THE INTERNATIONAL JOURNAL OF HUMANITIES & SOCIAL STUDIES

Gender-Related Factors that Influence Women and Men's Participation in Small-Scale Greenhouse Farming in The Peri-Urban Area of Ongata Rongai, Kenya

Dr. Sheila Ncheri Mutuma
Lecturer, Department of Gender and Development Studies, Kenyatta University, Kenya
Dr. Grace Wamue–Ngare
Associate Professor, Department of Gender and Development Studies, Kenyatta University, Kenya
Dr. Pacificah Okemwa
Lecturer, Department of Gender and Development Studies, Kenyatta University, Kenya

Abstract:
Gender-related factors often influence the participation of women and men in small-scale agriculture in Sub-Saharan Africa. This is because the dynamics associated with small-scale peri-urban greenhouse farming are considerably different from small-scale farming in general due to context specific factors. This paper therefore, sought to establish the effect of these on greenhouse farming in the peri-urban area of Ongata Rongai, Kenya. A descriptive survey design was used to collect both qualitative and quantitative data. The study concludes that understanding the gender diversity is crucial in explaining women and men's participation in small-scale greenhouse farming. It therefore, recommended that gender responsive measures need to be implemented to help more women and men not only to adopt and benefit from small-scale greenhouse farming but also optimize their participation.

Keywords: *Access, control, gender, small-scale greenhouse farming, Peri-Urban*

1. Introduction

In many developing countries, agriculture is dominated by small-scale holder farmers with limited resources. These face many obstacles that prevent improved production. As underlined by Shapouri and Rosen (2001), small-scale agriculture, is very seasonal and easily affected by climatic shifts. Similarly, Maohua (2001) and McCalla (1999) opine that the situation in small-scale agriculture is aggravated by use of limited inputs and technologies. The absence of technology or its limited access is blamed for food shortage in many parts of the developing world. Observably, most technologies are developed and tailored according to gendered stereotypes that dictate men and women's roles in the society, where patriarchy is dominant. By so doing, Wanyeki (2003) observes, farmers work with resources at hand and follow patriarchal systems that ascribe roles. Gender inequalities thus continue to be a major challenge in the agricultural sector.

Studies have shown that women's extensive and varied participation in agriculture as compared to men, continue to face limited access to modern inputs. This has resulted to women's farm work being labour intensive with meagre economic returns (Buvinic & Mehra, 1990). In this regard, Doss and Morris (2001), note that women form the vast majority of smallholder farmers and food producers in most areas in Sub-Saharan Africa and South Asia. These authors further argue that women have for too long been discriminated against in traditional farming methods and have limited application of contemporary technologies. This is echoed by Hovorka (2006) who explains that women are discriminated against in most aspects relating to agricultural resources, such as land, credit, extension service, inputs (seeds, fertilizers, pesticides, fodder, water) and external labour.

Doss (2001), explains that though a range of factors are critical in determining the rate at which farmers take up new farming ideas, gender issues still constrain women and men's participation. Significant gender inequalities in agriculture are found in peoples' access to key productive assets and services such as technology, land, labour, financial services, water and other inputs (FAO 2007). Consequently, variations in roles and activities determine who does what, who benefits and to what extent. Consequently, FAO (2011), note that gender balance in contemporary agricultural techniques should be addressed as a necessity, not an option if food security will be realized. To achieve this, it is critical to understand the participation of women and men in specific farming systems so as to address any gender constraints.

A report by FAO (2007) notes that peri-urban areas have undergone dramatic changes that have resulted in an influx of people from both rural and urban areas leading to increased population density and land prices. Such changes affect the agricultural production systems, limiting them to small-scale with more intensive production. As a result, many types of agriculture may be distinguished within a peri urban area. These depend on acreage, capital, technology used and market-orientation among others. According to FAO (2013) the awareness and adoption of climate-smart agricultural technologies and practices which address most of the conventional problems and accommodate contemporary agriculture

dynamics is on the rise. Notably, large-scale commercial greenhouse farming has been in existence for a long time and has had positive impacts butsmall-scale crop agriculture within greenhouses is still a new phenomenon and its adoption is at its initial stages. However, Justus & Danlin (2014) states that, production of crops in small-scale greenhouses is fast growing.

