

Gender, Physical Mobility, ITC and Livestock Market Outreach Among Smallholder Livestock Keepers in Mixed Crop Livestock System in Ethiopia

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Abstract

Evidences on existing gender dynamics with regard to access to and control over rural based transportation and ICT for the rural agricultural sectors give insight into the potential constraints affecting men's and women's physical and virtual mobility to access market outreach for different livestock types. Recent finding has showed the existence of intra and inter household gender differentials mainly in terms of access to and control over household based Intermediate Means of Transportation and Information, Communication Technologies (ICTs). The gender gap in these two elements (Rural Transport and ICT) deny smallholder livestock keepers to access vital market information as well as negatively affecting the physical and virtual mobility of women smallholders in both male and female headed households. LIVES Project survey result clearly indicated that MHHs had higher number of pack animals, transportation equipment such as animal cart, motorcycle and bicycles which improve the household's access to livestock input and output markets. Similarly, the finding indicated that MHH owned significantly higher number of radio and mobile phones than FHHs which has implications on access to livestock extension and market information services. This paper discusses existing gender differentials related to household owned means of transportation and ICTs and try to show the type of market outreach preferred by men and women smallholders for different types of livestock and livestock products. It also attempted to present a descriptive presentation on the problem and supported the findings with a few illustrations. The findings described in this paper are partly based on a household baseline survey carried out in four regions of Ethiopia in the year 2014. Qualitative findings resulted from gender rapid assessment, periodic reports and systematic observations on livestock market locations made to supplements the baseline finding by and large.

Keywords: ICT, Gender, Livestock, Market Outreach, LIVES project, Physical mobility

INTRODUCTION

A recent finding claims that over the decades the interdependencies between means of physical and virtual mobility has been growing in sub-Saharan Africa (Porter, 2016). However, so far, physical mobility has a lot to do with gender and agricultural value chains in the context of smallholder livestock keepers in rural Ethiopia. Accessing to and control over rural means of transportation and infrastructures do have big implications in terms of ensuring physical mobility, market participation and transporting inputs to rural areas (Bazezew *et al.*, 2014). Some of these means of transportation also help transport products; livestock feed, building materials, people, other agricultural products and save time and labor during harvesting season by transporting farm produce to the homestead. Rural Households particularly women in male headed households (MHHs) and female headed households (FHHs) face transportation constraints in terms of taking their product to the market as well as to transport animal feed to the homestead. The survey result provided gender disaggregated information on three transportation categories in the rural context, namely, pack animals, locally made transportation tools and Intermediate Means of Transportations (IMT). IMT such as motor bikes and cycles can also be used to transport dairy products, poultry including egg to the nearby markets and collection centers. In most of the rural areas, these means of transportation are mainly managed and controlled by men than women due to existing gender norm, problem of affordability and the kind of landscape smallholders inhabit.

Despite the higher contribution of women small-holders in the livestock development and marketing in Ethiopia, their market participation is constrained by weak service provisioning and the vacuum created by absence of related gender sensitive service institutions. Women's direct participation in livestock market is affected by lack of access to market related information, due to lesser access to transportation services which is also compounded by patriarchal gender norms that sanction physical mobility of women beyond the village. As a result, they receive fewer prices for their livestock and livestock products as they are obliged to sell their product either at farm gate or in the nearby market places.

The major research question to be raised with regard to women and market access is whether putting in place new service institutions and strengthening exiting ones to help alleviate the problem affecting female rural livestock keepers. It is also important to question the role of gender norms in shaping women's access to market related information and means of accessing formal source of knowledge or information is becoming one of the

most important factors of production, and there is no doubt that this trend will intensify existing gender disparities in the agricultural sector. Having timely and relevant information can fundamentally alter people's decision-making capacity and is critical to increasing agricultural productivity. It is often difficult for rural people to obtain relevant and timely information and also difficult for rural communities to share information beyond face-to-face contact, thus inhibiting access to information available outside their locality. In most cases, agricultural and non-agricultural information sources generally depend on the household wealth and gender differences. Men depend mainly on formal information sources while women mostly exploit informal sources of information (Tesema *et al.*, 2006). In rural areas, men get information from radios, DAs, extension workers, NGOs as well as farmers' conference at the PAs and district levels. Besides, they also have more possibility of accessing information through informal sources while they socialize with friends, indigenous support and social networks such as ekub, idir, debo and from interactions embedded in market places (Lemlem *et al.*, 2010).

Gender differential in accessing means of transportation at household level can facilitate women's and men's physical and virtual mobility which is very vital to access market information and outreaches and shape the landscape of movement of men and women with livestock products, inputs and outputs. For instance, access to and control over pack animals along with IMT and ICT do have strong gender implication in market related livestock keeping. Ownership by the household of transportation assets and the degree of access to and control over IMT and ICT by the household head and his spouse as well as other household members influence the kind of market outreach preferred and accessed by men and women in both male and female headed households.

Previous study suggested that women and men in similar PAs get information from different sources due to the less availability of formal information sources for women comparing to men (Tesema *et al.*, 2006). The study further argued that existing gender norms, the degree of access to and control over available information sources by men and women and the means of information capturing tools depend on gender, wealth and physical location of villagers from the center of information sources which are mainly towns, cities and cultural and economic centers and related human network hubs and formal and informal spaces of interactions mainly for men folks of various age category.

Methodology

Description of the study area

Sampling techniques

This study was carried out in Amhara, Oromia, Tigray and South Nation and Nationalities and people Regional State which comprises 31 LIVES project districts. Before selecting the sample peasant associations (PAs) to be included in the sample, the total PAs were stratified into LIVES project intervention and non-intervention. Based on this, 130 PAs are classified as the area of LIVES project implemented. As the study has focused on LIVES project intervention, attention was given to the project areas of the districts and the sample were also selected from those districts. Hence, 130 PAs were selected purposively by considering the LIVES project intervention. The number of sample size was determined using the formula developed by Israel (2012). Formula used for sample size determination is:-

Where, n = N_0 of sample size

N = total N_0 of population

e = is the level of precision (3%, 5%, 7% and 10%), but 7% precision was used

Since the total number of households engaged in small scale irrigation agriculture in the 530 sample PAs were 8000, the sample size required (n) in the study was 5004 household were included. To meet the objectives of this study, heterogeneous type of households (HHs) were used in terms of sex and stratified into male and female headed households. These led to the classification of two sex categories (male headed household and female headed household) in each sample PAs in order to create opportunity of entering both female headed households and male headed households into the sample. Accordingly, the total number of sample households was proportionally divided between male headed and female headed households. Therefore, 5004 households consisting of 4037 male and 967 female headed households were selected using simple random sampling technique from the specified peasant associations.

