

## **GENDER MAINSTREAMING OF SMALLHOLDER FARMERS AND FOOD SECURITY IN SIAYA COUNTY, KENYA**

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### **Abstract**

How gender mainstreaming among smallholder farmers contributes to food security remains a key challenge not only in Kenya but even globally. Despite the fact that smallholder farmers are the main rural actors in agriculture, they still experience food insecurity due an array of socioeconomic challenges that exists. The study was set to establish the contribution of gender mainstreaming of smallholder farmers to food security in Siaya County, Kenya. Correlation design was used. The target population was 199,034 smallholder farmers selected from 6 Sub Counties of Siaya. Sample size of 384 was arrived at through Fisher's model. Sampling technique was stratified random sampling. The research tool was structured questionnaire, which was tested for validity and reliability before administration. Gender mainstreaming had a statistically significant weak positive correlation ( $R = .371$ ;  $p < .05$ ) with food security. Gender mainstreaming had a statistically significant contribution to food security ( $F_{ratio} = 55.810$ ;  $p < .05$ ) attributing 13.8% variance. It showed that for every one standard deviation increase in gender mainstreaming initiatives, food security improved by .371 units. In conclusion, gender mainstreaming among smallholder farmers attributed to a small contribution in food security in Siaya County, Kenya. The study recommended intensified use of gender mainstreaming interventions in enhancing food security not only in Siaya County but globally. The study was justified because it informed better gender mainstreaming interventions that supports the realization of smallholder farmers' food security situation not only in Kenya but globally. The results have also extended knowledge base of gender mainstreaming and food security.

**Key words: Gender mainstreaming; smallholder farmers; and food security**

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## **1. Introduction**

In this section, the topic of the study is discussed. In particular, gender mainstreaming, smallholder farmers and food security are discussed.

### **1.1 Gender mainstreaming**

Gender mainstreaming is the process of assessing the implication for women and men in any planned action, including legislation, policies or programmes, in all areas and at all levels (Strasbourg, 2004). It is a strategy for making women and men concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres so that there is equity for both women and men in acquisition of benefits (Council of Europe, 2004).

Gender mainstreaming is essentially a contested concept and practice. It involves the reinvention, restructuring, and rebranding of key parts of feminism in the contemporary era. It is both a new form of gendered political and policy practice and a new gendered strategy for theory development. As a practice, gender mainstreaming is a process initiated to promote gender equality. It is also intended to improve the affectivity of mainline policies by making visible the gendered nature of assumptions, processes, and outcomes (Walby, 2005).

Jahan (1995) and Lombardo (2003) considered gender mainstreaming as either ‘agenda setting’ or ‘integration’, of women and men while Shaw (2002) contrasts it by considering ‘embedded’ as compared with ‘marginalized’.

The advocacy for gender mainstreaming has been very successful and the ideas gained ground during the decade between the UN World Conferences on Women in Nairobi (Ria, 2013). Unit for the Promotion of the Status of Women and Gender Equality (2000) embraced the term gender mainstreaming as a strategy to redress women’s unequal position in twelve critical areas of concern, including education, health, armed conflict, as victims of violence, economy, decision making and human rights.

According to Norad (2005) political commitment expressed in goals and objectives needs to be translated into a political commitment to making women and gender an active and visible part of dialogue, programming, and reporting, and that women and gender should be considered as across cutting issue at all levels of economic development.

The current study considered gender mainstreaming as a way of engaging both men and women smallholder farmers in planning, policy formulation, designing of programs, monitoring of programs and evaluating programs in the small farm sector.

## **1.2 Smallholder farmers**

Smallholder differs between countries and between agro-ecological zones. In agriculturally favorable areas with high population densities they often cultivate less than one hectares of land, whereas they may cultivate 10 hectares or more in semi-arid areas, or manage 10 heads of livestock. Smallholders represent a large number of holdings in many developing countries. Evidence from the World Census of Agriculture for small number of selected countries in Africa shows that between 1980 and 1990, percentage of agricultural holdings of less than one hectare had increased from 50 percent to about 78 percent (FAO 2010).