Notwithstanding the strides, the picture is not one of universal success. Even though there have been decades of investment in new agricultural technology, hunger continues to plague many developing countries. Further, studies have shown that introduction of some contemporary techniques have increased existing gender inequalities. the introduction of drum seeders in rice cultivation in East Asia is a case in point (Carr&Hartl, 2010. Observably, this saved time and labour for wealthier farmers but cut-off traditional jobs for the poor and landless women. Such a scenario justifies the need to establish gender-related factors that influence small-scale greenhouse farming in the study area.

Consequently, gender inequalities and lack of attention directed to such issues in agricultural development can be detrimental. IFAD (2009) explains that the failure to recognize the roles, differences and inequities between women and men, poses a serious threat to the effectiveness of the agricultural development agenda. Women as well as men's potentiality in agriculture should therefore be tapped if meaningful and balanced development is to be achieved. There is however, need for gender disaggregated data in urban and peri-agriculture, which is essential for policy formulation and programme planning. This would ensure inclusive development which benefits women and men.

Under this backdrop, improving agricultural productivity in the developing world particularly in Sub Saharan Africa is an urgent need. According to McCalla (1999) the need to provide small-scale agriculturalists especially in developing countries with basic appropriate technology continues to occupy a special place in the hearts and minds of people concerned with development and overwhelmingly supported by most governments, but the questions that still remain are: have attempts to modernize agriculture benefited both women and men equally? Is the situation the same in both rural and urban areas? This paper is a result of a study that sought to establish the gender-related factor in small-scale greenhouse farming in the peri-urban area of OngataRongai-Kenya

This is based on the observation that existing research findings indicate that women have often been left out in the usage of a wide range of agricultural technologies However, specific contexts such as peri--urban environments have other drivers to technologyuptake. This presented a knowledge gap that needed to be understood in order for Kenya to benefit from small-scale greenhouse farming in peri-urban areas. Further, gender integration in small-scale greenhouse farming addresses a serious concern especially in the supply of perishable produce to many urban residents as it offers a variety of benefits to women and men farmers. The study was thus undertaken with an overall objective of assessing the gender related factors that influence participation of women and men in small-scale greenhouse farming in the peri-urban area of OngataRongai. This area has an increased uptake of small-scale greenhouse farming. The aim was to assess gender-related factors that influence participation of women and men in this farming system.

1.1. Objectives of the Study

The broad objective of the study is to assess the gender-related factors that influence the participation of women and men in small-scale greenhouse farming in the peri-urban area of OngataRongai.

The specific objectives are to:

- Identify gender-related roles and responsibilities of women and men in small-scale greenhouse farming the peri-urban area of OngataRongai.
- Examine access to and control of resources within small scale greenhouse farming in the peri-urban area of OngataRongai.

1.1.1. Research Questions

- Are there any gender-related factors that influence the participation of women and men in small-scale greenhouse farming in the peri-urban area of OngataRongai?

2. Theoretical Conception

This study was guided by Agricultural Technology Adoption Initiative (ATAI) model by Kelsey (2013) and Harvard Analytical Framework developed by the Harvard Institute for International Development in collaboration with the Women in Development (WID) office of the United States Agency for International Development (USAID)March, Smyth, and Mukhopadhy (1999).Agricultural Technology Adoption Initiative (ATAI) was deemed relevant because it helps to develop and rigorously test programmes that improve adoption and profitable use of agricultural technology by small-scale farmers in South Asia and Sub-Saharan Africa. Harvard Analytical framework was used to facilitate the collection and interpretation of gender specific information on women and men in small-scale greenhouse farming.

2.1. Methodological Design

The study employed a descriptive survey research design to collect both qualitative and quantitative data. This was selected as it gave a holistic, well rounded view of gender-related factors that influence participation of women and men in small-scale greenhouse farming with a goal of describing their experiences and implications on them.

The study enrolled 80 small-scale greenhouse farmers (50 women and 30 men), 13 group leaders and 4 agricultural crops officers to participate. To select the categories of participants, a complete census of the targeted population was used, purposive sampling was employed to select four (2 women and 2 men) agricultural crops officers as key informants while leaders of two registered farmer groups participated in Focus Group Discussions (FGDs). Primary

data was collected using questionnaire with open and closed ended items, in-depth interview schedules, and observation guides. The study revealed that there are gender-related factors that influence participation in small-scale greenhouse farming within the study area albeit at different levels.

