## Gender and Agricultural Extension Services in Ntcheu District of Malawi

### December 2015

## Food security and better livelihoods

## for rural dryland communities

RESEARCH REPORT SUBMITTED

To the Drylands Systems Program and

IWMI-PRETORIA

by

EMELDER TAGUTANAZVO

**Acknowledgements**

This report was written in line with the requirements of the Drylands Programme led by the International Water Management Institute (IWMI) - Southern Africa and supported by CIAT-Malawi. Great indebtedness is given to the district agricultural office, particularly the Agricultural extension Department for their technical expertise during the study. The cooperative spirit received from the following village heads: Kaziputa, Kampanja, Zakazaka, Chimasula, Chakaniza, Zaunda, Kadamanja and Makwata during the study is recognized. The author would also like to thank the small holder famers in the, Kandeu EPA for participating in this research.

**Contents**

[Acknowledgements I](#_Toc436205853)

[Contents II](#_Toc436205854)

[Summary IV](#_Toc436205855)

[List of Tables V](#ListofFigures)

[List of Figures VI](#ListOfFigures)

[1.0 Introduction 1](#_Toc436205858)

[1.1 Background 1](#_Toc436205859)

[1.1.0 Gender disparities: A reflection of existing governance structures 1](#_Toc436205860)

[1.1.1 The effect of existing social structure on gender and extension 3](#_Toc436205861)

[1.1.2 The differentiating nature of gender in extension 4](#_Toc436205862)

[1.1.3 Gender and extension services in dynamic environments 5](#_Toc436205863)

[1.2 Gender and information management in extension services 6](#_Toc436205864)

[1.3 Gender and capacity building in extension service institutions 7](#_Toc436205865)

[2.0 Research site 10](#_Toc436205866)

[2.1 Methods 11](#_Toc436205867)

[2.2 Sampling procedure 11](#_Toc436205868)

[3.0 Findings 12](#_Toc436205869)

[3.1.0 Gender and the pluralistic nature of extension services 12](#_Toc436205870)

[3.1.1 Gender patterns in the public extension service 12](#_Toc436205871)

[3.1.2 Institutional representation and scheme membership by gender 16](#_Toc436205872)

[3.1.3 Private sector/NGO extension: Gender gap-closing strategy. 17](#_Toc436205873)

[3.1.4 Gender and Extension training institutions 18](#_Toc436205874)

[3.1.5 The influence of traditional leaders on gender and extension services 19](#_Toc436205875)

[3.2.0 Communication and extension service provision 19](#_Toc436205876)

[3.3.0 Participation in extension activities by farmers and extension workers 21](#_Toc436205877)

[3.4.0 Technology adoption by gender 24](#_Toc436205878)

[3.5.0 Extension as a gendered demand driven entity 27](#_Toc436205879)

[4.0 Discussions 27](#_Toc436205880)

[5.0 Conclusions 29](#_Toc436205881)

[References 30](#_Toc436205882)

**Acronyms**

ARET-Agriculture Research and Extension Trust

CGIAR- Consortium of International Agriculture Research Centers

CRS-Catholic Relief Services

CIAT- International Centre for Tropical Agriculture CIAT

DADO-District Administration Development Officer

DC- District Commissioner

EPA-Extension Planning Area

FAO-Food and Agriculture Organization

NGO-Nongovernmental Organization

NASFAM-National Small Holder Farmers Association

UN-United Nations

**Summary**

There has been an observable shift of extension practices in developing countries across the globe; from micro level centered approach to group centered extension practices. This paper examines the influence of gender relations in extension service delivery and explores the possible opportunities and challenges faced in delivering and adopting agricultural initiatives with particular focus on Kaziputa irrigation scheme in Ntcheu district of Malawi where the need to intensify production through extension is high. Using qualitative approach, inclusive of key informant interviews, focus group discussions, observations and documentary evidence, this study examines the influence of gender on the relationship between extensionists and farmers towards improved production. Women have a higher level of involvement as scheme managers and also have significant representation in strategic positions as decision makers at different extension operations levels despite limited recognition as extension skills conveyers as a consequence of household and institutional gender disparity drivers. The presence of women as managers at these critical levels allows for gendered extension service source-target alignment along the extension service needs chain. However the levels of women’s involvement at scheme level as knowledge distribution points is limited despite their presence in the management platform and the effect of matrilineage leverage to resource control. This discrepancy is intensified by biased engagement of irrigators in farm product promotion techniques where the minority contact farmers who are mostly men are capacitated to drive the sustainability wheel. With the observed interdependence between gender, increased agricultural performance and extension; the paper therefore recommends that a further exploration on gender-technology specificity and agricultural performance nexus be done as a measure of its possible benefits to farmers.

**List of Tables**

Table 1: Gender differences in training activities for lead farmers and extension staff

Table 2: Summary of technology adoption by gender

**List of Figures**

Figure 1: The Map of Ntcheu District, South Central Malawi

Figure 2: Summary of gender representation in extension services

Figure 3: Extension beneficiary representation by gender in scheme clubs

Figure 4: Female extension worker-lead farmer representation in training

Figure 5: Male extension worker-lead farmer representation in training

Figure 6: Lead farmers’ extension activities by gender

**1.0 Introduction**

Agricultural extension reforms have occurred since mid-nineteenth century globally; from centralized to pluralistic demand-driven services (Birner and Anderson, 2007) and in some cases it has evolved from being a service to a facilitation system with the primary focus on intensifying production and improve efficiency for livelihood enhancement. Even though differentiated involvement of men and women in such processes has been noted by Ragasa et al (2013a), an appreciation of the impact of such differences still needs attention. Birner and Anderson (2007) defines agriculture extension as a series of entrenched communicative interventions meant to facilitate problem identification and innovations to improve farming methods. More over Zwane (2012) views such comprehensive non-formal knowledge exchange as vehicle to increased profitability to farmers. Johnson (2006) provides that agriculture extension occurs within specific socio-cultural settings and as such is subject to power dynamics that shape gender relations hence often affect men and women differently. Gender related constraints in utilizing extension services may rise out of gender specific constrains or may reflect gender-intensified inequalities which FAO (2010) attributes to the existence of imposed forms of gender inequalities which are structural. Consequently, the restructuring of the extension services has been portrayed by Rivera and Qamar (2003) as a process that has seen underprivileged farmers including women being viewed as experts (sources of knowledge) rather than adopters.

Extension services is multifaceted in nature hence its function is multidimensional as viewed by a wide array of scholars. For instance, Swanson (2008) analyzed the factors affecting the development of pluralistic extension systems across rural communities by identifying good practices within different agricultural extension and advisory service institutions and found that multiple elements of the extension system have different roles hence complement each other. Chapman and Tripp (2003) made a review of extension privatization strategy and found that farmers utilize private services productively. In India, Glendenning *et al* (2010) also examined the challenges and constrains of demand driven and participatory agricultural extension approaches in providing farmers with information and finds that agricultural extension facilitates problem solving and creates links to markets. Following such attempts by a wide array of authors in analyzing practices, process and constraints within the extension service, it is therefore within the interests of this paper to further examine the influence of gender relations and how they possibly impede or facilitate extension service provision at different levels of operations and how that varies for different social groups (men, women and youth).

* 1. **Background**

**1.1.0 Gender disparities: A reflection of existing governance structures**

With regards to structural change in the extension service, Swanson and Rajalahti (2010) argues that the process of shifting from a centralized technical driven extension system is characterized by huge inertia within the state operating systems to transfer decision making powers to lower tiers of governance where women dominate. Hu (2010) also indicated that in China the top-down public agriculture extension has left most farmers predominantly women with little access to extension services despite its success in promoting technological progress and agricultural output. Remarkably, Cohen and Lemma (2011) provides that decentralization in extension service delivery in Ethiopia promoted the deployment of extension agents to rural communities and has alsocreated chances for women to become extensionists and enriched the agents’ knowledge of local problems nonetheless accountability in this Ethiopian system remained entirely upward. In as such Cohen and Lemma (2011) emphasizes downward accountability in service provisions to improve quality of service in the extension system supported by Crawford and Hartmann (2008) who emphasized the use of democratic decentralization (devolution) as well as administrative decentralization (deconcentration). Such transfer of responsibilities for performing public service obligations from the centralized management is however considered weak in accommodating the essential grassroots actors by Popic and Patel (2011) hence are gender blind. Sub-Saharan countries have transformed the traditional extension models which were largely centralized into local models hence Care (2009) contends that such make overs were meant to benefit the marginalized men and women. In support of the above view Mogues *et al* (2010) illustrates the prevalence of community engagement in developing countries inclusive of Ethiopia where community household visits by sector extension agents were by far the most prevailing code of extension delivery.

Community based approach to extension has led to increased participation by women in decision making and community affairs as observed by Wellard (2011) gender sensitive ultimate shedding of decision making powers to lower tiers as reflected in Malawi’s Community Based Extension (CBE) programme, where women made more than half of the membership. Hird-Younger and Simpson (2013) also indicates that in some instance female farmers volunteer to provide basic extension services in their own communities as liaisons between the local farmer groups and non-governmental organizations.

Agricultural extension systems is described by the World Bank (2010) as rather a system in which men and women are organized in various interconnected instrumental platforms, used as entry points for strengthening extension service delivery a condition which Rivera and Qamar (2003) termed institutional pluralism. Though Rivera and Qamar (2003) stresses the ability by these platforms to increase participation by both men and women, however the multiple roles by these associations tend to compromise success in extension service whose operations are, according to Mogues *et al* (2009) more inclined to administration (resource allocation). In addition, World Bank (2010) observes that in Ghana overlapping roles in associations limited participation particularly of women due to role conflict; in situations where the extension services platforms were used for other purposes beyond those that brought agricultural related benefit, an approach that weakened extension service delivery.