Most smallholders have diverse sources of livelihood including significant off-farm income, yet are still vulnerable to economic and climatic shocks. Their characteristics differ by country and farming system zone. The actual farming system, household strategies, household behavior, and livelihood patterns are determined by resource endowments and institutional factors such as access to markets, organization of markets and information, finances, towns, public institutions and services (Ellis 2008).

In East Africa smallholders have faced several historical constraints such as: land tenure, access rights, and land management; credit access; access to input and output markets; infrastructure; extension services; institutional problems; climate change and food security; and global financial, food, and fuel price crises (Adeleke *et al*, 2010). The agricultural sector remains the backbone of the Kenyan economy, employing 70 per cent of the rural population who are predominantly smallholders (GOK, 2011).

### **1.3 Food security**

Food security is a measure of having consistent access to safe, adequate and nutritious food for an active and healthy life. According to FAO (2010) food security, at the individual, household, national, regional and global levels is achieved when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.

Most hungry people in the world depend on the market for much of their food, including smallholder subsistence farmers who usually do not produce enough to meet their food needs year round. For more than one billion people who live on less than \$1 a day (half the world nearly three billion people live on less than \$2 a day), much of their income is spent on food. In Brazil, the crop protection market exceeded in value that of the US, with sales growing at 5.4% per year compared to 3% for the rest of the world. Despite making these strides, Brazil still faces challenges related to agricultural input access and output marketing, coupled with high cost of cred facilities (Jel, 2008).

From 2008, Kenya has been facing severe food insecurity problems. These are depicted by a high proportion of the population having no access to food in the right amounts and quality. Official estimates indicate over 10 million people are food insecure with majority of them living on food relief. Households are also incurring huge food bills due to the high food prices. Maize being staple food due to the food preferences is in short supply and most households have limited choices of other food stuffs.

Despite the fact that Kenya has been implementing a number of food security projects, over 10 million Kenyans still suffer from chronic food insecurity and between two and four million people require emergency food assistance at any given time (Government of Kenya, 2011). The 2010 Economic Review of Agriculture also indicates that 51 per cent of Kenyan population lack access to adequate food.

Siaya County Integrated Development Plan 2013/2017 shows that the county produces food that can last only for nine months in a year. The output is nonetheless not stable and thus food gaps go up to eight months in poor seasons. The three to four months food difference is sourced from the neighboring counties and even Uganda (Mango, 1999).

## **2. Research objective**

To establish the contribution of gender mainstreaming of smallholder farmers to food security in Siaya County, Kenya

## **3. Research hypothesis**

H<sub>0</sub>: There is no statistically significant contribution of gender mainstreaming of smallholder farmers to food security in Siaya County, Kenya

H<sub>1</sub>: There is a statistically significant contribution of gender mainstreaming of smallholder farmers to food security in Siaya County, Kenya

## **4. Literature review**

A study commissioned by Asian Development Bank (2013) on gender equality and food security-women's empowerment as a tool against hunger reported that women's empowerment is not only a priority goal in itself but an intrinsic human right; recognized as such in pledges and commitments by governments. The report recognized instrumental value of gender equality and conditions for the society as factors leading to increased contribution of women to food security and adequate nutrition. Asian Development Bank (2013) further reported that the society urgently needs full potential of women's contribution, which can only materialize with wider recognition and acknowledgment by both women and men alike if it has to benefit all in the society.

A study conducted by FAO (2010) office of knowledge exchange, research and extension reported gender: inequalities along the entire food production chain, "from farm to plate" impede the attainment of food and nutritional security; inequalities in access to productive resources (land, labour, fertilizer, credit, technology, extension and markets) for example, negatively affect food availability; relations between and among men and women are important in determining

vulnerability to food insecurity and malnutrition; and discrimination in the allocation of household resources, including those related to nutrition, may result in an increased incidence of malnutrition among women and girls.

Food and nutrition insecurity is a gender justice issue. Low status and lack of access to resources mean that women and girls are the most disadvantaged by the inequitable global economic processes that govern food systems and by global trends such as climate change. Evidence shows strong correlations between gender inequality and food and nutrition insecurity – for example, in India, thousands of women and girls still lack food and nutrition security as a direct result of their lower status compared with men and boys. Such inequalities are compounded by women and girls' who often have limited access to productive resources, education and decision-making (Bridge, 2014).