2.2. Results and Discussions

The study, sought to establish gender-related factors that influence participation of women and men within this farming system. The findings are presented under the following sub-topics; decision making, distribution of household resources such as land, gender division of labour and time. By use of Harvard framework, the study identified the respondents' farming activities within small-scale greenhouse farming and discussed their related opportunities and constraints associated with this farming system. These are discussed in the sections that follow;

2.2.1. Decision-Making within Small-Scale Greenhouse Farming

2.2.1.1. Choice of Small-scale Greenhouse Farming

The study considered the gender that made the initial decision to take up small- scale greenhouse farming. It was important to establish if the reasons for the choice were gender related. The study findings are as presented in Figure 1 below.

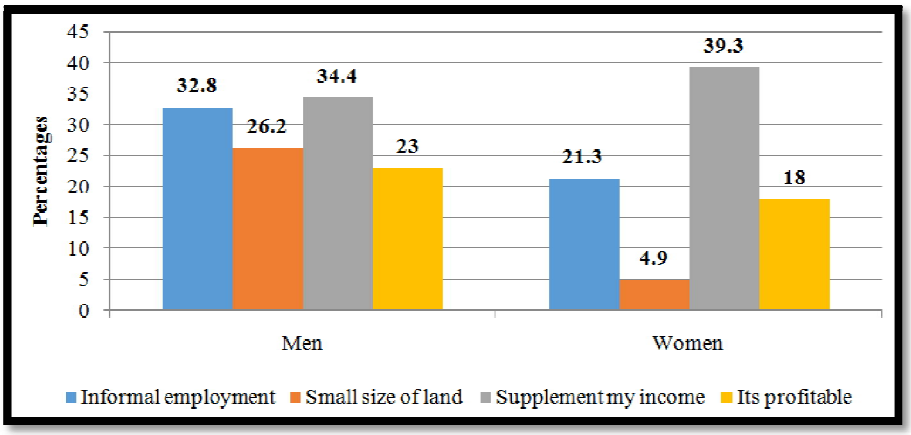

Figure 1: Reasons for Choosing in Small-Scale Greenhouse Farming

As presented in Figure.1, majority, (39.3%) of the women respondents as compared to 34.4% men confided that they engaged in greenhouse farming to supplement incomes. About 32.8% men and 21.3% women engaged in greenhouse farming for self-employment. Majority (26.2%) men cited small size of land as the reason they engaged in greenhouse in contrast to a paltry 4.9% women. A further, 23% men and 18% women took up greenhouse farming since they considered it a profitable venture. Thesefindings show that although women and men engage in greenhouse farming for different reasons, the main one was economic. This was demonstrated during a greenhouse farmer meeting in which a male respondent noted;

> *Since my wife is not in formal employment, I decided to buy greenhouse units so that she can have an alternative economic activity to supplement my income. I thought this kind of farming was profitable and suitable for a small piece of land. We discussed it and she agreed to attend training, operate and manage the greenhouse units. Together with other farmers we formed a greenhouse farmer group where both of us are members.*

This reveals the man as the decision maker on venturing into small-scale greenhouse farming, where he confesses to coming up with the idea and later discussing with his wife. This creates an impression that men in the study area start greenhouse farming to supplement their income, but thereafter involve their wives as operators and managers. Land size, the small nature of farming system and the closeness to the home were also noted as strong determinants for the farming system.

The findings further reveal the choice of this farming system by women and men as driven by various other reasons, including the following: first, small-scale greenhouse farming is done within the homestead or close by. Second, the farming system provides participants with an opportunity to engage in self-employment, and third, it enables families to meet their food needs and also supplement earnings. This confirms the findings of a study done by Mavuso (2015) on gender survey on urban farming which found that women are increasingly resorting to urban agriculture to help them meet the deficit in their families' food needs and as a source of employment.