Method of Data Collection and data Analysis

For the purpose of this study, both quantitative and qualitative data were collected. In addition to this, secondary data sources were used to supplement the primary data. Primary data was collected from KIs, FGDs and HH survey. Unlike primary data, secondary data was obtained from relevant published and unpublished data sources. Qualitative data was used to capture information pertaining to local perception and opinions on the gender, physical mobility and ITC issue using key informant interview and FGD.

The collected data was analyzed by using appropriate statistical tools like one way ANOVA and chi-square test. In addition, descriptive statistics (mean, frequency and percentage) analysis was used to analyze the collected data using SPSS version 16. The qualitative data were analyzed and described through opinion

interpretations after being organized and categorized. Means that exhibited significant differences were compared using Tukey's honest significance difference (HSD) at 95% interval.

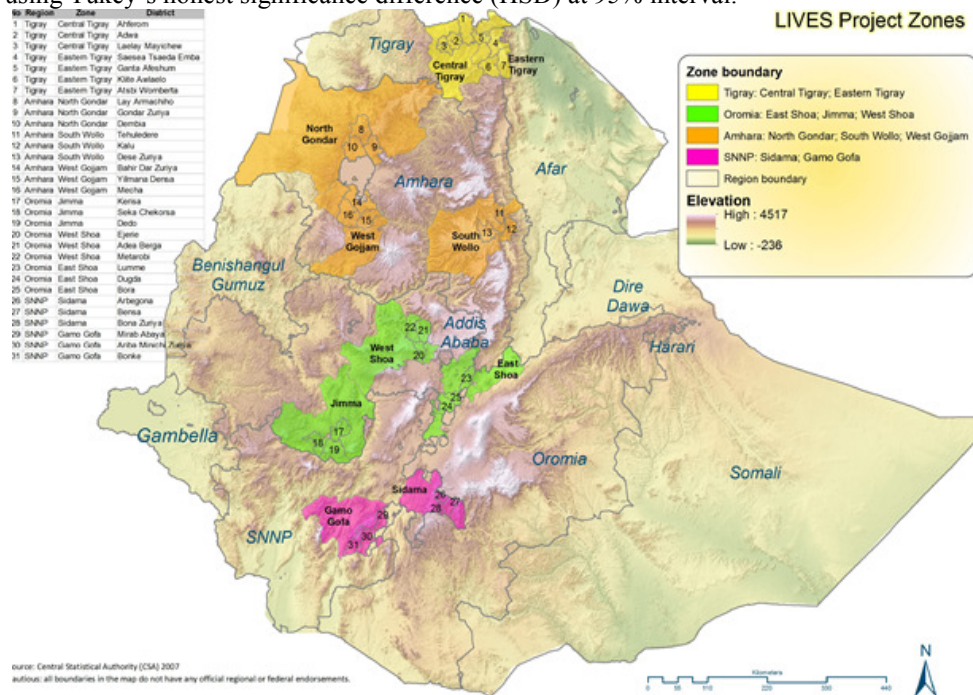


Figure 2: Map of the study area

Results and Discussions

Gender differentials in male headed households to access and control over household owned means of transportation

The household survey result has provided detailed gender disaggregated information for male headed households (MHHs) and female headed households (FHHs), mainly related to access and control over household owned means of transportation animals, transportation tools and animal pulled and intermediate means of transportation (IMT). The pack animals included in the survey were donkey, horse and mule. In addition to this, wheel barrows and animal cart were included as a secondary means of transportation and also the third intermediate means of transportation were analyzed bicycle and motor cycle. Therefore, the gender differentials in terms of access and control over these means of transportations are analyzed for both male headed household and female headed households.

Regarding pack animal, the survey result indicated that the head of the household and both spouses have larger share or control over these equines or sometimes called as pack animals or “beasts of burden”. In terms of access, all household members have access to pack animals although major decision and control over them is under either the household head or under joint decision made by the spouses. In MHHs, women have less access and control over the aforementioned equines single handedly. In this case, donkey is one of the major pack animals which serve the rural household to transport manufactured goods and farm products by commuting between the rural village and the urban based market. As the survey indicated about accessing to and controlling over pack animals on their own right may create constraints for women in men headed households mainly to transport produce to the market on their own right.

In terms of access more than 59% of respondents suggest that all household members have access to pack animals and transportation tools and animal pulled means of transportation in MHH. In similar household context, the head of the family has much control on some of the transport tools than the spouse. For instance, 2.2% of respondent was suggested that women had access to wheel barrow while 47.8% of respondents has suggested that the head of the household controls wheelbarrow. In MHH gain, 39.1% of the respondents was suggested that both spouse jointly control wheelbarrows. With regard to animal cart, 25.4% and 62.7% respondents was confirmed that the control was respectively applicable to the head of the household and jointly by both spouses. Animal cart is pulled either by donkey or horse in most parts of the rural areas in Ethiopia. Thus, access to and control over the animals also affects the degree of access and control over the animal cart by either of the spouses. Conventionally a wheelbarrow is a transportation tool mainly used by men to transport building materials such as mud, sand, stone while building livestock shelter around the home stead. However, equines and carts pulled by them transport people and goods to reach localities and urban centers far beyond the rural

village.

With regard to Intermediate Means of Transportation (ITM), above 50% of respondents was stated that bicycle and motor cycle are mainly controlled by the head of the household and the spouse. The rest of the household members have less access to and control over ITM in MHHs in most rural communities, gender norms prevent women from using ITM and this hampers the ease of physical mobility for young and adult members of the rural community.