More so such institutional arrangements has led to the deprivation of some of the Malawian community members in having contact with service providers consequently that role was left in the hands of the public service extensionists who are dominantly male even with specialized efforts to reach women as provided by Masangano and Mthinda (2012). Extension services were transformed to community based system in DR Congo in an endeavor to increase worker-farmer interaction at community level as given by Ragasa *et al* (2013b). In response to negative impacts of pluralism on extension service delivery Farnworth and Colverson (2014) recommends a reconfiguration of the extension system from being a service to a facilitation system despite the fact that such interconnections have led women participating less frequently in value chain networks and innovative platforms.

Contrary Bello and Saku (2009) reveals that the pluralism which in some cases can be viewed as fragmentation of public extension organizations may lead to the emergence of private enterprises only on condition that the latter plays a profitable niche to the benefit of both male and female stakeholders. Ozor (2010) also stresses that such commercialization of farmer operations results in elite focused clientele and location-specific extension services which in the long run may benefit the economically effluent and discriminate the resource poor farmers particularly women. Thus Gautman (2000) advocates for cost sharing between farmers and service providers as witnessed by Ozor (2010) in Ecuador where government extension agents provide agricultural inputs and technical advice in exchange for a share of harvest profits through share cropping agreements, a strategy accommodating both men and women across the economic ladder.

**1.1.1 The effect of existing social structure on gender and extension**

Gender related constraints in utilizing extension services could be a consequence of gender-intensified (structurally amplified) inequalities, according to FAO (2010) such inequalities are often times socially imposed. For instance, in Kenya Dolan (2002) finds that the imposition of cultural values that inhibited direct interpersonal communication between men and women resulted in male dominating the extension services, a phenomenon also observed by Johnson (2006). Under such circumstances women extension workers would be the most logical candidates for direct contact with women farmers, yet a study by Berger *et al* (1984) shows that women from Female headed households were less likely to have such contacts than women from Male-female headed households.

Nevertheless even when extension programmes try to reach women as well and use female field extension workers, Ellis *et al* (2007) reveals that gender specific constraints may hinder participation and they may not cover crops or tasks of particular interest to women. Interestingly intra-gender constraints could also be a hindrance in delivery of extension knowledge as observed in Vanuatu by UN (2005) who indicates that efforts to engage female extensionists were met with resistance by older women farmers who perceived young women farmers as having limited potential and illegitimate in providing such knowledge, under such circumstances men would be considered the legitimately accepted extension service providers. Such biases towards men stems from traditional beliefs that view them as decision makers (World Bank, 2012) and are much more available beyond the household limits than women who according to Oniang’o (2005) are often limited by domestic errands.

Accordingly, Doss (2011) finds that extension agents occasionally establish and maintain contact with only a minority of the farmers, recognized as the “contact/lead” farmers who are recognized as community agricultural models, obliged to be literate in order to participate in some of the programmes; this perpetually limits women’s access since more women face inhibitory factors than men. Although female extension workers may be trained in agricultural aspects, findings by Lutz *et al* (1998) highlights that, in practice agricultural home assistants are exclusively women while technical assistants are primarily men. However, such gender patterns were reversed in Nigeria in situations where women farmers took over tasks that traditionally were for men hence as given by Uzokwe and Ofuoku (2006) female extension agent’s recruitment was to be increased to enhance information flow to women farmers.

More so, World Bank (1983) provides that state extension services are often biased towards working with men and neglect the very important role of women in developing countries’ agricultural systems. For instance, Ofuoku (2011) finds that in Nigeria male Village Extension Agents’ contact with female farmers was not consistent as a result of incompatible interests with their counterparts creating a dearth of information for the female farmers. Moreover, Zhang (2013) provides that the Chinese Household Contract System Law which is gender neutral conversely reinforces the traditional supremacy of the men even in institutions such as the agriculture extension services. Mogues *et al* (2010) introduces a remedy to evading the socially sensitive issue of “male” extension agents by stressing the utilization of women’s groups as best approach to extend extension services to women.

To this effect, Mogues *et al* (2009) provides that women’s access to extension advice, training and credit has been controlled due to institutionalized gender division of labour for example; the raising of poultry and small ruminants by women has been considered home economics entity which leaves women barred from essential extension services. Birner and Anderson (2007)’s attempt to question women’s ability to demand extension services, finds that women had low representation in extension based organizations as a result of cultural roles that inhibited them from having their voices heard hence extension agents viewed farmers as men only. Such gaps are viewed by Meinzen-Dick *et al* (2011) as a consequence of inability by agricultural extension policy makers to link men and women’s differential access to various forms of extension services to match human resources attributes of the extension officers.

Thus, scholars such as Clark and de Brauw (2013), Dewees (1995) and Masangano and Mthinda (2012) alludes to the degree to which gender patterns in Malawi as in other agro based societies are a refraction through various structural prisms inclusive of norms and values; division of labour and imposed discrimination through institutional arrangements. Accordingly Rivera and Gary (2004) concludes that the combination of gender blind and locally binding gendered norms often cause men to benefit more than women from public programmes such as extension services.

**1.1.2 The differentiating nature of gender in extension**

Some gender related draw backs are a consequence of gender specific constrains, to this effect, the UNDP (2010) indicates that fifteen percent of male farmers as to eight percent of female farmers have access to extension services globally as a result of their gender. World Bank (2010) also provides that the levels of contact between farmers and extension agents remain relatively low particularly among women; a condition justified by Mbo-o-Tchouwou and Colverson (2014) as a consequence of their exposure to a wide range of barring factors much more than men. More so FAO (2011) reveals that in Senegal male plot holders received agriculture services more than women due to the fact that extensionists tend to focus on male oriented tasks.

Moreover, Ragasa *et al* (2013c) also points out that gender differences in access to extension services transform to observed differences in technology adoption and agricultural productivity. Doss and Morris (2000) exemplifies gender differentiated technology adoption to the existence of gender linked acceptance of particular crop species such as maize varieties. Such differences could be attributed to the existence of a strong relationship between service providers and farmers in relation to knowledge and advise provision which according to Ragasa *et al* (2012) may even influence adoption of improved seed and fertilizer for both male and female households. Similarly Clark (2013) observes that in Malawi, limited access to extension services compromised women’s ability to manage multiple crop fields resulting in an increase in the productivity gap between male and female farmers.

Ragasa *et al* (2012) also observes that in Ethiopia particular crop-specific productive models estimated that the quality of extension service provided determined the productivity level and crop choice for farmers with women strongly positive for barley, fruits and vegetables while men were positive for maize, enset and teff. Thus even when extension services provide models designed for specific crops that are women oriented; the impact of such services depends on the way in which the services are delivered. Nonetheless, a study by Robert *et al* (2002) to analyze the socio-economic characteristics of the farmers, finds no substantial difference by gender across crop yield when inputs are supplied. Similarly Croppenstedt *et al* (2013) provides that female farmers have reduced outputs even in commercial farming than their male colleagues due to gender differences in accessing extension facilities.

Interestingly, Ashworth (2005) acknowledges the absence of youth recognition as a gender dimension in the extension services while Rivera and Qamar (2003) categorizes them as the generation of the future extension services whose recognition could promote gender balanced crop intensification if handled in a gender sensitive way. The bottom up planning and gender mainstreaming approach in extension services, indicated by Glendenning and Babu (2011) has led to the District Administration in India advocating for the involvement of both youth and women in extension enterprises. Thus, Daudn *et al* (2009) also stresses that involving youth in extension services would provide efficient sources of labour, innovations and punctuality during meeting attendance even if their level of commitment and access to resources is compromised. Davis *et al* (2010) also indicates that younger farmers and extensionist tend to participate more during Farmer Field Schools (FFSs) than the elderly which would promote skills acquisition in the producer groups mainly dominated by young women. Thornton *et al* (2002) argues that in the Sub- Saharan Africa FFSs are the most effective way of providing agricultural extension services to women farmers equated with male farmers hence there is demand for women extensionists.

**1.1.3 Gender and extension services in dynamic environments**

Even in post conflict zones such as DR Congo where government institutes face greater transactional costs to collaboration Ragasa and Golan (2012) argues that the seemingly trust eroded milieu has managed to open new opportunities of cooperation in the agricultural extension arena for both men and women. Thus Ogato *et al* (2009) calls for a transformation from gender neutral to gender responsive agricultural extension policies to increase productivity by both men and women through the utilization of gender empowerment strategies. Furthermore, Glendenning and Babu (2011) stresses that the revitalization of agriculture extension services increases accountability and relevance of the extension workers hence women farmers and pastoralists receive due attention.

The services provided by the agricultural extension systems, according to Anderson and Feder (2003), foster change in productivity as a product of the stake made in to the extension system which elevate farmers, particularly women, economically. In as much as the extension services contribute substantially towards boosting the national and regional economy, Gardner *et al* (2007) indicates that many factors affect agriculture in contradictory ways such that it becomes difficult to establish a clear relationship between extension services and their effects at the household level hence induce different levels of benefits for male and female farmers. Following changes in the definition of the unit of production (family), Kaske (2007) also provides that women farmers may be typically and wrongly characterized as economically inactive as a result of lack of target specific approaches within the extension system that caters for women in male headed and female headed households who often have different needs.

**1.2 Gender and information management in extension services**

Whilst extension workers are considered agents of communication, Buchy and Bazasnew (2005) elucidates that the extension system has become techno-centric and has limited appreciation of gender and women issues. Similarly technologies which are seldom gender-neutral may influence power relations between men and women in the agriculture extension circles. Adejo *et al* (2013) supports this assertion by indicating that in Nigeria whilst women dominated in agriculture activities, they had more constraints in gaining access to Information, Communication and Technology (ICT) related to extension services than their male counterparts. Such low accessibility in conventional extension related ICT by women was attributed by Olajide (2011) to cultural barriers, cost of possessing the particular assets, gender prejudice and illiteracy.