The choice of small-scale greenhouse farming by men is attributed to acreage caused by land fragmentation. Existing literature show that in many African countries, small-scale farming is associated with women while most men largely resolve to bigger farming systems or cash crop farming. Doss and Morris (2001), observes that women are confined to subsistence farming where little or no modern farming is practiced as compared to men. However, small-scale greenhouse farming has also become attractive to men because of the incomes it ensures. Indeed, this raises questions regarding the situation of women within it. The fact that women have the little control over land explains their low

greenhouse ownership. This has not however, waned women's resolve to initiate greenhouse farming. In fact, the management of greenhouse farming is generally done by women in the study area.

Further interrogation revealed that the traditional roles and responsibilities that place women closer to their homes influence their decision to participate in small-scale greenhouse farming even if they do not own the structures. Clearly, an income generating activity that allows them to be in close proximity within the home impacts positively on their performance of expected roles. Consequently, small-scale greenhouse farming enables women to easily combine domestic chores and income generation. This explains why women readily exploited their marital relationship to ensure access to land and greenhouses in peri-urban Ongata Rongai. This finding is in line with other studies which contend that in many African countries, women's access to land is mainly determined by their marital status, where married women have more access compared to unmarried ones (Jagero, 2011 and United Nations Economic Commission for Africa, 2007).In our view, men's choice of small-scale greenhouse farming is also attributed to their control over resources, namely land and money. Considering this farming system is mainly championed by private investors who are driven by profit-making, they use attractive packages to make it accessible to those who are available. As such, while men invest in them, more women than men have embraced this farming system as it allows them the flexibility to combine income generation and performance of domestic chores. This variable therefore revealed that the choice of small-scale greenhouse farming by women and men in the study area was mostly driven by economic motives but also the desire to perform socio-culturally ascribed roles. Ultimately, both genders enjoy some level of decision-making in small-scale greenhouse farming although men are portrayed as key decision-makers in choosing to invest in it.

2.2.2. Distribution of Resources within the Household

2.2.2.1. Access to and Types of Farm Inputs

Access to farm inputs has been noted as one of the critical requirements for commercial agricultural production (ActionAid International, 2011). In this regard, the study sought to establish whether and which farm inputs women and men have access to. The study findings are presented in Figure 2.

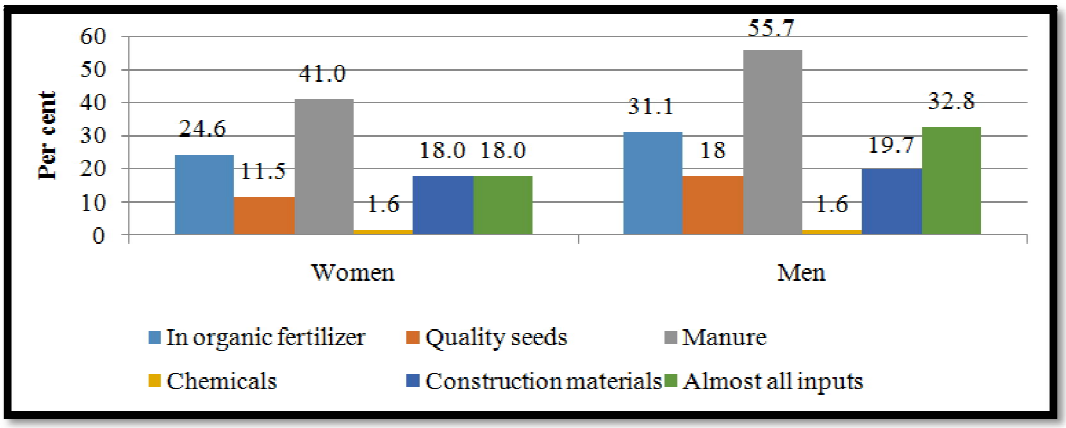

Figure 2: Access to and Types of Farm Inputs for Greenhouse Farming
NB: Multiple Responses Analysis Applied Where Responses Were More Than One Option and Percentage Is Calculated For Each Case

Figure 2 indicates that majority (55.7%) male respondents have access to manure as compared to 41.0 % women.32.8% men indicated they have access to almost all types of farm inputs and 31.1% have access to inorganic fertilizers. On the other hand, 24.6 % women have access to inorganic fertilizers while 18% have almost all farm inputs and construction materials respectively. About 19.7% men respondents have access to construction materials. 11.5% women and 18% men have access to quality seeds respectively while only 1.6% women and men respondents have access to chemicals.