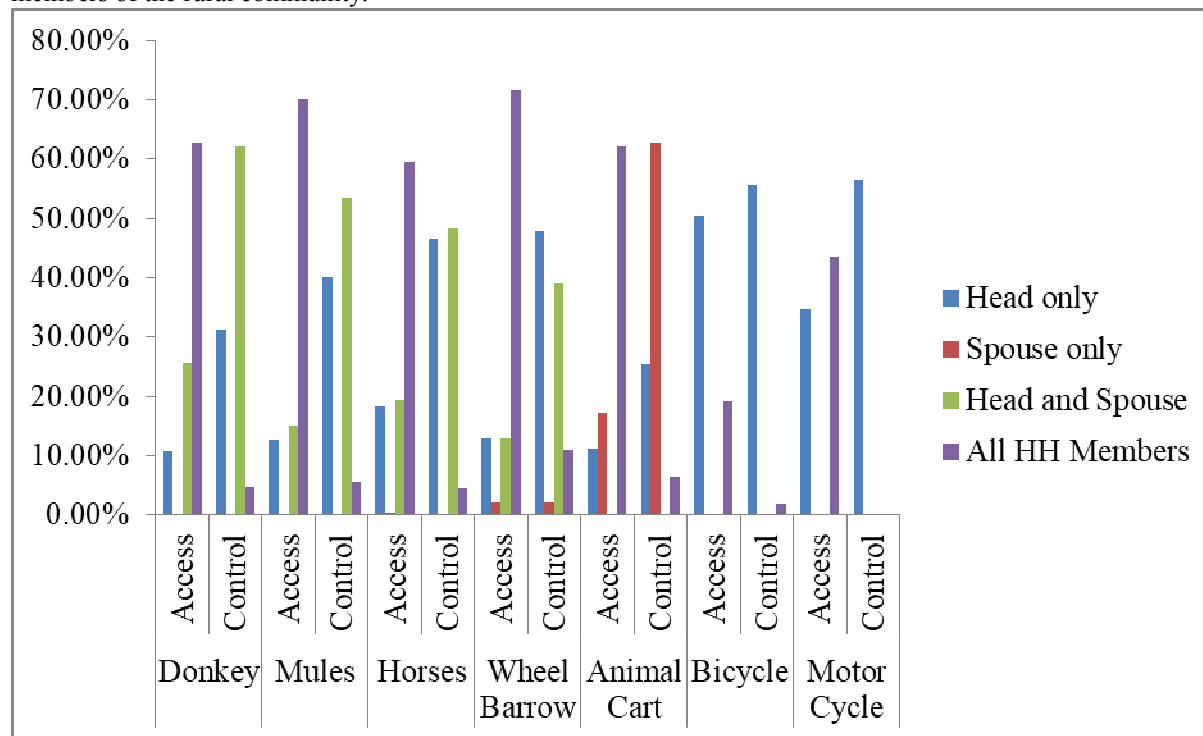


Figure 3: Gender differentials in MHHs to access to and control over household owned means of transportation

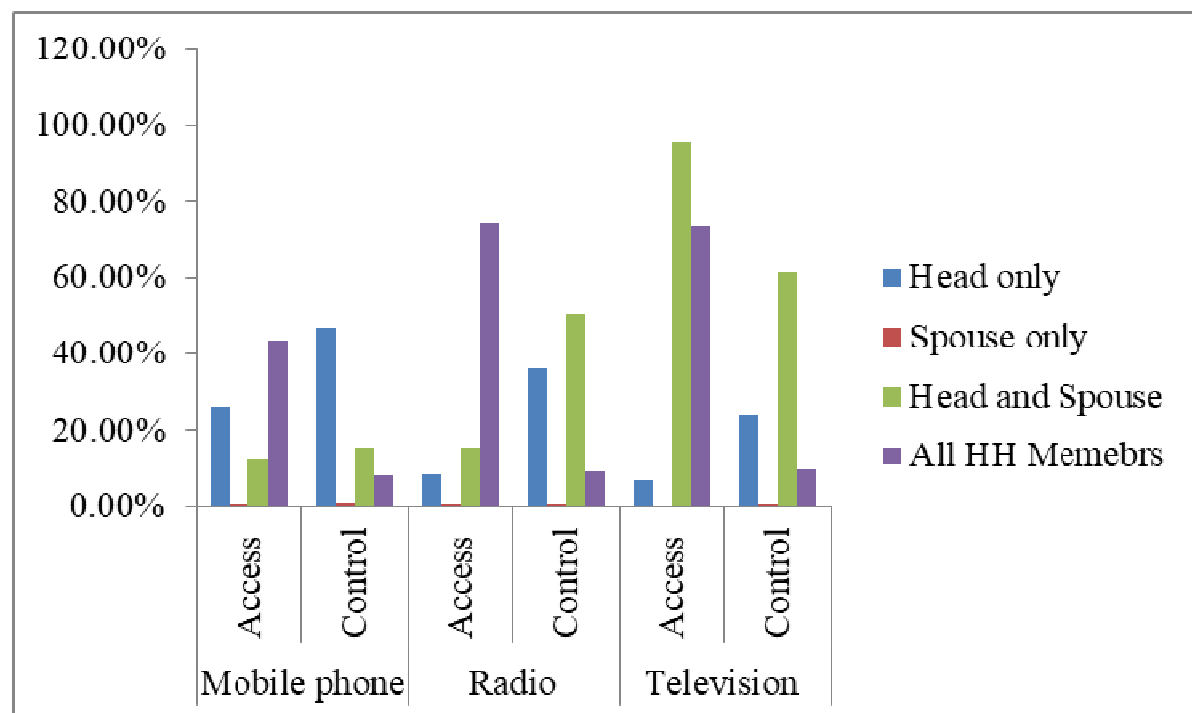


Figure 4: Gender differentials to access to and control over ICT in MHH

3.5. Gender Differentials in FHH households to Access to and Control over Intra household Means of Transportation and Information Sources

Gender differential related to ICT also is discussed and clearly indicate the type of ICT accessed and controlled by the household head, the spouse and by other household members as well. Simultaneously, the survey result also reveals evidences related to joint decisions made by household heads and their spouses.

In urban and peri-urban areas, IMT such as motor bikes and cycles can also be used to transport dairy products, poultry including egg to the nearby markets and collection centers. However, in most rural localities such means of transportation are mainly managed and controlled by men than women. The following table shows intra household gender differentials in access to and controls over different types of transportation in the context of smallholder livestock keepers in highland mixed cereal and livestock production system.