Pezeshki-Rad and Zamani (2005) also provides that the success in delivering extension services is vested largely on the extent to which information exchange happens between and amongst male and female farmers, extension agents and related institutions. Paradoxically, Ulimwengu and Sanyal (2011) find that farmers’ access to extension information decreased the willingness by the farmers to pay for the services, which consequently had negative impacts on men. Hence Babu *et al* (2012) emphasizes the tailoring of the delivery of agriculture extension information to the different information search behaviors of male and female farmers which largely depends on gender, age, economic affluence and educational status of both men and women farmers.

Ekboir *et al* (2005) indicates that the ability to explore new agricultural techniques depends on the extension worker or farmer’s ability to connect to a wide variety of sources and to integrate technical packages. Thus a study by Reij and Waters-Bayer (2014) indicates that males were the prominent innovative farmers compared to women. This phenomenon was also observed by Manfre and Nordehn (2013) in Nairobi, Kenya where women had less access to extension information since they had smaller networks (key channels of communication) than those of men hence had fewer opportunities. Nonetheless a study carried out by Olajide (2011) show that in Iddo District of Nigeria the most prevailing sources of agricultural information were inclusive of farmers themselves, extension agents and acquaintances than ICT.

The Environmental Protection Agency (2000) elucidates that extension agents have a role in risk assessment and decision making on the possible mitigation strategies as well as promoting risk aversion behavior amongst male and female farmers; on potential risks such as agro-chemicals pollution, climate change, drought and floods. Mittal and Mehar (2013) provides that access to reliable, timely and relevant information through the extension agents; by men and women can help in many ways to reduce the farmers risk and uncertainty by empowering them to make good decisions. Namondwe and Ukpere (2014) finds that in Ntcheu district of Malawi Extension workers act as opinion leaders and conduits between farmers and the external environment especially as medium of communication even though female farmers who are less considered as contact farmers acknowledged more of their presence.

**1.3 Gender and capacity building in extension service institutions**

In the face of global food production demand, Adhikarya (1994) provides that agricultural extensionists who are the backbone of agriculture development lack sufficient gender awareness and people oriented skills hence fall short of farmers’ realities. While in some cases the services given by extension workers appear to be at odds with the clientele, Fox *et al* (2008) argue that in Mozambique, the quality of extension services provided has managed to bridge the productivity gap amongst male and female with varied economic backgrounds. For instance, Hart and Aliber (2012) indicated that in the Limpopo Province of South Africa women reported that the technology transfer received from extension workers was expensive and not replicable in their household fields. The unsynchronized relationship between extension service delivery and farmers’ techno-economic affluence has been contested by Kramer (1997) who indicates that in the early years of extension service in Zimbabwe, extension workers had the task of demonstrating intensive farming practices such as the labor-saving plough to farmers mostly women who showed substantial ability in operating it.

More so, Thornton *et al* (2002) observed that in Sub-Saharan Africa Farmer Field Schools which uses experimental learning are accessible to women who make up half of the membership and contribute the most in agriculture production. Thus Manfre and Nordehn (2013) indicate that hiring women extension workers and targeting women as well as men will increase the impact of the extension services. Interestingly, Meinzen-Dick *et al* (2011) indicated that in Kenya extension services were delivered in simple terms such that the less educated female farmers than men excelled in the uptake of soil fertility renewal technologies. Similarly Mbagaya and Anjichi (2007) provides that despite men dominating the extension service system, more than half of the staff preferred dealing with women farmers; a situation attributed to the presence and ability of women to adopt new information and technology faster than men. Hence Rivera and Qamar (2003) recommends that including women in extension services decision making ensures that women’s contributions and potential are recognized. Clark and de Brauw (2013) stresses that direct interventions from the state should invest in female empowerment programmes to minimize gender grounded differences in production.

Despite women’s pivotal role in agriculture production they have been virtually side-lined by agriculture extension units and Riley (1995) also confirms that the extension services continue to be predominantly male oriented in Sub-Saharan Africa and across the globe. Buchy and Basaznew (2005) contents that although gender training and mainstreaming take place in some agriculture extension boards, gender considerations are absent at all levels. For instance, Masangano and Mthinda (2012) points out to the existence of skewed gender patterns at different levels of extension operation by indicating that in Malawi the gender gap in extension staff recruitment was wider in the field than the higher level. Thus Doss (2011) concludes that the gender gap realized in the agriculture extension employment, research, policy making and training arena is largely a consequence of lack of a gender balanced curriculum that emphasizes the training of both men and women in particular fields.

This phenomenon has been stressed by Riley (1995) as prevalent even in the agricultural extension training institutions in countries such as Malawi where the knowledge conveyance centers are run by men and women are mostly recruited into the home economics department. Moreover findings by Riley (1995) indicate that student recruitment by gender in such colleges reflects a more male than female inclined staffing pattern, particularly for the “traditional” subjects. Mbagaya and Anjichi (2007) also finds that majority of the trainees in the Farmers’ Training Centers in Kenya were men similarly students records from the Bukura institute (Kenya) revealed that more men were enrolled than women. As reflected in the Ntcheu District Agriculture Office Annual Report (2014) that despite high female representation in Ntcheu district of Malawi, women have limited training as extension workers and limited access to training services as farmers hence more males than females have been recruited in the Ntcheu District extension office and the same gender distribution pattern was observed from the groups of farmers that received training in various areas from the extension workers. The substantial presence of men as extensionists minimizes the degree to which women get access to training as well as the content of the training received as given by Lemma (2007). Furthermore Berger *et al* (1984) also points out that in most cases that women receive visits from extension agents and attain training courses, they are frequently taught subjects divorced from their agriculture roles. To this effect, Mbo-o-Tchouawou and Colverson (2014) argues that even when innovative extension service focus on rural women farmers than men, nonetheless, it has not been scaled up to yield substantial impact.

To curb such challenges Ngwira *et al* (2003) portrayed that the training of extension workers in the formation of gender inclusive farmers’ clubs and associations would increase the social capital for both the farmers and the agricultural advisory staff. Pezeshki-Rad and Zamani (2005) provides that providing valuable information sources and removing information seeking barriers amongst extension agents and farmers through worker-farmer and peer interpersonal knowledge sharing communication, conventions, in service training and workshop would increase reciprocal benefits from either end.

Consequently, Henderson (1995) reported that projects have been developed on the premise that if male farmers who happen to have greater contact with extension services receive training and extension support staff, would pass the information to the female farmers; nonetheless studies by Herz *et al* (1991), Oniang’o (2005) and Riley (1995) have nullified this assumption. Instead Henderson (1995) provides that male farmers do not necessarily share extension knowledge with female farming members of the family, augmenting Kaske (2007)’s contention that the men may simply not be familiar enough with the agricultural operation to share the information effectively. In addition, Kaske (2007) provides that even when men and women have access to information, there are structural factors that draw back their information sharing ability; such as personal, situational, psychological and socio-economic factors. Thus Clark and de Brauw (2013) recommend that government interventions on extension services should invest in gender sensitive empowerment programmes to increase productivity. Birner and Anderson (2007) also confirms that promoting gender sensitive training for extension agents especially from a market inclined standpoint would reduce income loss by women as men regularly take over production and marketing even of traditional “women’s crops” when profitable to do so.

In support of this view Riley (1995) also recommended for multiple recruitment of members from the same household to improve retention of staff within a given area while at the same time distancing from stereotypes pertaining to appropriate roles of male and female extensionists. In light of this, Djuara (2011) indicates that the government of Indonesia promotes increased capacity by rural women in marketable skills through participatory Agriculture extension methodology provided by the South-South (horizontal) international cooperation programme.

The sustainability of extension service structures is determined by its ability to provide motivations for the extension staff as supported by Lauterbach and Matenje (2013) who indicates that insufficient resources for extension staff motivation and weak credit facilities has led to the development of unbalanced worker-farmer relationship, a situation that has negatively affected the disadvantaged farmers chiefly women. As such, Islam *et al* (2011) highlights that the extension services in Bangladesh became unsustainable due to contrasting institutional frameworks guiding the service delivery consequently affecting the grassroots where women are the majority. However Seidman *et al* (2001) provides a guideline for law-making drafting that addresses farmers and extension agents as primary role occupants while at the same time facilitating their interaction by gender and niche.

Mtshali (1999) also provides that in Kwazulu Natal, South Africa the extension services provided were principally modified for women hence more women participated than men. Hence, Hart and Aliber (2012) stresses that an increase in number of female extension workers may result in suitable service delivery system with an understanding of the different gendered needs of men and women farmers especially in extremely sex segregated societies. In support of this view Mogues *et al* (2009) indicates that the chances for women to fill extension slots has been increased due to the quick expansion of the extension services.

However, Berger *et al* (1984) contents that evidence whether women agents are the most effective in providing services to female farmers even when they can easily establish interaction has not been substantial unless they offer yields that produce material benefit to such farmers. For instance Blum (2007) indicates that in Ghana the shift towards participatory extension approaches only managed to influence positively on women farmers when the programmes nurtured skills to become resilient and adaptive to shocks. On the same note Robert *et al* (2002) reveals that it has been a challenge in Africa to establish improved extension services for female farmers since the bulk of the farmers lack the expected attributes such as education, resources and market bargaining power.

Meludu (2006) recommends for the inclusion of conflict management strategies in agricultural extension programmes across gender and between sectors to enhance the agent’s capacity to identify and help farmers to solve their problems which Robertson (2012) identifies as a way to enhance credibility of the extension agents. In a study to assess the effects of agricultural extension methods in conflict resolution Ibrahim *et al* (2013) finds that increased levels of group meeting, participation and home visits increased conflict resolution capacity amongst male and female agents as well as farmers. Although Ahmadvand and Karami (2007) provides different ways that could be utilized by extension agents in sustainable agricultural development conflict management, an emphasis towards more associative and cooperative oriented activities than dissociative (project related activities) would avoid perpetual conflict amongst different stakeholders by gender.