The findings above succinctly indicate that both genders have a fairly equitable level of access to a wide range of crucial farm inputs. Men however, have greater access to most farm inputs as compared to women. Low access to quality seeds and chemicals for both could be explained in terms of cost. One key informant noted:

> Women and men substitute some of the farm inputs to cut cost. For instance, instead of using chemicals to spray, they prefer rotational farming using none-exotic or indigenous crops because it is cost free. Since land is small and hence cannot stay furrow for long, to some extent, they still do it albeit with minimal returns.

Despite this, availability of most farm inputs for greenhouse farming to women and men has made greenhouse farming become an attractive alternative for food production and income generation. These findings are contrary to (ActionAid International 2011) who explains that disproportionate access to farm inputs for small-scale farmers favour men. Similarly, Hovorka (2006) argues that women are discriminated against in most aspects relating to agricultural resources as earlier mentioned which hampered their participation in most developing countries. This, the study noted, is not always the norm.

2.3. Gender Division of Labour

2.3.1. Access to and Ability to Hire Labour

Gender and labour input in conventional small-scale agricultural production has been widely studied. Access to labour is one of the critical requirements for agricultural production (GoK 2009). A study by Simiyu and Foeken (2013) established serious gender disparities in access to and ability to hire labour. This study therefore, sought to establish by gender access to and ability to engage hired labour in the peri-urban OngataRongai area. The findings are presented in Figure 3.

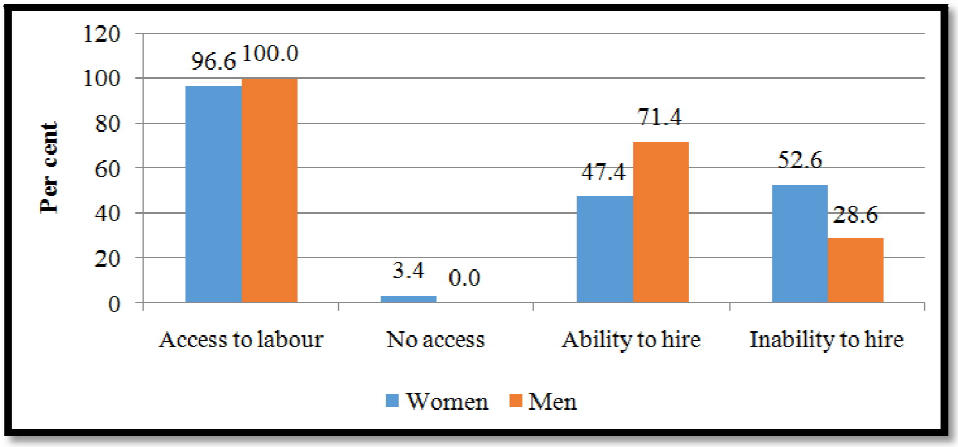

Figure 3: Access to and Ability to Hire Labour

Figure 3 shows that100% and 96.6% women and men respectively have access to labour leaving only a small number of about 3.4% women out. The study also established that about 71.4% men and 47.4% women have the ability to hire labour while (52.6%) women and 28.6% men had no capacity to hire labour. Men, as indicated have thus greater ability to hire labour as compared to women, a fact explained by the fact that majority of men undertake small-scale greenhouse farming alongside other economic activities thus depend on hired labour in executing farm activities.

Access to labour in this case means that laborer is available for hire if one has the means to engage them. This was noted by a key informant who observed that '*farmhands are available but most of them are quite expensive.*' As earlier noted, some small-scale greenhouse male farmers started greenhouses for their wives who are not in formal employment. As such, hiring labour for them may not be within the mandate of such women. Further, married women depend on their husbands for upkeep, hence hired labour may not be a husband's priority. Considering the labour intensity in small-scale green-house farming, lack of hired labour disadvantages those affected because they have to do all the work as was the observable case with most women here. They reported being overburdened combining greenhouse with domestic and care work. Consequently, their productivity is affected as noted later in this section. On the other hand, men were advantaged because they had access to hired labour, which enabled maximum yields. These findings corroborate (Kabeer, 2012) who notes that men have undue advantage over women when it comes to hiring labour since they are financially capable. Considering that small-scale greenhouse farming is a commercial farming, access to all resources is a critical factor in enhancing its success. However, limited access and inability to hire labour affects more women than men who practice greenhouse farming in the study location. The findings demonstrate how gender dynamics limit women. Nevertheless, since greenhouse farming is home-oriented, it has led to increased involvement of women especially as they combine it with household duties. This has nonetheless, increased their workload considerably.