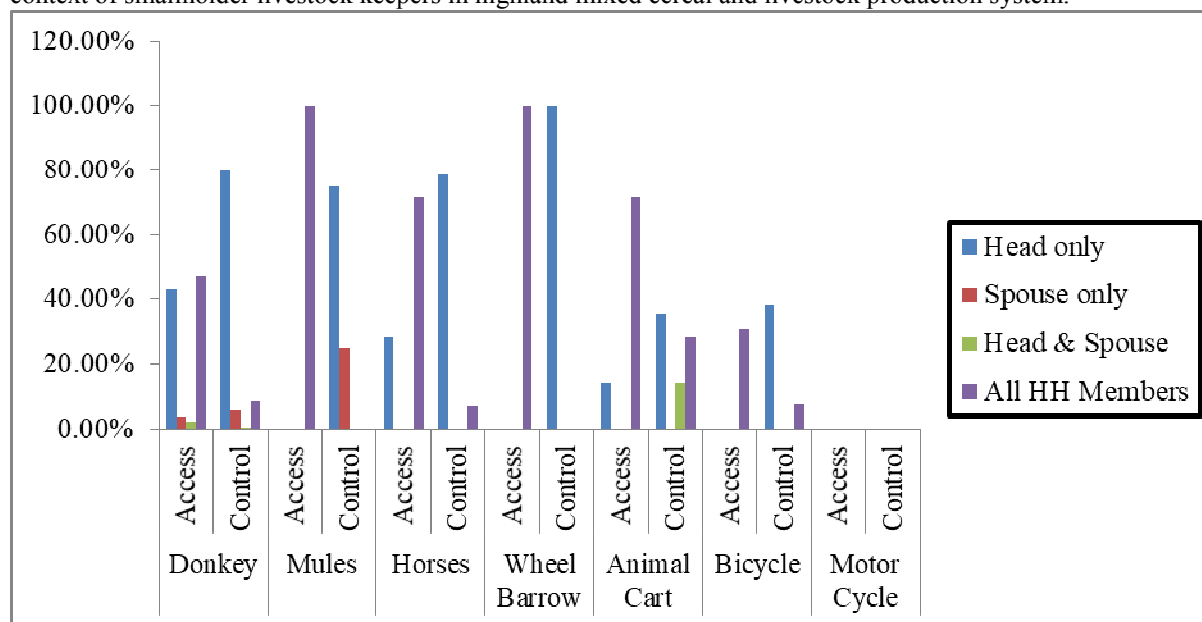


Figure 5: gender differentials in FHHs over access and control household means of transportation

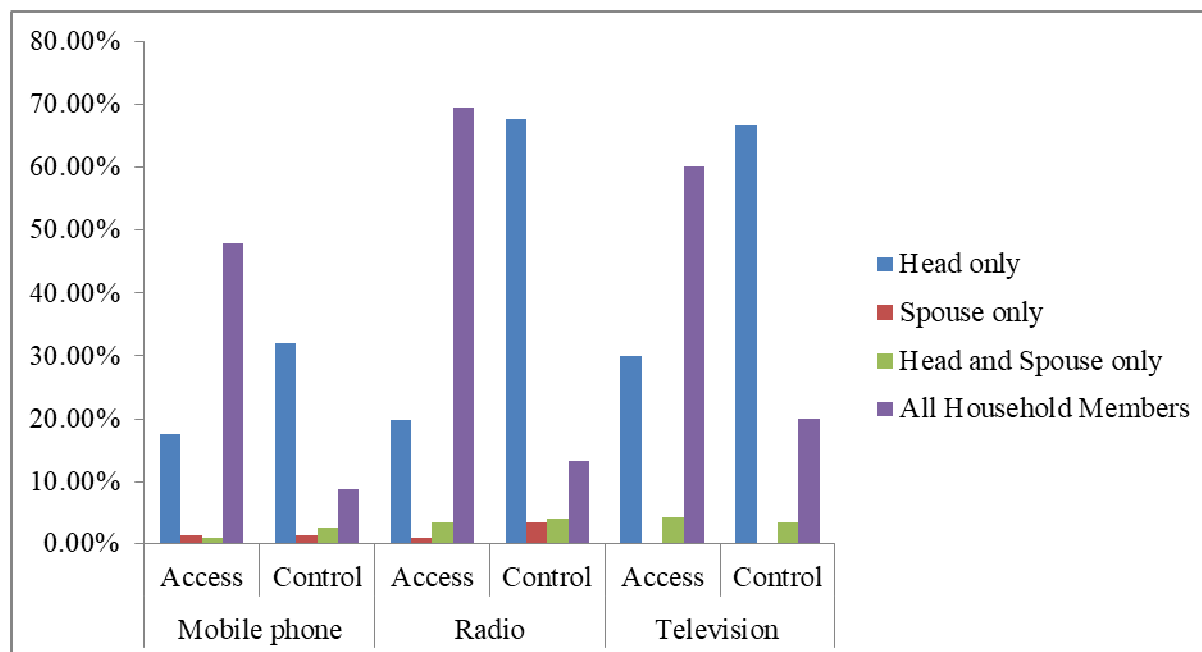


Figure 6: Gender differentials in accessing to and control over ICT in female headed households

Smallholders and TIM (Transportation, Information and Market outreach in the livestock Sector)

There are wider gender differentials to access livestock markets for rural women as a result of which women were forced to sell livestock products either at farm gate or in a market located in other PAs. In most cases,

district markets are the major destinations for higher percentage of livestock commodities while urban consumers are the major buyers of these products. However, FHHs sold larger volume of products at farm gate and market in other PAS as compared to male headed households. This is because of limited access to transportation, market related information and debilitating gender norms which are the major constraining factors that limit women’s physical mobility. Besides, negative gender norms and cultural barriers constrain physical mobility of women including to access markets beyond the farm gate and local markets.