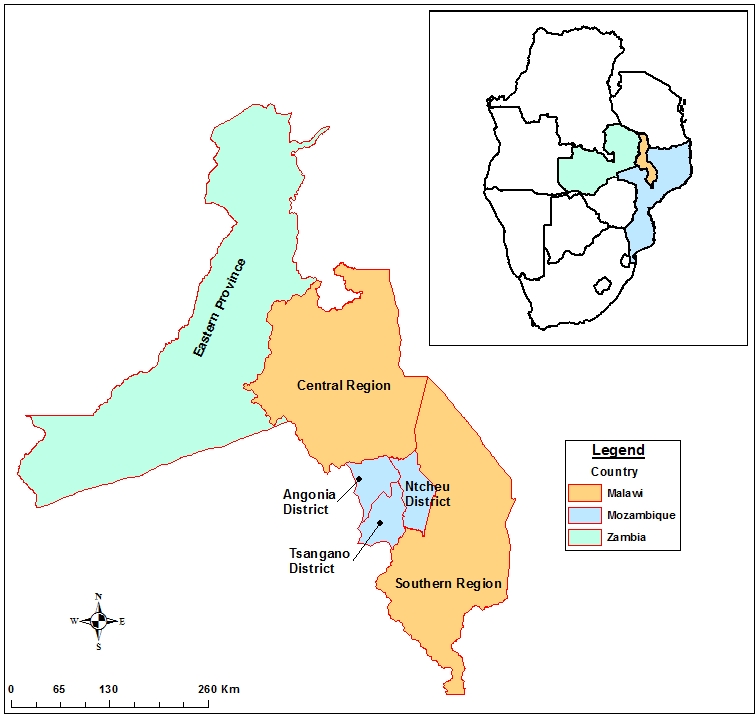
Hasan *et al* (2013) signifies the influence that distance to agricultural extension centers exert on the probability of participation by male and female famers in extension activities, decision making and demand for services. Dercon *et al* (2008) provides that the inverse relationship between distance from extension services and farmer’s willingness to participate in extension programmes is not independent of gender hence improvements in road quality and transport facilitation will increase agriculture extension access for both men and women. The Ntcheu District Agriculture Office Annual Report (2014) provides that in Ntcheu district the transport situation for extension services has been improved by the provision of motorcycles to available staff irrespective of gender.

Notwithstanding the invisibility of women in extension services, Qamar (2011) reveals that women in Pakistan have been empowered such that they could participate in productive demand driven negotiations with district level agricultural extension agents, evidenced by the creation of local NGOs and local support organizations by the rural women. Beyond skills acquisition in Malawi as in other Sub-Saharan countries, Masangano and Mthinda (2012) provides that the State support the capacity building of extension workers as well as male and female farmers in contract farming as well as accessing strategic resources and credit inputs. Also, to reduce the existing gender gap, the World Bank (2012) advocates for gender sensitive monitoring and evaluation which addresses whether the different needs of men and women in different projects, including the agricultural extension programmes are met within the range of the given benchmarks and within time bound targets. Such an approach is described by Manfre *et al* (2013) as finding the best fit for men and women to ensure that gender inequalities are not perpetuated. FAO (2013) also calls for improved assortment and analysis of gender based data, related to the delivery of extension services and the impact of the extension services on the rural men and women.

While there is a variety of literature dealing with gender and agricultural extension issues, they fall into three different categories. The first group focuses on the structurally induced gender disparities which Swanson and Rajalahti (2010); Hu (2010) and World Bank (2010) attributed to the effects of existing governance structures. On the same note, FAO (2010); Johnson (2006) and Doss (2011) attributed such disparities to existing locally binding social structures (norms) and the inherent stratifying nature of gender. The second group inclusive of Buchy and Bazasnew (2005) and Pezeshki-Rad (2005) focused on the instrumental role of extension in differentiating benefits for men, women and youth with reference to knowledge impartation. Riley (1995); Thornton *et al* (2002) and Adhikarya (1994) make up the third dimension which viewed extension as a skill demanding service where gender differences influence effective transfer of specific skills. This paper endeavors to carry out a comprehensive and broad study of such relationship through strategic gender research approach.

**2.0 Research site**

The study was done in Kandeu area located in Ntcheu District of Malawi (*see fig 1*), under the chieftainship of Traditional Authority Ganya. This site falls within the confines of the Chinyanja Triangle in the Central-Southern part of Malawi. Farmers in this region are predominantly small holder depending on crop production as the main source of livelihood. The area is prone to drought and receives little amount of rainfall hence is well known for its unfavorable farming conditions and unreliable rainfall. Temperatures range between 14oC to 32oC. Its annual precipitation ranges from 600mm to 1200mm and runs from December to April. Maize is the commonly grown crop characterized largely by subsistence and minimal commercial production in a setting where there are no clearly designed markets and has low yields. The area is dominated by the Chewa speaking groups amongst which the dominant group is the Ngoni.

**Figure 1: The Map of Ntcheu District, South-Central Malawi**

**2.1 Methods**

The study was largely qualitative and data was collected within the informational scope of the respondents by employing the following methods; Key informant Interviews, Focus Group Discussions, Observations and Documentary research. Key informant Interviews were used to get a picture of how gender affects extension service delivery from both the farmer and the extensionists’s point of view. The key informants were inclusive of representatives from public service, NGOs, Traditional authority and Local Government. Focus group discussions were as well utilized to understand the gender power dynamics inherent in farmers and extension workers that could either facilitate or hinder extension work. Documentary research was useful in obtaining guidelines on gender and extension services as well as other mechanisms whose variables influence differentiated contribution by men and women towards the functioning of the extension system. For the purpose of this study participants’ identities have been protected through use of pseudonyms while in other cases office bearing identities were used. Micro soft excel software was used also to give overall picture of farmers’ participation in extension services by gender through graphs. Participants’ narrations were used to develop themes that were utilized during the data analysis process, however this approach fails to grasp phenomenon in its entirety, accordingly certain elements were isolated from the narrative complexities and were reconstructed into simpler and meaningful sets through inductive reasoning.

**2.2 Sampling procedure**

The study targeted small holder farmers within the Kandeu Extension Planning Area in Ntcheu District of Malawi. To get an understanding of the challenges and opportunities faced by the extension services within the area, traditional authority, local government authority, NGOs, district level and field level extension workers as well as irrigators and non-irrigators were included in the study. 64 participants were purposively selected and divided into 3 main groups; Farmers, Service providers and Local authority. These groups were further disaggregated by gender resulting in 41 male and 23 female participants. Some of the participants took part as both key informants and focus group discussions participants.

**3.0 Findings**

**3.1.0 Gender and the pluralistic nature of extension services**

Extension as a service provision entity encompass different actors inclusive of public service, private sector, traditional authorities and training institutions and has different levels of operation. The extension department under the Ministry of Agriculture, Irrigation and Water development is staffed from the national level to the local level. Differences in gender representation at the various levels of extension administration have been observed.

Overall men have a higher representation with regards to extension staff than women. The pattern of male representation is as follows; 70% national level, 68% district level, 86% training institutions level, 90% traditional authority level and 100% EPA level as shown in fig 1 below. Thus the level of women representation in the above administrative components is substantially below average. However there is remarkable change when it comes to NGOs where male representation is at 40% while a gender representation of 75% female and 25% males is reflected at the irrigators level. However such plurality thrives when the perceived usefulness of the domains is balanced for both men and women. The sections below give detailed analysis of each extension level of operation by gender.

**Figure 2: Summary of gender representation in the extension services**

**3.1.1 Gender patterns in the public extension service**

**(a) Gender and extension service delivery at National level**

At the national level gender representation is skewed towards males. Thus while 30% of the extension workers at ministry level are female 70% of them are male. The director of extension department and the respective subordinate gender directorate under the Ministry of Agriculture, Irrigation and Water development are both female. The services from the gender unit go beyond the extension department instead it cuts across all the ministerial sectors giving women a degree of some presence in every component of the ministry. Resultantly at the highest levels of extension operation women are few but have influential and pivotal positions thereby creating a permitting environment for the advancement of the interests of women in agricultural extension services arena. Interestingly men ultimately become the implementation machinery as a result of their major occupancy of the subordinate positions in the ministry than their female counterparts. This shows that even though women appear to be lowly represented they have a firm rooting in the decision making platform within the upper tiers of the extension services.

**(b) Gender representation at district level**

The study finds that extension services in Ntcheu District are male dominated even though the area is matrilineal and the larger population of farmers are women. The staff recruitment pattern show that out of 47 extension workers in the district only 15 are female while 32 are male. Fig 2 below shows the picture of gender representation in the extension services in Ntcheu district.

While women hold high positions of management in agriculture, they are still less than half of the extension workers in Ntcheu district of Malawi. Nonetheless Part IV of the Malawian Gender Equity Bill 49 (2012) (Chapter 1: 01) states,

“…*on appointing or recruiting authority in the public service…appoint no less than 40 percent and no more than 60 percent of either sex in any department in the public service*…”.

The above statement is a confirmation to the fact that Malawi’s staff recruitment in the extension public service district level which stands at 32% female as to 68% male is not far from the set requirements at national level hence there is an observed resonance between legislation and sectoral practices. Thus at this level of the system, gender imposed constraints (mechanisms) catalyzes the widening of the gender gap in the service.

The legislation-practice rhythm shown above is a bigger picture of how such mechanisms shape gender patterns at higher levels of extension service delivery. However, the rhythm is derailed with respect to particular gender lines and within specific practices. For instance, the minority group (women) in the service alluded to the effects of structural mechanisms on perpetuating such gender patterns. For instance the DADO on 19/05/2015 indicated,

*“It is not easy to work as a woman leader in the extension services when your subordinates are men… The constitution is there and there are laid down policies towards gender but in practice women are not empowered primarily as a consequence of these laws”*

This statement is an explanation to the question, how the existing mechanisms serve to support and maintain or even impede representation in the extension service delivery by gender. Thus shortfalls within service delivery and regulatory mechanisms can amplify the gap between men and women if there is inconsistency between policy and practice. These reasons were augumented by the District commissioner on 20/05/2015 who reported,

“*Recruitment is done by the ministry of agriculture following the 30-40% female representation guideline...since the department of extension services is rural based most women do not want to work in the rural areas..some do not turn up for assumption of duty after deployment*”

The two participants gave possible attributions to the gender disparities in the extension services though from different perspectives. While the above mentioned factors justify the absence of women in extension service, women who are present in the service defines their situation from a phenomenological point of view. The latter respondent takes the position of the observer who defines the situation on the basis of the information reflected by the subject (female extensionists) hence describes the absence of women as a result of adherence to subjective norms. Thus social norms though subjective and susceptible to change have influence on how men and women are distributed within the different levels and varied geographical locations of the extension services.