2.3.2. Time

Time and gender division of labour at the household level are crucial in small-scale greenhouse farming. Applying the 24-Hour activity clock of the Harvard Analytical Framework (Moser, 2002), enabled documentation of the actual roles performed by women, men, boys and girls in homes that have embraced small-scale greenhouse farming. The division of labour was considered an important variable in revealing time use as a resource spent by women and men in the peri-urban Ongata Rongai. Many studies have shown that distribution of work in many African countries is characterized by inequality resulting to women being overworked in most cases in various farming systems (Odeny (2013), Simiyu & Foeken, 2013).

2.4. Daily Activity Clock (24-hour Clock)

Time	Activities		Boys' and girls' activities
	Women's	Men's	
4.00 am	Waking, breakfast preparation	Waking up, Sleeping	Sleeping
5.00 – 7.00 am	Preparing children, breakfast, taking children to school, selling farm produce	Wake up, breakfast; and going to formal work or, selling farm produce for (farmers)	breakfast, farm activities or those within the school going age
7.00 – 8.30 am	domestic chores and farm activities,	farm activities with farmhands, going to other activities outside farming	breakfast, going to school/college
8.30 am to– 5.00 pm	Domestic chores, farm activities, trading farm produce and other, other commercial activities, lunch preparation picking children from school, domestic chores after lunch, farm activities	Farm activities, selling farm produce, other commercial activities farm activities, taking lunch	At school/college, farm activities, taking lunch, assisting in the farm
5.00 – 7.00 pm	Going to market, preparation of dinner, selling farm produce, picking children from school	Farm activities, other economic activities, selling farm produce, resting if already at home/social activities	Home, from school/college, assisting in domestic chores
7.00 – 9.00 pm	Domestic chores, taking dinner with family, assisting children with homework	Resting if already at home/social activities taking dinner, assisting children with homework	Resting, doing homework, taking dinner
9.00 – 11.00 pm	Domestic chores, preparing for the next day, sleep	Resting/relaxing	Resting/relaxing

Table 1: Daily Activity Clock

24-hour clock was used to identify differences in the ways that women and men spend their time. This helped recognize some of the gender issues at the household level. It revealed that women woke up early in the morning and worked throughout the day. Women were also engaged in different activities at different times of the day and for many hours as compared to men. On the other hand, it was evident that men had ample time to work in the greenhouses, market their produce, engage in social activities and relax. Women's multiple roles as observed overburden them causing a time clash with other productive and reproductive responsibilities. Women interviewed lamented that greenhouse structures have become second babies. During an FGD a women participant had this to say:

> We no longer have any time left to relax, these structures have become like our second babies, only that we are in an urban set up where everything requires money and also the social networks are weak, otherwise it would be difficult to cope. With this kind of farming plus our domestic tasks it is only darkness that separates one from work. It is even made worse when you are assigned duties in the farm group greenhouse' (O.I.20/4/2015).

Men on the other hand noted that they often refresh after farm work and especially catch up with news of the outside world. Talking in an FGD, they informed us that as men, keeping in-doors would make them miss great opportunities, confessing that unlike women who have other duties to think about alongside farming, they are lucky. Such sentiments show that men have time to refresh after farm work and find out what is happening 'out there' a luxury not enjoyed by women. The boasting reveals the extent of gender dynamics in farming systems.