Engendering Livestock Value Chain through Sectoral Collaboration

A possible engendering path ways for the livestock sectors is to frame gender at Centre of the Livestock Value Chain Development Accelerators. The TIM (Transport, ICT and Market) approach should consider access to ICT (mobile phone, local Radio Programmes on agricultural markets, TV programmes on agricultural markets), rural transportation, market outreach, gender division of labor in the community, access to livestock extension services and the role of local institutions as enablers (Istratii, 2015) or as constraints for gender balanced participation in the livestock value chain development and governance. This is an attempt to check whether the synergies of systemic units feed into each other to ensure access to reliable market outreach, enhanced production and productivity, ensuring higher income and establishing a justifiable intra-household resource allocation to sustain the market oriented production system among smallholder men and women livestock keepers. This systemic units crosscut across all value chain system at least ideationally to reorient chain actors and supporters to get their share of play in the game that crosscut major systematically networked sectors to finally hold up the long processes to ensure successful market access.

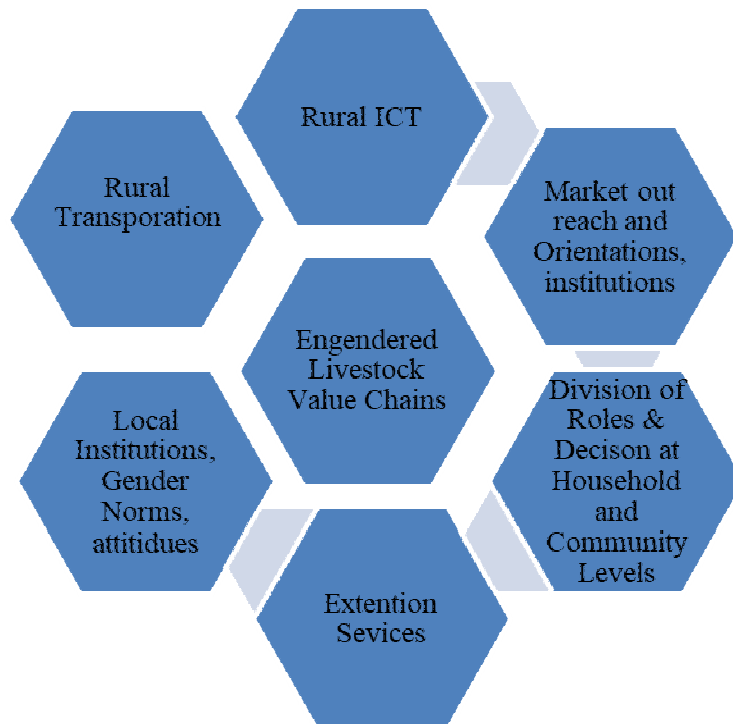


Figure 7: Livestock value chain

TIM is a most important model in the basis of which gender differentials in livestock marketing among smallholders can be analyzed in order to determine the gender sensitivity, sustainability and systemic synergy of not activities but sectors. In a further elaboration the three interconnected systemic pies can be reconfigured as follows touching upon macro, mezzo and micro levels.

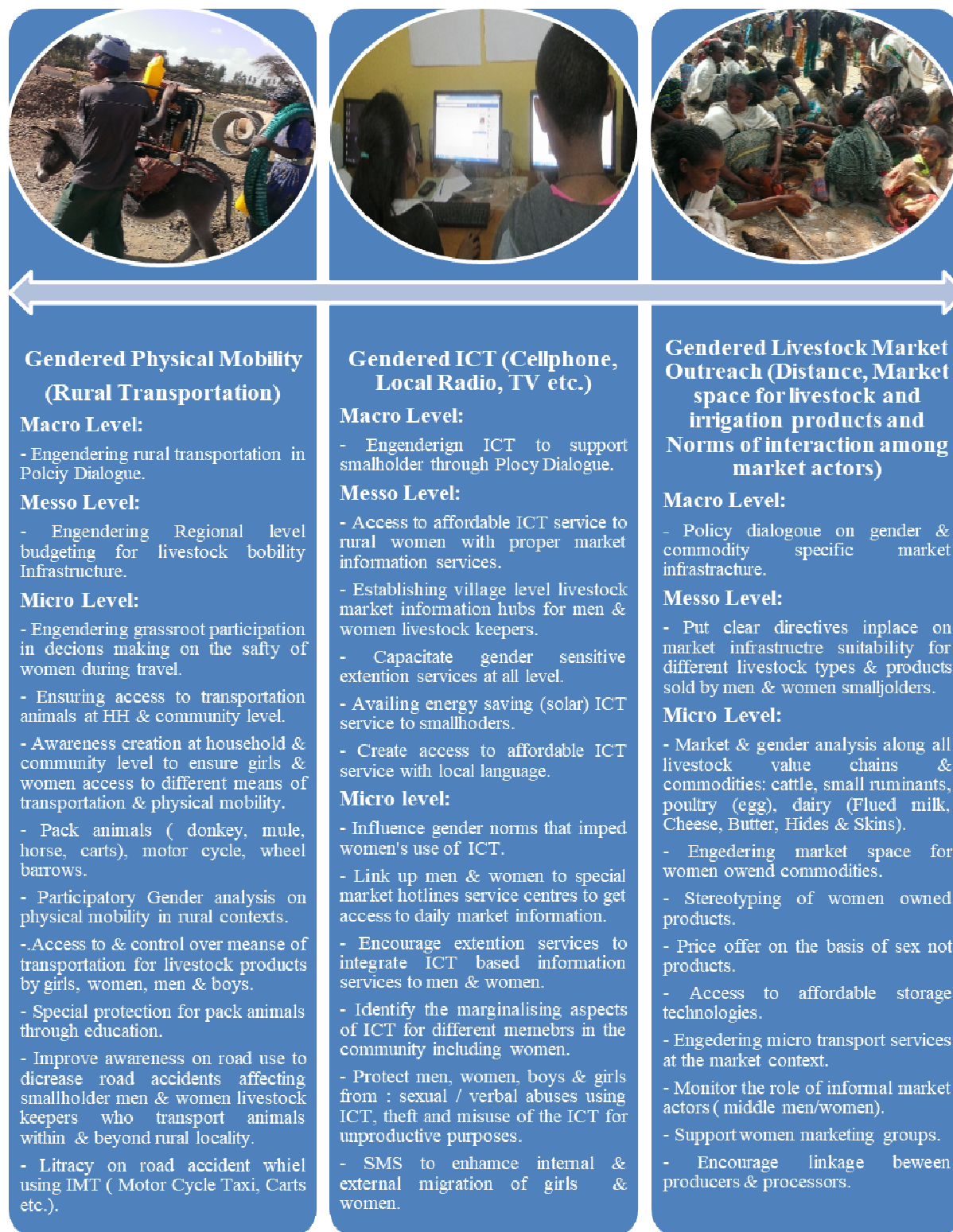


Figure 8: Gender, physical mobility, ITC and Livestock market outreach among smallholder livestock keepers in mixed crop system