**(c)** **Gender disparities at the EPA extension level**

There is however a remarkable difference at field level where there are 109 sections for Ntcheu District and only 47 positions have been occupied. More over at EPA level there are 21 sections but only nine positions have been occupied and all of them by men which gives a male represenattion of 100% at this level despite efforts to create legal entry of women into the system. There was one female worker though reportedly just retired. Such assymetrical representation could be attributed to high female turn over due to unfavorable working conditions some of which have been highlighted in the previous segment. Moreover, while gender sensitive policies have been put in place to promote women involvement at all levels, representation at EPA level is attributed mainly to environmental and human factors, other than the formal structural guidelines. Beyond the refractive nature of gender in the disaggregation process lie factors such as socio-cultural push and pull factors as well as conformity to societal expectations or even existing stereotypic perceptions of feminine working conditions. The socially set standards shapes the cognitive self schemata of both men and women and as a result shape even the individual’s translational behaviour.

Some of the respondents indicated that when it comes to service delivery gender does not seem to be a differentiating factor. This implies that men and women have equal contribution to extension service when provided with equal space. Even when subjective norms tend to recognize male influence as legitimate in operating extension practices Mr Maselema on 22/05/2015 defied this position by saying,

“*There used to be a woman extension worker before and she used to deliver her duties better than the current male officer…whose attendance rate and engagement with farmers is rather low*”

Thus basing on the above statement a balance is required for male and female extension worker recruitment since they have different community responsibilities apart from their technical roles. This boils down to the fact that gender differences in the extension services may not correlated to the actual service delivery process.

Some of the gender disparities are a consequence of existing governance strategies in the extension service systems. For instance the decentralization mechanism aimed at empowering the local community in resource control (devolving) and as mere transfer of powers to lower ends of the ladder the situation in Kandeu area is rather a spatial dispersal of extension agents stemming from a central point (deconcentration) of service provision. As a result men and women are organized into instrumental groups whose accountability is often upward consistent with the World Bank (2010)’s assertion of a deconcentrated than devolved system. Administrative units at district level are headed by a woman DADO whilst those for the local authorities are headed by a male District Commissioner whose subordinates are inclusive of the traditional authorities. Besides the extensionists administrative units, some collaborative components working together with the District extension and District council have been formed with the aim to bring together diverse extension stakeholders. For instance, the formation of the District Stakeholder Panel (DSP) comprising of two women and 13 men, Group Stakeholder Panel (GSP) with seven women and nine men, Area Stakeholder Panel (ASP) and Village Agricultural Committee (VAC) similarly composed of four women as to six men.

Generally men have a higher representation than women across the different administrative levels even though they have multiple roles yonder extension services provision. Even though women dominate the base (community) as farmers and having a female heading the extension department, the bulk of the workforce in the middle who have direct contact with the farmers are men hence continuity in either direction maybe deluded as a result of contradictory definition of roles between the male and female extensionists and farmers. An evaluation of representation across operational levels shows that gender gaps are a reflection of role specified mechanisms that have been put in place within the extension service system.

The differentiated governance systems refract extension services asymmetrically with some systems being supportive of specific gender lines. For example, assistance methodological officer on 20/05/2015, revealed that poor institutional connections resulted in some of the actors in agriculture extension service delivery having no contact with the grassroots level where women are the majority as stated,

“*Decentralization services to the district levels allowed for decision making at the lowest levels…the challenge however was how to ensure adequate human capacity with limited number of extension staff in the country*”

This informant provides that this form of governance does allow decision making to be shed to the lower tiers of extension services but its shortcomings lies in its incapacity to meet the human resources demands to cater for the farmers’ needs which are largely gender-linked at the least level of the ladder. Although downward accountability is questioned in the area under study, however the deployment of extension agents into field operational sections has created high worker-farmer interaction in a way enhancing participation space for the grassroots male and female farmers as extension contact points despite the absence of female extension officers in the area. While such mechanisms have been put in place to promote gender equity, inconsistences have been noted on the degree of women involvement as extension knowledge conveyers at the grassroots level, a factor which the district methodological officer, described as systematic on 20/05/2015,

“…*policies…cannot be translated into effective practice without well-conceived and designed systematic change process and contingent programmes for local human capacity development (extension service provision ability)*”

Thus the local human capacity development which is inclusive of the ability by both men and women in providing extension services can be drawn back by the combination of gender blind and locally binding gendered norms that has resulted in having more male practitioners within female dominated areas such as Kaziputa.

**3.1.2 Institutional representation and scheme membership by gender**

At the scheme management institutional level females have a higher representation than males. The management committee is comprised of four females holding the positions of vice chairperson, secretary, vice secretary and treasurer against one male chairperson. More so at beneficiaries’ level the scheme is composed of 75 irrigators with 56 females and 19 males constituting a representation of 75 females and only 25 males out of every 100 irrigators.

**Figure 3: Extension beneficiary representation by gender in scheme clubs**

As reflected in Figure 3 the club with the highest level of percentage female population is Namichimba 87% and 13% representation in favour of females followed by Chimwalira with a female membership of 80% and 20% male, Gobeke 73% female and 27% male and lastly Lithethe and Chikomba with a similar female involvement of 67% membership while men only make up 33%. Thus at such lower levels of water resources management women have a higher grip than males with respect to scheme management which can also be recognized as the beehive from which scheme level extension activities are coordinated and controlled even though there is limited skill exhibition in extension technology transfer at this level. Women who mostly act as active members in the scheme occupy the larger portion of scheme extension target recipients and beneficiaries of the products of such skills. Thus while the extension service delivery system appear to have more males than females as service providers; women on the other hand have a higher level of involvement as scheme managers and also have significant representation in strategic positions as decision makers at the Ministry, district and scheme level though overall they appear to be less recognized as providers of the extension services. Consequently while household dynamics at scheme level and human resources availability at higher levels shape the presence of women in such dispersed points in the extension system they however have apparently shown their presence in extension by actively taking part in decision making at both national and community levels of management than as technology transfer vehicles. Hence while women to a certain extent pull the reins in extension management their presence at the above mentioned positions promote source-target alignment by gender in extension service delivery where female managers at higher levels have the capacity to reach down and meet the needs of other women according to their needs within the services delivery arena.

**3.1.3 Private sector/NGO extension: Gender gap-closing strategy.**

In Ntcheu district, NGOs complement government policies through approaches combined effect breeds socio-ecological balance within the extension system. While pluralism has shown to reinforce complementariness, interestingly supportive groups with similar roles to extension services such as farmers’ associations and some NGO entities vary in their inclination to particular gender lines in a way making the extension platform a convergence zone for both gender lines. This phenomenon can be viewed as a gender-gap closing strategy. For instance the NASFAM though overwhelmingly male in membership, its leadership is driven by women who hold critical positions. Contrary similar organizations such as the tobacco association are male dominated in all aspects since the inception of the association is deeply rooted in a perceived male crop (tobacco). Thus the above mentioned associations accommodate male and female farmers separately but serving the same function resultantly attaining equity; an aspect which has proved to be attainable not just by clustering both gender within the same space but can also be realized by strategic polarization of different gender lines.

In the NGO sector women have a 60% representation in extension services contrary to the 40% representation in the public service. For example, Care International Malawi provided that the majority of those who hold managerial positions in this organization are women. Similarly, the CRS organization (female headed) considers gender equality in its operations and is composed of 50% female though previously there were more females than males. Another example is reflected in NASFAM (farmer based organization) whose leadership composition comprises of 10 males and six females, despite women’s lower representation they tend to hold critical positions in this organization. The chair is a woman, vice man, secretary woman, vice male. A similar organization with the same technical niche in extension service delivery; Concern International reflected a male inclined community extension service delivery where only eight women out of 22 staff members are involved. Resultantly when it comes to highest levels of extension command for both private and public extension systems, men tend to get submerged by women up the private extension ladder.

The private sector extension is to a certain degree a mirror image of the public service in terms of the nature of technology transferred as well as the target population despite the differences in gender representation at systems level. However, such similarities in service provision at one level create role overlaps which compromise the gender equity efforts at organizational and farmers (recipients) level in situations where separately targeted goals exist between men and women. For instance, while both the private sector (female dominated) and public sectors (male dominated) would want to promote conservation agriculture, factors such as diverging organizational goals (depending on who formulates the goals); parallel implementation mechanisms and different timing which are susceptible to influence by participant’s gender; with time may result in role conflict. Thus commodity specificity in extension service delivery is a variable that determines the degree to which services are provided for and by specific gender lines and is determined by the organization’s focus and the type of technology to be imparted to the community which is rather a procedural than policy driven gender stratification.

**3.1.4 Gender and Extension training institutions**

At the extension training institutions level there are more males than females at the highest level of management. For instance the independent agricultural extension training institutions have a staffing ratio of 14 females as to 86 males in every 100 farmers. Thus the process of extension knowledge impartation is done mostly by males than females. The same gender pattern is observed within the students enrolment process for the same institutions where for every 25 in 100 female students there are 75 in 100 male students.