Empowering women and girls is not just necessary for their well-being, but also a means to broader agricultural development and food security, and economic soundness. Studies in Africa show that, if women farmers were given the same access to resources (such as land, finance and technology) as men, their agricultural yields could increase by 20 to 30 percent; national agricultural output could rise by 2.5 percent; and the number of malnourished people could be reduced by 12 to 17 percent (Senay, Tim, Lucy & Agnes, 2012). Senay, *etal.* (2012) observed that eliminating gender-based discrimination under the law, ensuring gender-sensitive policies and programming decisions, and giving women greater voice in decision-making at all levels are necessary for mainstreaming gender in agriculture and enhancing food security.

Senay, *etal* (2012) studied sustainable rural livelihoods programme in eastern Uganda designed to improve food security, nutrition and health at the household and community levels. The programme enriched women's human capital through training and experience gained in developing leadership skills, improved nutrition and health, and community wide respect for sources of valuable knowledge. Women who were involved in farm groups and emerging marketing associations observed significant increase in household food security.

According to Kassie, Wagura, and Shiferaw (2012) women in Kenya face significant barriers in agriculture, especially inequalities in access to and control over crucial resources and inputs such as land, labour, fertilizer and formal finance. Women also face barriers to membership in rural organizations and cooperatives, agricultural inputs and technology such as improved seedlings, training and extension as well as in marketing services. Kassie, Wagura, and Shiferaw (2012) found that in Kenya female headed households are 13 per cent less likely to be food secure than male headed households. Their study also found that female headed households face 12 per cent higher probability of chronic and transitory food. This was observed could be attributed to gender based discrimination, which renders female-headed households more vulnerable to food insecurity and poverty.

## **5. Research design**

Research design is a way a study is designed to be carried out. It is a plan that is used to generate answers to research problems. It is a blueprint for conducting a study with maximum control over factors that are likely to interfere with the validity of the findings (Kothari, 1990). The study employed both descriptive survey and correlation designs. Descriptive survey design was considered suitable because it did not only involve analysis of the situation as it was without manipulation of data but also involved measurement, classification, comparison and interpretation of data (Kothari, 2011). In view of the current study, descriptive design was used to describe how gender mainstreaming of smallholder farmers relates to food security situation in Siaya County, Kenya. According to Saunders, Lewis and Thornhill (2009), correlation is the degree to which two or more variables relate. Correlation design was used to assess the degree of relationship that existed between gender mainstreaming and food security situation in Siaya County.

## **6. Target population**

A population is a complete set of elements, persons or objects that possess some common characteristics. Target population is a particular group of people that is identified as the recipient for the purpose of a study or a set of elements having a trait of concern that are being investigated (Mugenda and Mugenda, 2003). The target population of the study comprised an

aggregate of 199,034 smallholder farmers from Siaya County (Institute of Economic Affairs, 2011). The distribution is shown in table 1.

**Table 1: Distribution of the target population**

Sub County	Respondents	Respondents (%)
Alego	42,593	21.4
Bondo	29,457	14.8
Rarieda	28,462	14.3
Gem	29,059	14.6
Ugunja	29,059	14.6
Ugenya	40,404	20.3
<b>Total</b>	<b>199,034</b>	<b>100.0</b>

**Source:** Institute of Economic Affairs (2011)

## 7. Sample design

Sample design is a joint procedure of identifying the population of interest, estimating the sample size, deciding on appropriate sampling technique and selecting representatives from the population (Yogesh, 2006). In order to arrive at the required sample size, Fisher's model as cited in Mugenda and Mugenda, (2003) was used. In the model, when the target population is more than 10,000 the sample size may be approximated by

$$n = \frac{z^2 pq}{d^2}$$

where

$p$  = Proportion of target population with traits being investigated;

$q$  = Proportion of target population without traits being investigated represented by  $(1 - p)$  ;

$d$  = Statistical level of significance set; and

$z$  = Normal statistical deviation

The model further outlines that if the proportion of the target population with the trait being investigated is not known then 50% is considered appropriate. At 95% confidence level

$$\begin{aligned} \therefore n &= \frac{1.96^2 \times 0.5 \times 0.5}{0.05^2} \\ &\approx 384 \end{aligned}$$



The distribution of the sample size is shown in table 2.