We therefore, underline that men are not time constrained and that the free time gives them an opportunity to refresh, interact as well as explore other economically viable activities elsewhere which widens their worldview, a cultural expectation that they should not stay at home, but should be out of the homestead to learn, share and be exposed to current issues (Okello, Ng'uono, Onganya, Luke, & Kassim (n.d)**.**The study further sought to establish if the workload had an impact on the way agricultural tasks are performed in the greenhouse farms and in the households. In relation to this, a woman respondent observed:

> 'Look! (Pointing at some damaged greenhouse), this roof top would not be like this if I was not so busy. I would also buy my farm inputs from the source because I know they are cheaper there. For my produce, I would seek better market rather than sell to the 'middle men' whose prices are not so good. Unfortunately, this is the case with us women unlike men who are more flexible. It is also difficult to be thorough with household chores; I am busy and sometimes overwhelmed. My own family has to learn to bear with it'.

The above verbatim indicates that women's productivity in the farms as well as in the homes is often compromised by the gender division of labour that leaves them overburdened. Such time constraint, result to them buying inputs from

local retailers besides selling produce to middlemen who often exploit them. This leads to profit reductions and uncalled for expenses, a result of combining greenhouse management with reproductive roles

These observations are in accordance with a study done by Daisy (2014) who noted that women as compared to men, within the 24-hour cycle, normally wake up early to prepare breakfast and undertake other domestic chores. The Swedish University of Agricultural Sciences (SLU) global report (2014), also underscored the multiple roles played by women in farms and at the domestic level-homes. The finding reveals that women's productivity in the greenhouses and in their homes is affected by the long working hours and the gender division of labour which is not in their favour. Likewise, this also limits their chances in seeking other economic opportunities elsewhere. As such, the gendered division of labour disadvantages them in utilizing time as a resource.

On the other hand, the unequal division of reproductive roles puts men at an advantage in the micro-level division of labour. Consequently, unlike women, they are more likely to pursue other opportunities, which in turn enhance access and control over resources and power. In this regard Alam, (2011), opines that such situations sustain the micro and macro level gendered division of labour. Thus, how the society and policy makers address issues concerning the care economy has important implications in the achievement of gender equality: they can either expand the capabilities and choices of women and men, or confine women to traditional roles associated with femininity and motherhood.

This study also established that the gender division of roles and responsibilities in the study area determined women's participation in small-scale greenhouse farming. For instance, women were mostly involved because this farming system is done within the homestead where domestic activities are based. On the other hand, some men fail to participate because other engagements take them out of the homesteads. Further, women's increased participation in the demanding farming activities such as weeding, pruning as well as post-harvest activities and the fact that their ability to hire labour is limited, increase the labour burden.

Women farmers reported that time was a limited resource as they had to divide between labour and leisure, productive and reproductive activities. These findings are in line with Alam (2011), who notes that women, typically spend disproportionately more time on unpaid domestic work than men on account of gendered social norms that view domestic work as a female prerogative. As Simiyu and Foeken (2013) argue, interventions that aim at scaling up women's operations must simultaneously address imbalances in the distribution of household labourso that their labour burden is not increased. In our view therefore, care should be taken to ensure women and men are engaged in all activities and at all stages in order to realize gender equity in this farming technique.

3. Conclusion

In summary, and as we have demonstrated, there are many gender related factors that influence women and men's participation in small-scale greenhouse farming in the peri-urban Ongata Rongai. Such factors slowed or inhibited participation. In particular, gender roles and responsibilities are a major obstacle to women's participation. The study however, observed that both women and men participate despite the noted gender related challenges.

4. Recommendation

To help enhance participation, and to fully exploit the potential of small-scale greenhouses farming, identifying and addressing gender constraints and designing appropriate gender responsive policies and programmes would enhance utilization by both women and men in the study area.