Gender Differentials in Accessing Livestock Outreach

In most cases, livestock marketing is located within the Peasant Association (PA) where all smallholders can sell livestock and livestock products. As the survey result indicated, 97.26% of respondents confirmed that livestock market is available within the Peasant Association (PA) where they are belonged to. Only 3% of respondents confirmed the nonexistence of livestock market within their peasant Association or locality. 84.36% of

respondents confirmed that they use the livestock market located within their PA while 115.64% was confirmed otherwise. In terms of market outreach accessed by FHH and MHH the following summary from LIVES project survey would indicate the existing differentials between the two types of households.

However, most of the livestock and livestock products are getting better price at urban centers, selling at farm gate (within the PA), in neighboring PA are not profitable for farmers. The profitable markets are located in worded/district and above. Thus men and women smallholders do have the obligation to travel long distances from the village to the district or beyond to get better prices.

Dairy Market Outreach

There was gender variation in terms of the market places where dairy products sold by types of households. For instance, even if both households sold high proportion of milk at farm gates, the FHHs sold high proportion of fluid milk at farm gates than MHHs. Hence, about 53% and 40% of fluid milk was sold at farm gate by FHHs & MHHs respectively. On the other hand, MHHs sold 17% of their product in a market located at the district capital while FHH took only 9.5% of their product to a similar market (Figure 2). With regards to butter, MHHs sold at district markets, market in other PA and market in the PA in order of importance. For FHHs however, Market in the PA was the major market for butter followed by district market and market in other PAs. Generally, despite some variations, FHHs tend to sell higher proportion of dairy products to nearby markets than MHHs.

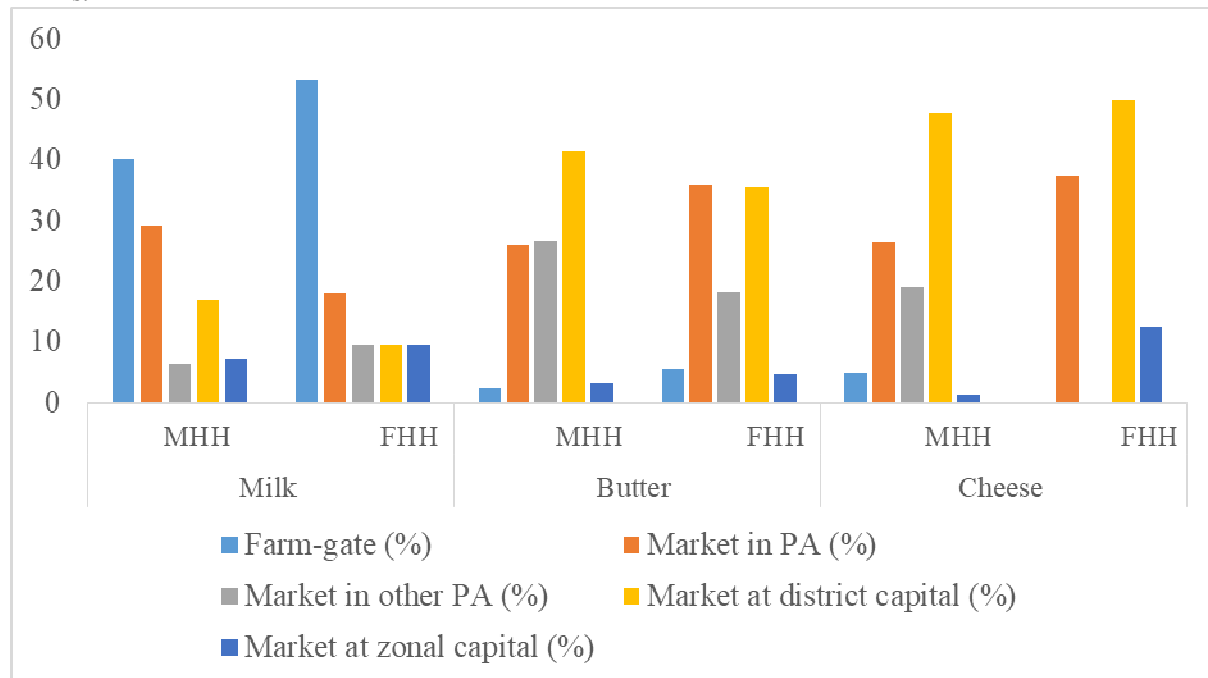


Figure 9: proportion of milk, butter and cheese sold by type of market and household

Shoat Market Outreach

Similar to other commodities, the major amount of shoats sold at district markets and markets in other PA irrespective of sex of the household head. However, the data indicates that FHHs prefer nearby markets as compared to MHHs. For instance, from the total shoats sold the proportion sold at farm gate was 6% for FHHs and 4% for MHHs. Similarly, of the total sold 22% and 16% were sold at market in their PA by FHHs and MHHs respectively. MHHs sold high proportion than FHHs at zonal markets (Figure 3).