**Table 2: Sample distribution**

<b>Sub County</b>	<b>Respondents</b>	<b>Respondents (%)</b>
Alego	82	21.4
Bondo	57	14.8
Rarieda	55	14.3
Gem	56	14.6
Ugunja	56	14.6
Ugenya	78	20.3
<b>Total</b>	<b>384</b>	<b>100.0</b>

**Source:** Adapted from Institute of Economic Affairs (2011)

To collect data from the estimated sample, the study adopted stratified random sampling. The strata were sub counties within Siaya County from which smallholder farmers were selected randomly. The units of the study were small holder farmers in each sub county. The sample size in each sub county was apportioned in proportion to the target population. This technique was most appropriate because of its ease of administration and homogeneity of small holder farmers in each Sub County (Mugenda and Mugenda 2003). According to Denscombe (2007), the technique was more appropriate because the researcher could assert some control over the selection of the sample in order to guarantee that crucial smallholder farmers or factors were covered in proportion to the manner in which they existed in the wider population. This helped the researcher in making generalizations from the findings of the study.

## **8. Research instrument**

The study used structured questionnaire as data collection instrument. A questionnaire is a research tool designed to collect data, which can be used subsequently for analysis. It consists of a written list of questions. Each person who answered a particular questionnaire read identical set of questions and this allowed for consistency and precision (Denscombe, 2007; Kothari, 1990; Oso & Onen, 2009). Questionnaire was considered appropriate for the study because it was: of relatively low cost; easy to arrange; standardized in answers provided to the extent that all

respondents were exposed to exactly the same set of questions; and pre-coded in answers for easy management at analysis (Denscombe, 2007). In particular, standardized questionnaire showing gender mainstreaming of small holder farmers and food security indicators was used. The questionnaire was divided into three sections, namely; demographic characteristics of small holder farmers, gender mainstreaming and food security. Demographic characteristics included: sex; age; marital status; highest level of education; primary occupation; land ownership; and types of crops grown. Gender mainstreaming included constructs inclusive of activities of both males and females; and food security considered both physical and economic conditions of the small holder farmers.

### **9. Piloting**

Piloting is trying out a study in small scale to determine whether or not the study will produce expected results (Creswell, 2009). This stage was crucial in research process because it enabled the researcher to detect problems or weaknesses that could have been encountered during the main research. Piloting was conducted with smallholder farmers in Rarieda Sub County. According to Yogesh (2006) in order for piloting results to be valid, it should involve respondents' equivalent to 10% of the sample size. In the current study, 38 smallholder farmers were randomly selected and engaged in piloting the questionnaire.

Validity is the extent to which the results of the study can be accurately interpreted and generalized to the populations (Mugenda and Mugenda, 2003). The questionnaire was tested to check its content, construct and face validity. Content validity was done to ensure that contents of the instrument contained adequate sample of the domain of content it was supposed to represent. Face validity deals with the format of the instrument and includes aspects like clarity of printing, font size and type, adequacy of workspace, and appropriateness of language among others. Construct validity determine the nature of psychological constructs or characteristics measured by the instrument. Validity was ensured through the use of research experts who were research supervisors at Jomo Kenyatta University of Agriculture & Technology. The questionnaire was given to the supervisors to evaluate and rate each item in relation to the objectives as not relevant or relevant on the 1-4 scale. Validity index was determined from the ratio  $n_{3/4}/N$  as .82, where  $n_{3/4}$  was the number of items marked 3 or 4 by both supervisors, and  $N$

was the total number of items assessed. The score was above the recommended minimum validity index of .70 (Oso & Onen, 2009). The questionnaire was therefore valid.

