
Threshing (by Oxen)													2	8
Threshing by hand)													8	2
Transport (by equine)													2	8
Transport(by hand)													8	2
Storage													5	5
Marketing													5	5
Gardens (situated along banks of rivers)														
Land preparation													5	5
Planting													7	3
Weeding													9	1
Watering													6	4
Harvesting													5	5

Gender division of labour: 10 points were allocated between females and males to reflect their contribution to each activity

Source: Field Data 2007.

Annex 5: Wealth category of respondents in Gosu Kora community.

Less Poor	*Middle Poor*	*Poor*	*Very Poor*
Surplus marketable crop	Food self sufficient for all year production	Food self sufficient for less than six months a year	Food insecure for many months of the year
Several ploughs, ox carts	A range of hand tools and ploughs	A few hand tools	Do not own assets
Draught animals, goats, chicken	A few cattle, goats and chicken	A few small animals (goats and chicken)	Very little or no livestock
Diverse sources of income	Participation in small scale enterprises	Engage in petty trading	Food for work, begging
Several meals a day	Three meals a day	Supper only	Eat very irregularly
All children sent to school	Children attend at least upper primary school	Children attend lower primary school but have no uniform	Children do not go to school
Contact extension service when seeking information	Regular contact with extension worker and community health workers	Have irregular contact	Little or no contact with community services
Hired labour	Family labour	Hire out family labour	Can not hire out family labour
Expensive house	A big house with thatched roof	A small house with thatched roof	One-roomed mud house in poor state of repair
20% total HH	30% total HH	35% total HH	15% total HH
5% total FHH	25% total FHH	55% total FHH	15% total FHH
15% total MHH	30% total MHH	50% total MHH	5% total MHH
Factors associated with upward movement		Factors associated with downward movement	
· Production of surplus crops for sale		· Loss of major assets	
· Successful off-farm business		· Inability to meet loan repayments	
· Increase in asset base		· Death of key household member	
· Support from relatives		· Large number of orphans to support	
· Increase in awareness of gender equality and equity		· Old age, ill-health of household head	
· Wide popularization of agricultural extension packages		· Natural resources degradation	
		· High price of agricultural inputs	

Source: Field Data 2007.

Annex 3: Wealth category of respondents in Senkele Farisi community

Less Poor	*Middle Poor*	*Poor*	*Very Poor*
Surplus marketable crop production	Food self sufficient for all year	Food self sufficient for less than six months a year	Food insecure for many months of the year
Several ploughs, ox carts	A range of hand tools and ploughs	A few hand tools	Do not own assets
Draught animals, goats, chicken	A few cattle, goats and chicken	A few small animals (goats and chicken)	Very little or no livestock
Diverse sources of income	Participation in small scale enterprises	Engage in petty trading	Food for work, begging
Several meals a day	Three meals a day	Supper only	Eat very irregularly
All children sent to school	Children attend at least upper primary school	Children attend lower primary school but have no uniform	Children do not go to school
Contact extension service when seeking information	Regular contact with extension worker and community health workers	Have irregular contact	Little or no contact with community services
Hired labour	Family labour	Hire out family labour	Can not hire out family labour
Expensive house	A big house with thatched roof	A small house with thatched roof	One-roomed mud house in poor state of repair
10% total HH	30% total HH	55% total HH	5% total HH
3% total FHH	40% total FHH	50% total FHH	7% total FHH
10% total MHH	30% total MHH	55% total MHH	5% total MHH
Factors associated with upward movement		Factors associated with downward movement	
· Production of surplus crops for sale		· Loss of major assets	
· Successful off-farm business		· Inability to meet loan repayments	
· Increase in asset base		· Death of key household member	
· Support from relatives		· Large number of orphans to support	
· Increase in awareness of gender equality and equity		· Old age, ill-health of household head	
· Wide popularization of agricultural extension packages		· Natural resources degradation	
		· High price of agricultural inputs	

Source: Field Data 2007.

Annex 4: Wealth category of respondents in Awaro Kora community

Less Poor	*Middle Poor*	*Poor*	*Very Poor*
Surplus marketable crop production	Food self sufficient for all year	Food self sufficient for less than six months a year	Food insecure for many months of the year
Several ploughs, ox carts	A range of hand tools and ploughs	A few hand tools	Do not own assets
Draught animals, goats, chicken	A few cattle, goats and chicken	A few small animals (goats and chicken)	Very little or no livestock
Diverse sources of income	Participation in small scale enterprises	Engage in petty trading	Food for work, begging
Several meals a day	Three meals a day	Supper only	Eat very irregularly
All children sent to school	Children attend at least upper primary school	Children attend lower primary school but have no uniform	Children do not go to school
Contact extension service when seeking information	Regular contact with extension worker and community health workers	Have irregular contact	Little or no contact with community services
Hired labour	Family labour	Hire out family labour	Can not hire out family labour
Expensive house	A big house with thatched roof	A small house with thatched roof	One-roomed mud house in poor state of repair
5% total HH	35% total HH	50% total HH	10% total HH
3% total FHH	35% total FHH	50% total FHH	12 % total FHH
10% total MHH	40% total MHH	40% total MHH	10% total MHH
Factors associated with upward movement		Factors associated with downward movement	
· Production of surplus crops for sale		· Loss of major assets	
· Successful off-farm business		· Inability to meet loan repayments	
· Increase in asset base		· Death of key household member	
· Support from relatives		· Large number of orphans to support	
· Increase in awareness of gender equality		· Old age, ill-health of household head	
· Wide popularization of agricultural extension packages		· Natural resources degradation	
		· High price of agricultural inputs	

Source: Field Data 2007.