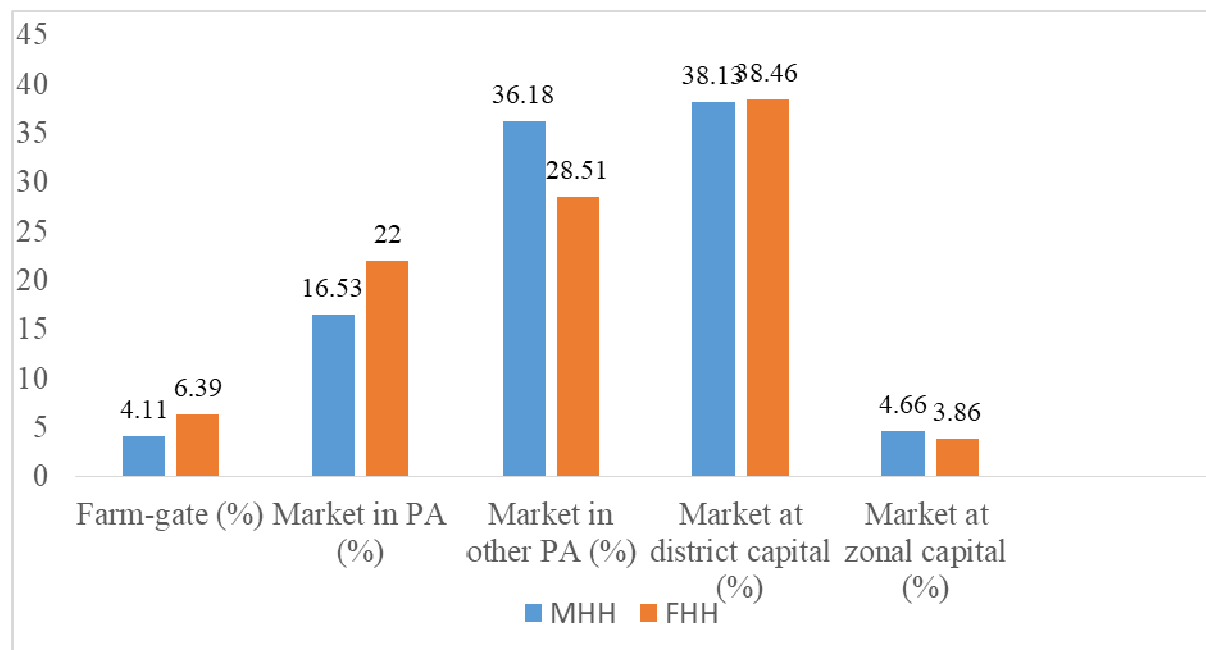


Figure 10: proportion of shoats sold by types of market and household

Poultry Market Outreach

District markets are the most preferred markets by both types of households as the major amount of products were sold in these markets. For instance, out of the total sold chickens and eggs 41% by MHHs and 42% by FHHs and 39% by MHHs and 38% by FHHs were sold in district markets respectively. The second and third important market varies by type of household. Hence, for MHHs market in other PA & market in the PA are the second and the third most important markets both for chicken and eggs. While for FHHs market in the PA is secondary important market. Farm gate market is the last preferred market in both households for chicken and egg. However, the survey revealed that FHHs sold higher proportion of their chicken and eggs at farm gate than MHHs. In terms of buyers of poultry and egg for both type of households' urban consumers were the main buyers of chicken and eggs. Hence, 42% and 43% of the total amount of chicken sold by MHHs and FHHs respectively were purchased by urban consumers. Similarly, urban consumers bought 36% and 39% of the total eggs sold by MHHs and FHHs respectively. Next to urban consumers retailers and assemblers have bought chicken from MHHs in their order of importance. However, for FHHs farmers and retailers were the second and the third important buyers of chicken respectively. With regards to eggs, retailers and assemblers were the other buyers in order of importance for both types of households.

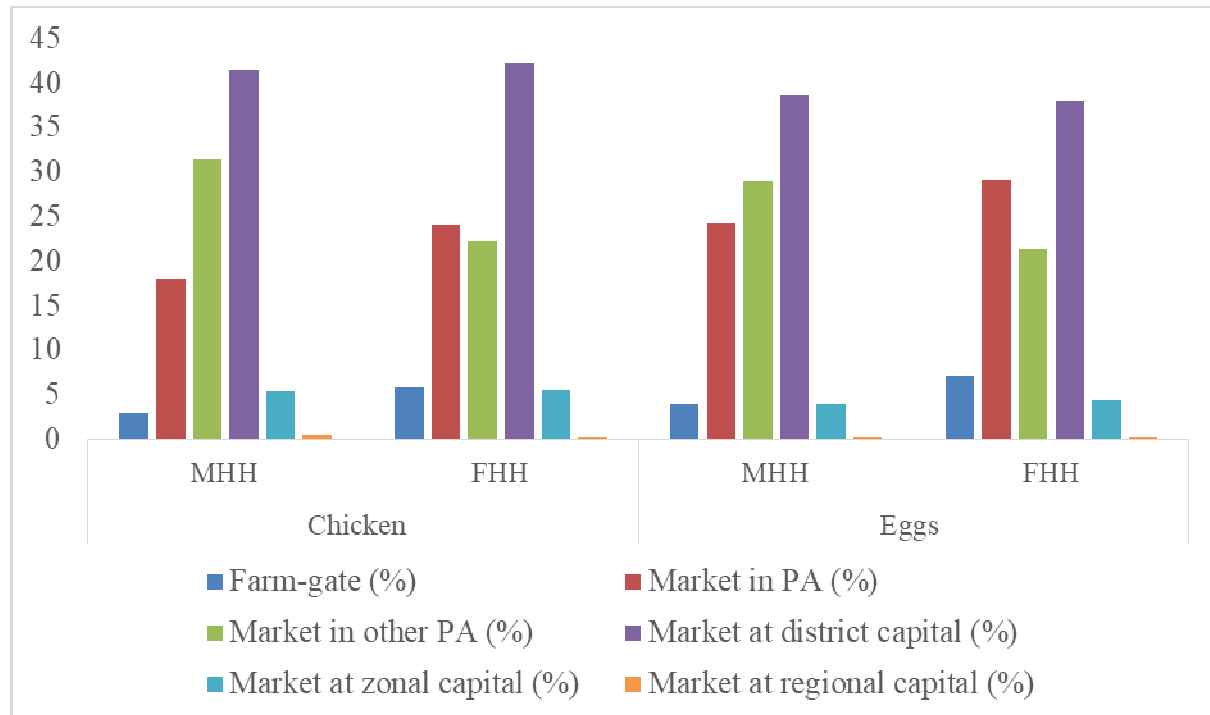


Figure 11: proportion of chicken and eggs by type of market and household

Honey and Wax Market Outreach

District markets are the main market for selling honey in both households. Hence, 38% and 42% of the honey sold by MHHs and FHHs respectively was sold at district markets. The second important honey markets are markets in other PA where 21% and 29% of the honey sold by MHHs and FHHs respectively were sold. The third important market for MHHs is market in the PA while for FHHs it was the farm gate (Figure 11).