Reliability is the extent to which research results are consistent and replicable (Kothari, 2011). Reliability is the consistency of scores when the research instrument is administered from one set of items to another, and also from one point in time to another (Frankel & Wallen, 2006). The instruments was pre-tested for reliability using Cronbach alpha ( $\alpha$ ) with a sample of 10% of smaller holder farmers randomly selected from the Rarieda Sub County. Ten percent was chosen for pre-test because it is the smallest number that yields meaningful results in data analysis of a survey research Yogesh (2006). The reliability index of .809 was computed and since it was greater than 0.7 the minimum recommended value the questionnaire was accepted as reliable

## **10. Data collection method**

Permission to collect data was sought from The School of Graduate Studies Jomo Kenyatta University of Agriculture and Technology. Notification letters were thereafter be sent to village heads in the Sub Counties. While doing this, the researcher was cautious that short-circuiting proper channels of authority could have led to difficulty in getting data (Denscombe, 2007). Research assistants were: thoroughly trained on research ethics; made to understand the instructions and content of the instruments; instructed to take all measurements in the most consistent manner across all respondents; and advised to record and compile data accurately. Data collection took two weeks. A check list was used to monitor the despatch and return of questionnaires.

## **11. Data analysis and presentation**

Data analysis is the examination of what has been collected and making deductions and inferences hence a process which involves uncovering underlying structures, extracting important variables, detecting any anomalies and testing any underlying assumptions (Yogesh, 2006). Preliminary to entering data in Statistical Package for Social Sciences version 20 ready for processing, completed questionnaires were: edited for consistency; and coded to enable the responses to be grouped into appropriate categories. Both descriptive statistics and inferential statistics were used to analyze quantitative data. While descriptive statistics was used describe

the practice of gender mainstreaming and the position of food security in the county, inferential statistics was used to analyze data on how gender mainstreaming contributed to food security. In particular, while descriptive statistics involved the mean, standard deviation, skewness and kurtosis, inferential statistics involved simple linear regression model. The general simple linear regression model used was

$$y = \beta_0 + \beta_1 x + \varepsilon \quad (1)$$

In model 1,  $y$  represented food security and  $x$  represented each gender mainstreaming. The term  $\varepsilon$  was the *residual* or *error* and represented the deviation of the observed value of food security from that expected from the model.  $\beta_0$  and  $\beta_1$  were taken as constants to be determined. Results of the analysis were presented through tables with written interpretations and discussions of results.

## 12. Results and discussions

The contribution of gender mainstreaming of smallholder farmers to food security was analyzed, presented, interpreted and discussed. Descriptive results of valid data items, means, standard deviations, skewness and kurtosis for gender mainstreaming and food security were shown in table 3.

**Table 3: Descriptive statistics for gender mainstreaming and food security**

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Food Security	351	4.30	.36	-.53	.13	1.90	.26
Gender Mainstreaming	351	4.39	.37	-.10	.13	-.37	.26

**Key:** 1.0 - 1.4- strongly disagree; 1.5 - 2.4- disagree; 2.5 - 3.4- not sure; 3.5 - 4.4-agree; 4.5 - 5.0-strongly agree

**Source:** Survey data (2017)

Table 3 showed the means and standard deviations for gender mainstreaming (M=4.39; SD=.37). There was general agreement that gender mainstreaming was being practiced among smallholder farmers in Siaya County. Gender mainstreaming was achieved through: engaging both men and women in planning farm activities; engaging both men and women in farm policy

formulations; engaging both men and women in designing farm programs; and engaging both men and women in monitoring and evaluating farm programs. Table 3 also showed the mean and standard deviation for food security (M=4.30; SD=.36). There was general agreement that Siaya County had improved food security; that is, there was improved food availability, accessibility; utilization and stability.

Though table 3 showed gender mainstreaming was being practiced among smallholder farmers in Siaya County and there was improved food security, it could not show how gender mainstreaming contributed to food security. Moreover, the mean for food security was lower than that for gender mainstreaming by some points casting doubt as to whether there was a correlation between them. Simple linear regression model 1 was therefore sought. Preliminary tests on model 1 were satisfied. The hypothesis, ‘there is no statistically significant contribution of gender mainstreaming of smallholder farmers to food security in Siaya County, Kenya’ was tested at 5% significance level. The results were shown in table 4.