This is an indication that the out puts from training institutions provide more male extension labour into the market and this explains the observed high presence of men at every level of extension staff operation in the study site. While gender is considered cross cutting in most of the components of the extension curriculum it however has not been exclusively treated as an outstanding subject. This compromises the extension agents’ understanding of gender variables when interacting with different farmers with varied gender needs. Moreover when it comes to area specialization by extension trainees gender is still a grading spectrum which pushes female students more towards nutrition and household well-being subjects than males. Such categorization by trainees at the training institutions is even reflected in the labor market where due to the nature of their area of specialty women are more absorbed by the informal sector where household welfare policies are often implemented. For instance Care International Malawi focus more on household welfare than the primary production process which is female oriented hence more female field officers are absorbed in such organizations. On the other hand male extension graduates are absorbed in the public sector and other organizations where technical aspects (culturally perceived in the study site as masculine) are mainly practiced. For example Concern International carries the perceived masculine face centering on technical aspects of crop production such as focuses on infrastructure and governance and has more male field officers than female. Thus organizational orientation contributes significantly to gender differentiation in extension service provision at both community and corporate level.

In particular cases prevailing policy trends determines the frequency at which certain areas of specialty are chosen by different gender lines. For instance ARET a private extension training institution deploys field officers on rotational basis according to the nature of technology to be imparted at that particular time which means there is more room for specialization by either gender under such circumstances. More over the introduction of the institutional aspects of agricultural policy opened the door for other socio-economic entities of resources management (non-technical) and in a way broadened the specialization pool for both men and women. Specialization however defines gender spaces for men and women hence catalyze the widening of the discrepancy gap. Such differences in area specialties by gender reflects a unique level of the complementarity which is rather parasitic than symbiotic; for instance where other extension actors may not have the required capacity they regularly depend on the government (dominated by males) to reach farmers even with specialized efforts to target women. Thus male influence tends to overflow into female territory under the auspices of complementarity in a way crippling the submerged gender towards meaningful participation in extension.

There is remarkable coordination between public and private sector when it comes to the actual training of extension staff irrespective of gender. For instance gender experts in the private sectors organizations impart engendered extension skills to the public sector. This was evidenced by the involvement of UN-Women in the training of the gender focal persons for the Ministry of Agriculture, Irrigation and Water development and also the supplementary training of NASFAM and JTI extension trainees by the public extension institutes for specific technologies and along particular value chains. However there is a discrepancy in the number of extension staff produced by the two different sectors; the public sector produces more trained officers in favor of males than private training institutions and even their operational strategies are different. The public sector on the other hand has fixed posts which require the extension worker to be well acquainted with a number of technologies and this staffing strategy is less gender segregatory.

**3.1.5 The influence of traditional leaders on gender and extension services**

Considering the fact that traditional leaders are points of entry to the community, patterns of gender representation at this level also may vicariously affect service delivery in extension services. The gender representation pattern observed in the traditional leaders forum indicates that four out of every 10 leaders are female as indicated in the guidelines and all these leaders fall under one male led territorial chieftainship. However during a meeting held on 21/05/2015 with the traditional leaders only one female leader was present against nine male leaders. Thus, an even bigger discrepancy is observed between men and women when it comes to execution of duties within the traditional circles where local customs and norms are binding. While individuals in leadership positions do not overtly dismiss the given gender representation guidelines paradoxically on 22/05/2015 the local chief went on to say,

“*The Ngoni culture does not allow women to become chiefs neither does it allow women to hold high level positions*”

This is a reflection of antagonism between culture and the contemporary governance structures hence the perpetuation of the gender gap in the command positions such as extension service delivery. Thus women have been filtered out from the local leaders command chain which happens to be the entry point for extension knowledge and community access, in a way this may compromise realization of gender specific interests in technology transfer and production.

**3.2.0 Communication and extension service provision**

Most of the information on extension work is reported to be disseminated through interpersonal interactions which however are largely shaped by gender and cultural factors. Such practices are viable in areas where the extensionists are located in proximity to the farmers which is the case in Kandeu area of Malawi. Beyond the influence of the extension workers are lead and contact farmers (opinion leaders) who act as bridges between the extension workers, the village headman and the community. However the majority of these opinion leaders are men where for instance out of every seven contact farmers five of them are men and out of every nine lead farmers five of them are male as well.

Thus technology brokering at community level is done mostly by men who inevitably may negotiate towards gender biased technology adoption decision making, in this case leading to male oriented cognitive frame towards agricultural production---which may results in the perpetuation of agro-masochism where overall agricultural management is done entirely by men, in extreme cases.

Other agents of communication that use such interpersonal methods of communications were inclusive of the Chiefs and village heads who call village meetings to announce extension messages. However most of the village meetings are attended more by men than women. For instance a meeting called for on 22/05/2015 to announce research related extension activities that were to be held in the area reflected an attendance of 30 males out of 48 farmers. The presence of few women during the meeting was an indication that the meeting times conflicted with domestic roles and to certain extend with an added influence of cultural limitations. In the absence of the other gender line the system is prone to muzzling where information is absorbed by meeting attendees only and not disseminated to other farmers. Mr Benson, farmer from Kampanja village on 21/05/2015 reported that,

“*Women are very busy at home and also not willing to attend some of these meetings and some men choose not to have their wives at such mixed gender platforms*”

Thus household power dynamics interferes with extension communication such that the powerful gender line will have more access to information than the subordinate group. The existing tradition in this community utilizes conjugal union as an engulfing mechanism that limits access to information for the subordinate gender line. Even if women have access to information, subjectivity to existing societal values inhibits participation in extension knowledge conveyance particularly in public arenas---a situation prominent in Kaziputa where women’s level of influence is mostly recognized at household level.

Workshops are a common phenomenon at district level; at community level they have been displaced by field days which are used as platform of communication within the extension services arena. During a men’s group discussion four out of eight men have indicated that they have attended a previously held field day. The introduction of the block system where farmers group visits are done occasionally during field displays and demonstrations lead to the inference that the degree to which farmers’ access such extension visits in most cases is attached to resources access. Thus farmers with more land resources may have them used as demonstration plots. In matrilineal cases it then implies that women (land holders) from male headed households have better access to such visits than those from female headed households---even though they are landholders as well due to the fact that the majority of the lead/contact farmers are men as shown in this section. However men’s eligibility to owning demonstration plots is largely determined by the size of plot held by the respective women landholders at household level.

Mass media devices such as radios are available at household level; depending on the time slot for the extension programme of interest this form of communication have the capacity to provide equal opportunities for both men and women in accessing extension services, nonetheless, it is used sparingly for this purpose. However the radio schedules for such programmes are held at noon for Ulimi Walelo and at sunset for Zodiak and these time slots interfere with women’s domestic chores such that more men will have ample time to listen to the programme than women. Moreover out of 10 women two of them claimed to own radios while the four out of eight men indicated having a radio through which they access farming technology. Some extension based organizations such as NASFAM use magazines (Titukulane) to communicate with farmers. This method does not accommodate all farmers from various social strata hence may not be effective in areas where the literacy level is low. The demand driven nature of extension services in the study area triggers bottom-up communication and requires direct contact methods of information transmission such as mobile phone which is rather scarce within the female population.

According to the Kandeu EPA work plan 2014-2015 the current load is at one worker as to 3000 farming households a condition which falls far short of the standard guidelines for the area which are pegged at one worker as to 800 households irrigardless of gender---much higher than the ratio for the private sector. This makes communication difficult considering the nature of the prevailing mode of communication which has limited coverage. Consequently some of the messages are channeled through informal means such as social interaction sites (leisure centers) which are male congested areas; hence more men will have access to such communication than women. Operational groups such as young farmers clubs, women’s groups, farmers’ associations, clusters and model villages used as platforms or communication are accommodative of all forms of gender (women, men, youth).

Considering the fact that Kandeu area is an all-male covered area in terms of extensionists, such a remarkable increase in the work load positions men as the ultimate anchorage in the extension services. In a way this compromises women’s positions with regards to demanding for their needs in agriculture, they are made to view agricultural practices from a male lens. In order to complement the work done by extensionists and to cover work load gap lead/contact farmers and volunteer farmers work as conduits between extension workers and the community. Regardless of the seemingly equal participation between male and female volunteer farmers, the contact and lead farmer area is dominated more by men than women.

Another dimension shows that gender is a structure which on its own leads to differentiated service delivery and innovation adoption by men and women. Since knowledge transfer is multistage in Kandeu, contact farmers who happen mostly to be men receive first-hand knowledge from the extensionists for delivery to the ordinary farmers who happen mostly to be women. Thus women could be considered mostly as beneficiaries of multi-processed knowledge which could be laden with alterations besides it being delayed; in the process neglecting the very important role of women in developing countries’ agricultural systems hence creating an unbridged knowledge gap for the female farmers.

**3.3.0 Participation in extension activities by farmers and extension workers**

On face value women are the majority in the farming arena in Kandeu, nonetheless males form the dominant group amongst extensionists and as knowledge distribution points amongst farmers. Table 1 below shows attendance rate by extension officer and lead farmers on different training activities.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Extension staff** | | **Lead farmers** | |
| **Activity** | **Male** | **Female** | **Male** | **Female** |
| Marketing | 19 | 9 | 59 | 15 |
| Gross margin, budgeting, analysis | 40 | 16 | 76 | 14 |
| Business plans | 40 | 16 |  |  |
| Formation of FBOs | 28 | 16 | 162 | 144 |

**Table 1: Gender differences in training activities for lead farmers and extension staff**

Overall, males participate more than females in extension training activities with a very significant margin. For instance, during the marketing training session only 32% of the extension staff were female while 68% were male. Similarly on the same activity 80% of the farmers present were male lead farmers while female made up 20% of the group. These figures indicate a low percentage representation of women actively participating in extension at the bottom of the expertise ladder. Even though data in table 1 for district information indicates presence of female extensionists however at present virtually no females are present as extension officers in Kandeu EPA; this shows that the female extensionists indicated in the data are from other EPAs.

**Figure 4: Female extension worker-lead farmer representation in training**

Figure 4 indicates that there is no synchrony between the number of extension workers and lead farmers on the female population, thus as the number of lead farmer increase the number of female extension workers remain very low particularly when it comes to governance related activities such as the formation of Farmer Based Organizations (FBO) that oversees production activities.