With regards to the buyers, the first important buyers of honey were urban consumers for both MHHs and FHHs. Therefore, about 36% and 62% of the honey sold by MHHs and FHHs respectively were bought by consumers. Next to urban consumers MHHs sold honey to wholesalers (19% of honey sold) and retailers (17% of honey sold). For FHHs, assemblers (collectors) and wholesalers/cooperatives were the next buyers in their order of importance.

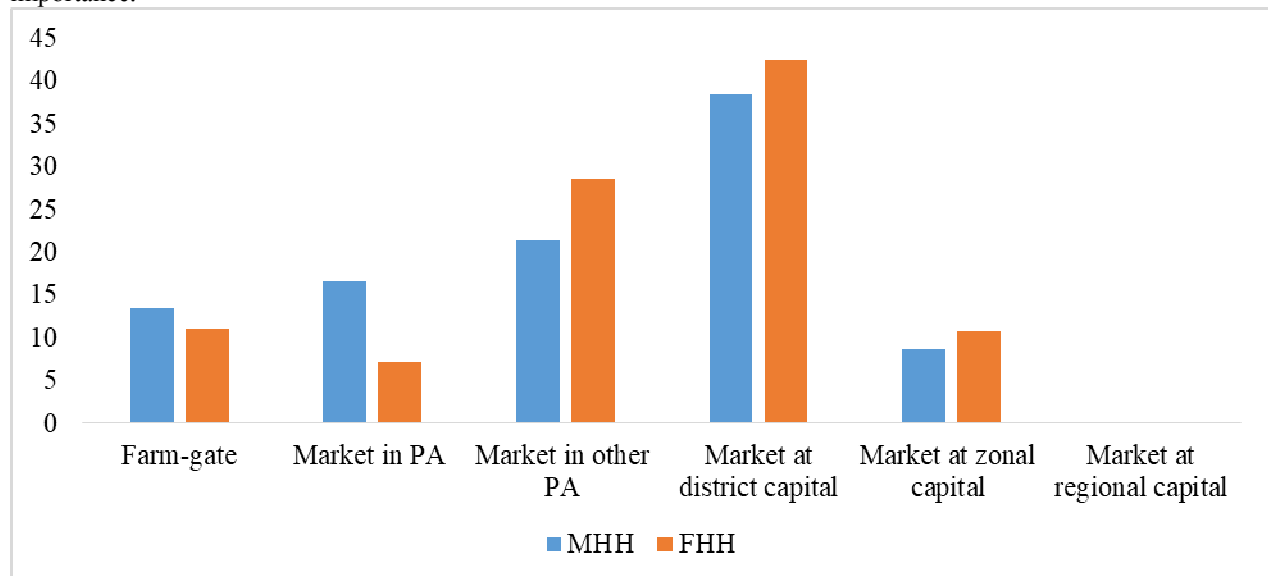


Figure 12: proportion of honey sold to different markets by types of households

Conclusions

Recent findings dominantly seems to reflect that joint decisions are made by both spouses in male headed households on most household owned ICTs and means of transportation related assets. The statistical test result

showed that, further differentiation in decision is making on these assets between the household head and the spouse in male headed households disregarding their decision stand as the household head possess much autonomy as a negotiator than his spouse.

In female headed households the survey result informs us a new insight that not all female headed households are inhabited by female and make decision single handedly. A significant number of female headed household heads (8.3%) are having male partners inhabiting in the family, however, the male counterpart play little decision making role in most cases. The survey result further reveals that women both in female headed and male headed households dominantly sale their livestock products at farm gate despite the fact that district market is preferable by most smallholder livestock keepers. One can argue that absence of ICTs and means of transportation designed to support livestock marketing, negative gender norms related to accessing ICTs and on female physical mobility, absence of organized market groups to serve individual male and female livestock keepers and the poor remains as major constraints affecting the speedy integration of smallholder livestock keepers to the market to gain better benefits and long term empowerment along the livestock value chain development and governance.

Constraints related to transport and access to and control over information sources (ICT) which mainly include the cell phone, TV and Radio in their current shape needs to be seen not only in their availability but in the way they are availed to efficiently serve the purpose of creating equitable and transformative livestock sector in the long run. In addition lack of access to means of physical mobility and ICT, existing gender norms that imposes ubiquitous sanctions on women's physical mobility far beyond their farming villages including to access profitable livestock markets needs a policy maker's attention. In the presence of access to ICT, information and programmes deliberately designed to support smallholder livestock holders with information related to livestock management, input and services and on potential market outreach and updates on current information for every livestock type would bring tremendous impacts on the way smallholders perceive their progress as traditional livestock keepers.

Recommendations

To improve existing constrains related to access to ICT, gendered physical mobility and inclusive market access, work needs to be done at macro, meso and micro levels. Thus, a new policy direction should be sought to engendering rural services related to transportation infrastructures, means of transportation access to all, streamlining ICTs to serve the livestock sector and also to innovatively recreate market outreaches and access to male and female livestock keepers in Ethiopia.

This paper recommends that it would be mandatory to reengineer the ICT and the transportation sector to be able to serve the needs and demands of male and female livestock keepers who can potentially transform the livestock sector into a hub that sustainability supply the market while at the same time ensuring the smallholders benefits and gains from profitable market outreaches. Thus, customizing existing livestock marketing system, reaching smallholders with viable market information, availing outreach market access by taking the buyer to the farm gate or by availing gender friendly access to transport, by organizing marketing groups responsible for managing communal market responsibilities can change the current disabling landscape into one which holistically address issues by changing the systemic distortion that detains smallholder livestock keepers only to a subsistence level for ages. The need to introduce new information and transportation related service institutions and strengthening existing ones in order to transform market participation of men and women small holder livestock keepers is a key to open up a new gate way to future venture along the livestock value chain from its present stature. In the final analysis, traditionally structured and less customized market spaces and arrangements need novel interventions mainly since access to and control over means of physical mobility and information access as it is now would directly impend men and women from securing important market related information and discourage smallholder women in general not to look for profitable livestock market outreaches which are mainly located at district towns and beyond.

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