**Table 4: Regression analysis for gender mainstreaming and food security**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error			
1	(Constant)	2.718	.213		12.766 .000
	Gender Mainstreaming	.361	.048	.371	7.471 .000
Best line of fit					
R=.371 <sup>a</sup>					
R <sup>2</sup> =.138					
Adjusted R <sup>2</sup> =.135					
F <sub>ratio</sub> =55.810					
P<.05 <sup>b</sup>					

a. Dependent Variable: Food Security

b. Predictors: (Constant), Gender Mainstreaming

**Source:** Survey data (2017)

Table 4 showed a weak degree of statistically significant positive correlation (R=.371; p<.05) between gender mainstreaming and food security. R-square of .138 measured part of food security, which was explained by gender mainstreaming. It showed that approximately 13.8% of the variation in food security was attributed to gender mainstreaming. Table 4 and model 1 also provided an optimum simple linear regression equation between gender mainstreaming and food security as

$$Y = 2.718 + .361x \quad (2)$$

The linear regression model 2 was statistically significant ( $F_{\text{ratio}} = 55.810$ ;  $p < .05$ ). Standardized beta coefficients, showed that for one standard deviation increase in gender mainstreaming practices, food security improved by approximately .371 units. The linear regression model 2 also showed that without gender mainstreaming, food security situation was approximately 2.718 units and for every unit increment in gender mainstreaming, food security situation improved by .361 units.

A study commissioned by Asian Development Bank (2013) recognized the instrumental value of gender equality and conditions for the society as factors leading to increased contribution of women to food security and adequate nutrition. This was in agreement with results of the current study which also showed that gender mainstreaming contributed significantly to food security. However, while the current study considered both gender in equity measures, Asian Development Bank (2013) investigation was more inclined to women.

While the current study revealed gender mainstreaming as contributing to food security, FAO (2010) office of knowledge exchange, research and extension reported gender inequalities along the entire food production chain, “from farm to plate” as impeding the attainment of food and nutritional security. Also, while the current study revealed gender mainstreaming to be significantly contributing to food availability, stability and accessibility, FAO (2010) observed that relations between and among men and women are important in determining vulnerability to food insecurity and malnutrition. The current study used linear regression models in analysis. FAO (2010), however, did not specify the model that was used in arriving at the results.

While the current study revealed gender inclusiveness and equity to have increased food security, evidence by Bridge (2014) showed a strong correlation between gender inequality and food and nutrition insecurity. For example, in India, Bridge (2014) revealed thousands of women and girls as lacking food and nutrition security because of their low status compared to men and boys. Such inequalities were found to have been compounded by women and girls’ who often have limited access to productive resources, education and decision-making.

Senay, Tim, Lucy and Agnes (2012) study in Africa showed that, if women farmers were given the same access to resources (such as land, finance and technology) as men, their agricultural yields could increase by 20 to 30 percent; national agricultural output could rise by 2.5 percent; and the number of malnourished people could be reduced by 12 to 17 percent. While this study was more confined strengthening women, the current study looked at gender parity and found that it contributed significantly to food security in Siaya County.

### **Conclusion**

There was a statistically significant weak correlation between variations in gender mainstreaming and food security. Though gender mainstreaming among smallholder farmers attributed to the variation in food security, the contribution was quite small.

### **Recommendations**

Gender mainstreaming contributed to improved food security in Siaya County. The study therefore recommends that field agricultural officers should intensify its practice with a view to enhancing sustainable food security. Gender mainstreaming involve wide field with numerous operational interventions. Siaya County Department of Agriculture should therefore invest in research to identify various gender mainstreaming interventions to be used for sustainable food security.

### **References**

- Adeleke S, Abdul B. K. and Zuzana, B. (2010). *Working Paper No. 105*. African Development Bank
- Asian Development Bank (2013). *Gender equality and food security: Women's empowerment as a tool against hunger*. Retrieved from [www.adb.org](http://www.adb.org)
- Bridge (2014). *Gender and food security towards gender-just food and nutrition security overview report*. Retrieved from <http://www.bridge.ids.ac.uk/>
- Council of Europe (2004). *Joint Report by the Commission and the Council on social inclusion as adopted by the Council (EPSCO)*
- Creswell J. W. (2009). *Research Design: qualitative, quantitative, and mixed methods approaches*. London: Sage Publications Inc.