**Figure 5: Male extension worker-lead farmer representation in training**

The same asynchrony pattern is observed even for the male extension workers and male lead farmers (figure 5). Thus the farmer-worker ratio is an attribute that is independent of gender. In Ntcheu district the shrinking of the public service has led to the creation of high workloads for both male and female extension workers and consequently depriving the local communities (where women are majority) of quality extension services as result of staff shortages. Assistant methodological officer on 20/05/2015 indicated,

“*The downsizing of the public sector including extension services has led to difficulties...by the extension services to provide quality extension services to local communities*”

Figures 4 and 5 above indicates that more males than females participate as both extension officer and lead/contact farmers. Thus at district level women have limited training as extension workers. The limited availability of female extensionists and the modification of the extension systems to cater for the deprived gender have automatically resulted in women getting staffed within the created modified space. For instance the formation of the sub sections such as home economics and nutrition has led to more women extensionists being staffed along these domains. Even though this may not amount to meeting women’s interests instead this could be a mechanism to confine them within socially defined gender spaces.

Overall more women farmers took part in the activities listed in figure 6 below. This could be due to their high representation as farmers in the agricultural sector. In every 100 farmers that have attended Area Stakeholder Responsibilities (ASP) meeting 53 of them are men while 47 are women. This is an indication that men hold positions of responsibility at community area level than women. However women tend to be more when it comes to activities and meetings with an attendance rate of 67% lead farmers activities, 66% formation of village agricultural committee, 65% formation of group agricultural committee, 66% establishment of young farmers club and 75% extension campaigns. These figures reflect a male representation in the given activities of way below average.

**Figure 6: Lead Farmers extension activities**

However the number of women seems to be so high during the formation of Farmer based Institutions which make the backbone of governance mechanisms at grassroots level and low when attending to ASP role and responsibilities meetings where men who are recognized as legitimate household patrons in this community extend their attributes beyond the confines of the household. This is an indication that formation of village agricultural committees attracts more women who surprisingly are few as actual committee members and more so as holders of responsibility portfolios hence this positions them as anchorage towards the formulation of such institutions. Moreover an interesting discrepancy between the involvement of more women farmers participating in lead farmers’ meetings and activities than men and their involvement as actual lead farmers is perceived. The mere presence of more women farmers during such activities and their absence as trained knowledge conveyers at this level of extension services reinforces male farmers as leaders and knowledge conveyers since they are the ones who vote in those men into leadership positions. Thus the absence of women as technology transfer practitioners is complemented by their position as primary beneficiaries in the extension services arena.

Thus the assertion by Riley (1995) that views extension as predominantly male oriented due to the fact that extension workers tend to focus on male inclined tasks may fail to hold water in this study. Ironically, the number of women farmers---not taking leadership positions nor imparting skills to other farmers but attending meetings when scheduled within appropriate time slots is practically higher than that of males as indicated in Fig 5. Such mismatch between female farmer population and number of females taking a leading role in extension services misguides the promotion of advocacy activities.

When it comes to household nutrition activities women are found on the lead with regards to activities inclusive of farmers’ training on food processing, storage, utilization and budget where 32 males against 46 females take part. Thus more women have access to post harvest techniques such as processing, storage, utilization and budgeting. This enhances their socially ascribed role of being care givers at household level. In addition farmers’ training on prevention of malnutrition has a representation of 43 males as to 47 females while farmers’ training on nutrition and well-being is at 43 males as to 47 females. The narrow margin between men and women boils down to the explanation that participants in these activities are inevitably both male and female household members and the significant others.

There are more women in farmers’ association as members than men. For instance in every 100 members there are 68 women and 32 men in registered associations, while 53 are also women in every 100 village savings loan group members against 47 men. This is a reflection that more women have access to loans than men hence have the capacity to produce more if given the extension participation space as that of men. There are no recorded cooperative activities for both men and women which is an indication that such functional units have been displaced by associations which are interest groups in the study area. These groups are formed as affiliates to respective farmer based organizations along particular crop lines such as tobacco associations affiliated to Japan Tobacco International while groundnuts and soya associations are affiliated to NASFAM. This is an indication that women are more prone to become association members than men. The few men present in these associations are inclined more towards cash crops such as tobacco and would have less demand for loans as reflected by their number in the village loans group due to the profit making nature of their crop of interest.

**3.4.0 Technology adoption by gender**

Technology adoption is as well gender-linked and shaped by the nature of the technology. Overall men tend to adopt soil conservation technologies more than women while on the other hand women adopt crop management technologies more than men. Male and female farmers present during the study indicated their technology adoption rates by gender as shown in this section.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Soil management technology** | **male** | **female** | **Crop management technologies** | **male** | **female** | **Other technologies** | **male** | **female** |
| Residue incorporation | 30 | 18 | Manure application | 13 | 22 | Small livestock management | 12 | 8 |
| Fertilizer and manure mixture | 7 | 9 | Crop rotation | 12 | 19 | Nutrition | 1 | 5 |
| Single plant per station | 15 | 18 | Pit planting | 1 | 3 |  | | |
| Alignment of ridges | 6 | 2 | Irrigation | 10 | 31 |
| Ridge construction | 21 | 16 |
| Agroforestry | 10 | 9 |

**Table 2: Summary of technology adoption by gender**

1. **Soil and water management technologies**

The pattern in table 2 reflects that males have a higher adoption tendency when it comes to residue incorporation, ridge construction and realignment, agroforestry and small livestock management than women. As clearly illustrated residue incorporation has a male adoption rate of 30 males as to 18 female while ridging is adopted by 21 male and 16 females midst the irrigator participants. These two technologies were rated most effective by majority of men in increasing yield amongst other techniques due to its ability to preserve moisture for the first rainfed crops. Pit planting as a soil conservation technique nonetheless reflect a very low representation by both gender where only three females and one male indicated having adopted the technology. However the gender gap in agroforestry is narrow where 10 male farmers as to nine female farmers indicated using the technology. Some of the technologies are beyond the scheme boundaries however they are embraced more at household level. Amongst these is nutrition which is regarded a woman’s domain with an adoption rate of five women against one men however compared to other data this particular technology is given attention by relatively few farmers. Livestock is scare in the area hence its management is adopted by very few farmers who mostly keep small livestock such as goats, pigs and chicken and of these 12 of them are men whilst eight are women. While it is the duty of men to contribute towards animal nutrition which in most cases survive on crop residue during winter consequently efforts to preserve the residue for use as a farming technology also remains the responsibility of the same men. More over agroforestry largely perceived as a male’s role has similar role in conserving soil as that of ridge construction. This could be attributed to the fact that these technologies fall within the areas of influence of male farmers and are ecologically interdependent if not disturbed by human influence.

1. **Crop management technologies**

The crop management technologies mostly adopted by women are irrigation, manure application as well as crop rotation as shown in table 2. The following patterns of gender representation for different crop management technologies were reflected by the participants present during the study. Irrigation technology has been adopted by 31 women against 10 men. More women are found in the irrigation scheme domain since women have a gatherer’s niche at household level than men. There is a much larger gender difference when it comes to manure application reflecting a difference of 22 female adopters as to 13 male followed by a similar representational pattern for the application of fertilizer and manure cross mixture; adopted by nine females and seven males. The type of manure that is commonly used in the area is compost made hence women have access to the manure and in most cases are the ones that carry the role of nurturing the compost until decomposition. Crop rotation has been adopted by 19 women against 12 men and has dual function; that of enhancing soil fertility and can also be used as diversification platform. The crops that are used in crop rotation as the soil fertility enhancing crops (legumes) are mainly women oriented crops such as *mtedza* (groundnuts) and soya. However some of the crops entangled in the rotation cycle are male crops such as tobacco. Thus crop rotation is a practice that can be utilized to benefit both men and women concurrently. Other technologies such as single plant per station have been adopted by 18 females and 15 males amongst the irrigation participants. These technologies are largely crop management related. Such differences in technology adoption by gender are shaped more by socially ascribed roles that serve to promote the demands of the gender line in question. Thus farmers’ behavior towards innovation adoption and crop choice has shown to be gender-linked.

1. **Crop choice by gender**

Differences in crop adoption are a result of differentiated gender roles at household level. Crops such as tobacco are viewed as male crops since it is managed more by men than women. For instance JTI growers’ statistics indicates that 70-80% of the tobacco growers and suppliers are men. The crop is considered an ideal cash crop though it practically is considered ecologically non-profitable, particularly in the area under study and has been adopted by a small group of farmers. On the other hand crops such as groundnuts and soya are considered women’s crops since they have a subsistence value. According to NASFAM produce tracking system; while tobacco farmers’ associations have more men than women the introduction of groundnuts and soya has led to the formation of associations with as high as 64% female membership. Nonetheless some of the group centered discussions held during the study indicated that crops such as maize are considered equally important by men and women though there are differences in preference of varieties. While most of the men advocated for the non-use of local maize variety, nevertheless women argued strongly that they preferred the local variety due to its palatability and usefulness for household consumption as indicated by Mrs Matewere on 22/05/2015,

“*The local variety can easily be pounded without breaking into pieces and it produces good mealie-meal for Nsima and bread making*”

Men indicated that they preferred the hybrid maize because of its high yield and high grade grain which is easily marketable for income generation. Thus crop choice is a variable that disaggregates men and women and has shown to be highly shaped by the dominating world views on gender.

Given the different factors that contribute to gender stratification, which in this section include crop, livestock and soil and water management technology adoption rate, it can then be asserted that gender is an element that is pivotal to production and falls within the confinements of the given cultural and economic environment (highly contextual). Resultantly crop related technology adoption is largely driven by cultural constraints reflected in an individual’s role definition at household level as well as economic demands while the other technologies are shaped by access to resources.