5. References

i. Action Aid. (2011). What women farmers need: A blue print of action. Nairobi, Kenya: Action Aid International.
ii. Akudugu, M. A., Guo, E., & Dadzie, S. K. (2012). Adoption of modern agricultural production technologies by farm households in Ghana: What factors influence their decisions? Journal of Biology, Agriculture and Healthcare, 2(3),1-13.
iii. Alam, A. (2011). Impact of gender discrimination on gender development and poverty alleviation. Sarhad Journal of Agriculture, 27(2), 229-339.
iv. Buvinic, M., & Mehra, R. (1990). Women and agricultural development: A review of two decades of work' in Agricultural development in the Third World. Baltimore, Maryland, United States: Johns Hopkins University Press.
v. Carr, M., and Hartl, M. (2010). Lightening the Load. Labour-saving Technologies and Practices for Rural Women. Report for IFAD and practical action. Rome.
vi. Daisy, N. (2014, July 4). Women in the village bearing a heavy workload. Retrieved August 12, 2015, from www.awcfs.org: http://awcfs.org/kw/article/women-village-bearing-heavy-workload/.
vii. Doss, C. R. (2001). Designing agricultural technology for African women farmers: Lessons from 25 years of experience. World Development, 29, 2075-2092.
viii. Doss, C. R., & Morris, M. L. (2001). How does gender affect the adoption of agricultural innovations? The case of improved maize technology in Ghana. Agricultural Economics, 25, 27-39.
ix. FAO. (2007). Profitability and sustainability of urban and peri-urban agriculture. Rome, Italy: FAO.
x. FAO (2011). The state of food insecurity in the world. Rome. FAO.
xi. FAO (2013). Climate-Smart Agriculture Source Book. Food and Agriculture Organization of the United Nations.

xii. Foeken, D. & Mwangi A.M. (1998). Does access to land have a positive impact on the food Situation of the urban poor? A case-study in Nairobi. East African Social Science Research Review.

xiii. GoK. (2009). The Kenya Agricultural development strategy 2009 - 2020. Nairobi: Government Printers.

xiv. Hovorka, A. J. (2006). Gender and Urban Agriculture: Emerging trends and areas for Future Research. Graduate school of geography, Clark University, Worcester MA, USA

xv. http://arc.peacecorpsconnect.org/view/750/small-scale-greenhouse-farming-programme-for-rural-women.

xvi. IFAD. (2009). Gender equality and women's empowerment. Rome: International Fund for Agricultural Development.

xvii. Jack, B. Kelsey. 2013. 'Constraints on the adoption of agricultural technologies in developing countries.' Literature review, Agricultural Technology Adoption Initiative, J-PAL (MIT) and CEGA (UC Berkeley).

xviii. Jagero, N. (2011). Factors Influencing women access and control Of land in Kenya. African Journal of Social Sciences, 1(2), 20- 35.

xix. Kabeer, N. (2012). Women's economic empowerment and inclusive growth: labour markets and enterprise development. London: School of Oriental and African Studies.

xx. Maohua, W. (2001). Possible adoption of precision agriculture for developing countries at the threshold of the new millennium. Computers and electronics in Agriculture 30. 40-45

xxi. March, C., Smyth, I., & Mukhopadhy, M. (1999). A Guide to gender Analysis Frameworks. London: Oxfam GB.

xxii. Mavuso, F. L. (2015). Gender survey in urban Agriculture. Cape Town: City of Cape Town.

xxiii. McCalla, Alex, 1999: Prospects for food security in the 21st Century: with Special Emphasis.

xxiv. Morris, M., & Doss, C. R. (2001). How does gender affect the adoption of agricultural innovations? The case of improved maize technology in Ghana. Agricultural Economics,, 25(1), 27-39.

xxv. Odeny, M. (2013). Improving access to land and strengthening women's land rights in Africa. Annual world bank conference on land and poverty (pp. 1 - 22). World Bank.

xxvi. Okello, G., Ng'uono, M., Onganya, D., Luke, K., & Kassim, M. K. (n.d.). Social cultural factors that constraint gender mainstreaming in agriculture extension. 10th AIC Symposium 1: Peer Reviewed Papers (pp. 289-311). Zurich, Switzerland: Academic Interoperability Coalition.

xxvii. Shapouri, S., Peters, M., S. Allen, Rosen, S., F. Baquedano, F. (2010). Food Security Assessment, US Dept. of Agriculture/Economic Research Service.

xxviii. Simiyu, R., & Foeken, D. (2013). Gendered divisions of labour in urban crop cultivation in a Kenyan town: implications for livelihood outcomes. Gender, Place & Culture, 1-17.

xxix. SLU Global. (2014). Urban and Peri-urban Agriculture for food security in low-income countries: Challenges andk knowledge gaps. St. Louis: SLU-Global.

xxx. Wanyeki, M. (2003). Women and land in Africa - Culture Religion and Releasing Women Rights. ZED Books. Washington, DC.