- Denscombe, M. (2007). *The good research guide for small-scale social research projects*. (3rd edition). McGraw-Hill: New York, Open University Press.
- Ellis, F. (2008). *The Determinants of Rural Livelihood Diversification in Developing Countries*. Journal of Agricultural Economics. Vol, 51. Issue 2. DOI: 10.1111/j.1477-9552.2000.tb01229.x
- FAO (2010). *Integrating gender issues in food security, agriculture and rural development*. Office of Knowledge Exchange, Research and Extension, Viale delle Terme di Caracalla, 00153 Rome, Italy
- Frankel, J. R, Wallen, N.E. (2006). *How to design and evaluate research in education*, New York, McGraw- Hill.
- GoK, (2010) *Agricultural Sector Development Strategy 2010-2020*  
[http://www.gafspfund.org/sites/gafspfund.org/files/Documents/5.%20Kenya\\_strategy.pdf](http://www.gafspfund.org/sites/gafspfund.org/files/Documents/5.%20Kenya_strategy.pdf)
- Jahan R. (1995). *The Elusive Agenda: Mainstreaming Women in Development*. (London: Zed Books).
- Jel, C. (2008). *Brazil's Changing Food Demand Challenges the Farm Sector*. The magazine of food, farm, and resource issues
- Kassie, M. Wagura, S. N., Shiferaw, B. (2012). *Determinants of food security in Kenya, a gender perspective*. Paper presented at the 86th Annual Conference of the Agricultural Economics Society, University of Warwick, United Kingdom 16 - 18 April 2012
- Katurani, et al (2004). *Review various interpretations of pro-poor growth and propose a simple criterion, viz, proportionally greater gains for the poor than for the non-poor*
- Kothari, C.R. (2011). *Research methodology, methods and techniques*. New Age International Publishers, New Delhi.
- Lombardo E. (2003) *Integrating or setting the agenda*. Gender mainstreaming in the two European Conventions on the future of the EU and the Charter of Fundamental Rights
- Mango, N.A.R. (1999). *Managing Africa's soil No 7: Integrated soil fertility management in Siaya District, Kenya*. Nottingham: Russell Press.
- Mugenda, O.M & Mugenda, A. G. (2003). *Research methods quantitative and qualitative Approaches*. Nairobi University Press



- Norad (2005). Evaluation of the Strategy for Women and Gender Equality in Development Cooperation (1997–2005). Country Case Study: Bangladesh. Oslo
- Oso, W.Y., and Onen, D. (2009). *A general guide to writing research proposal and report*. Jomo Kenyatta Foundation.
- Ria B. (2013). *Beyond repetitive evaluations of gender mainstreaming*. [https://www.afdb.org/fileadmin/uploads/opev/Documents/Evaluation\\_Matters\\_March\\_2014\\_-\\_Gender\\_Inequality\\_and\\_You\\_-\\_article\\_1\\_.pdf](https://www.afdb.org/fileadmin/uploads/opev/Documents/Evaluation_Matters_March_2014_-_Gender_Inequality_and_You_-_article_1_.pdf)
- Saunders, M., Lewis, P. & Thornhill, A. (2009). *Research methods for business students*. 5<sup>th</sup> ed.
- Senay, H., Tim, S., Lucy, W., Agnes, B. (2012). *Gender, agriculture and food security*. United Nations Development Programme, New York, USA
- Shaw J. (2002) .*The European Union and Gender Mainstreaming: Constitutionally embedded or comprehensively marginalized?* Feminist Legal Studies, 10, 213-226.
- Strasbourg (2004). *Gender mainstreaming Conceptual framework, methodology and presentation of good practices*. Final report of activities of the Group of Specialists on Mainstreaming (EG-S-MS)
- Unit for the Promotion of the Status of Women and Gender Equality (2000). *Gender equality and equity*. A summary review of UNESCO's accomplishments since the Fourth World Conference on Women Beijing 1995
- Walby S. (2005) Measuring women's progress in global era.
- Yogesh, K. S. (2006). *Fundamental of research methodology and scientists*. New Age International (P) Limited, New Delhi, pp. 77-98.