**3.5.0 Extension as a gendered demand driven entity**

Extension needs by farmers is driven by temporal differentiated utility for extension services by gender which in a way is highly dependent on their ability to convey such needs to the responsible respondents; in this case extension officers. Most farmers, particularly women however do not have the capacity to demand for these needs from the extension workers, a variable that is tied to the cultural values of the given society even in matrilineal driven cultures. In an attempt to justify the mismatch between the expected demand driven standards of extension operation and observed gender patterns in implementation the Methodological officer on 20/05/2015 asserted,

*“It is difficult to implement the demand driven extension policy since majority of the farmers particularly women are illiterate and do not have the capacity to be assertive enough to demand what they need from extension officers”*

The above participant has direct contact with grassroots farmers hence has a better understanding of the degree to which extension services are provided in response to specific farmers’ demands. This relationship is compromised by various factors inclusive of lack of assertiveness particularly by female farmers; an attribute compounded by inhibitory surroundings such as norms. In spite of the fact that the existing policy calls for gender balanced-demand driven extension services women in Kandeu tend to shed their negotiation powers to men. Contrary to the World Bank (2011) provisions that Malawi’s female (15+ years old) literacy rate is way above average, indications in the female population within the targeted area of study show a remarkably low rate particularly at community level. Thus gender disparities have shown to be a direct result of imposition of poorly designed extension structures with limited capacity to cultivate responsiveness from its beneficiaries.

**4.0 Discussions**

Gender disparities in extension services are manifested at multiple levels inclusive of policy, representation and service delivery. While there is coherence between policy and practice at higher level such as National level and Ministerial institutions; at lower levels where irrigators and other regulatory bodies are operating from, there is observed discrepancy as a result of the given structural factors. This is a reflection of the different roles of the two poles. For instance, National level and ministerial level extension components are designed specifically to craft and implement given policies while the grassroots provide the implementation floor. Thus gender patterns in these two separate entities are bound to be shaped more by the instrumental role crafted for each component. For example the gender unit for the Ministry of Agriculture, Irrigation and Water Development is located within the extension department. The biased understanding of women as being the disadvantaged gender has resulted in the crafting of policies that are pro-women such that the personnel particularly in most gender divisions of extension have been found to be mostly women. Thus women’s entry at higher levels of extension management is a procedural consequence. At the lower end of the continuum the position of men and women is determined mostly by ascribed roles at both household and community level. In the study area women tend to hold subordinate positions as a result of their perceived immobility due to normative restrictions than men. Thus gender patterns at this level are contextually determined and are fluid.

In terms of representation, level of operation does not seem to be a gender differentiating factor however the institutional design and governance mechanisms under which extension operations are done have shown to be of influence towards differentiated distribution of men and women within the system. Men have a representation well above average at national and ministerial levels of extension operations with few women who instead are the key decision makers at this level. For instance the extension department is headed by a woman amidst such observed presence of men in the department.

From a governance perspective decentralization has led to the proliferation of various commodity oriented institutions within the public sector and private sector and beyond. Such a pluralistic nature of extension services serves to create space for gender equity where operations are coordinated in a gender accommodative way. Nonetheless the gender disparities observed in some of the extension domains were fueled by differentiated interests within the gendered-multifaceted agricultural arena. For instance some organizations create more space for men than women due to the product and or technology orientation. Ultimately, decentralization as a mechanism to promote decision making at the lowest level has benefited more males than the females---where males have been incorporated more in the decision making plat forms such as contact farmers and opinion leaders. Amidst the different levels of extension management provided by decentralization, the imposition of demand driven mechanisms on communities with limited assertiveness has led to poor implementation of and ill-definition of the extension provision parameters at the grassroots level where women and youth are the majority.

Furthermore data suggests that level of gender representation even when driven by the forces identified; may not amount to actual service delivery without meaningful involvement of either gender line. While involvement may be viewed as mere presence of both genders in extension activities, this paper goes as far as legitimization of the indicated involvement by of either gender. This conceptualization of gender representation is nullified at the highest level where both men and women appear to be delivering their services within the same platform with equal effectiveness. However at the field level of service delivery; gender determines the nature of technology transferred. Evidence for such assertions is observed in the manner in which the extension training curriculum has been modified to accommodate domains recognized as “non-technical” which under permitting environments---constitutional, customary and institutional provisions and other extraneous factors; can be practiced effectively by either gender but the pattern tends to be different in the area under study where more men are present as field officers. At community level the gender gap is wider when it comes to technology transfer opportunities and knowledge where men have been given the platforms to become affluent in extension knowledge transfer than women. Men’s availability as contact/lead farmers due to the enabling environment has created a more elevated position for men in extension services delivery particularly at community level where irrigation practices are deeply rooted. Women at this lower level do not have sufficient shock absorbing mechanisms to balance the gendered stratification process within the extension system since they are culturally recognized as minors with limited abilities to be meaningfully involved as knowledge conveyers. Consequently culture becomes a liability that slows down the closing of the gender gap.

Moreover there is no match between services delivered by extension officers and the gravity of farmers’ needs (technology may not have ecological validity), a situation that led to some farmers particularly women being unable to adopt certain technologies which are beyond their reach economically and which conflict with their socially ascribed roles. Though the extension worker-farmer ratio is remarkably high during technology transfer activities, it is however independent of gender---attributed to infrastructural and human resources shortages. Interestingly while the downsizing of the extension services creates dearth of extension technologies in communities, nonetheless the same factors creates opportunities (pressure) towards gender sensitive staff development and gender accommodative technologies. The assumptions made during the study regarding gender-technology specificity may not be held substantial unless further exploration of such indications with particular link to realized gender equitable benefits is done.

**5.0 Conclusions**

Gender relations within extension system at the farmers’ level and extension worker level have strong influence on extension services provision and beneficiation. However other factors beyond these relations add gravity to the differentiated assimilation of these practices at different levels of extension operation by gender. On face value women appear to be the prominent actors and as recognized managers and decision makers in most of the agricultural activities, however they lose participation ground as knowledge links in extension service transfer operations. Such indications come as a consequence of misconception of the perceived attributes of extension service providers as well as deep rooted household, institutional and cultural drivers. Notwithstanding the numerical invisibility of men in extension services they make the bulk of the field operators and contact persons even though they become gradually submerged at higher level of extension management where women take the decision making reigns within the public service and private sector. Even more at the scheme level women are the majority beneficiaries of such technologies. and are prone to successfully intensify crop production sustainably if supportive systems are put in place. However systems imposition and limited institutional capacity may also perpetuate such gender disparities amidst recognized mechanisms such as decentralization and pluralism which reinforce equality in meaningful participation. Institutional and household interactions between men and women have also contributed substantially in widening the gender gap as a result of subjective norms that promote incapacitation of women’s participation in the extension field technical operations system such that even when men hold lower level positions their presence ripples up the ladder in technology impartation interactions. The degree to which women are recognized as land holders and distributors of extension resources within this particular scheme is equal to that of men posing a contradictory pattern at irrigators’ level where they are the majority tenants. Thus high numerical representation does not seem to have influence on the level of involvement by gender in extension service provision and beneficiation. In spite of women being the majority and recognized land holders the observed discrepancies in their level of participation at different points of extension operations compromises their acknowledged presence in the agricultural arena especially at scheme level.

**References**

Adejo, P. E., Idoka, M. H. and Adejo, E. G. (2013). Gender Issues and Access to ICTs for Agricultural and Rural Development in Dekina Local Government Area of Kogi State, Journal of Agricultural Extension and Rural Development 5 (4): 77-82.

Adhikarya, R. (1994). Strategic Extension Campaign-A Participatory Oriented Method of Agricultural Extension, Rome: FAO.

Ahmadvand, M and Karami, E. (2007). Sustainable Agriculture: Towards a Conflict Management Based Agricultural Extension, Journal of Applied Science 7 (24): 3880-3890.

Anderson , J. R and Feder, G. (2003). Rural Extension Services, Policy Research Working Paper 2976, Agriculture and Rural Development: Washington DC: World Bank.

Ashworth V. 2005. The challenges of change for agricultural extension in Ethiopia: A discussion

paper. Federal Democratic Republic of Ethiopia, Addis Ababa, Ethiopia

Babu, S. C., Glendenning, C. J., Asenzo-Okyere, K. and Govindarajan, S. K. (2012). Farmers’ Information Needs and Search Behaviors, Case Study in Tamil Nadu, Discussion Paper 01165, eastern and Southern Africa Regional Office: IFPRI.

Bello, M and Saku, E. S. (2009). A Case for Participatory (Cost Sharing) Approach to Agricultural Extension Delivery in Nigeria 13 (1) 84-94.

Berger, M., DeLancey, V. and Mellencamp, A. (1984). Bridging The Gender Gap in Agricultural Extension, Office of Women in Development, Washington DC: US Agency for International Development.

Birner, R and Anderson, J. R. (2007). How to Make Agricultural Extension Demand Driven? The Case of India’s Agricultural Extension Policy Discussion Paper P00727, Department Strategy and Governance Division: IFPRI and World Bank.

Blum, L. M. (2007). Trends and Challenges in the Agricultural Extension-Policies and Strategies for Reform, Research and Extension Division, Rome: FAO.

Buchy, M. and Basaznew, F. (2005). Gender Blind Organization Deliver Gender Biased Services: The Case of Awasa Bureau of Agriculture in Sothern Ethiopia, Gender, Technology and Development 2(9): 235-251.

CARE. (2009). CARE case Study on Integrating Adaptation into Projects, Ghana, West Africa, Local Extension Services for Agricultural Development (LEAD) Project.

Chapman, R., & Tripp, R. (2003). Changing incentives for agricultural extension: A Review of Privatized Extension in Practice. Overseas Development Institute (ODI). Agricultural Research & Extension Network (AgREN).

Clark, J. T and de Brauw, A. (2013). Understanding the Gender Based Productivity Gap in Makwi’s Agricultural Sector, Thesis, Washington DC: George Washington University.

Cohen, M. J., Lemma, M. (2011). Agricultural Extension Services and Gender Equality, An Institution Analysis of FOUR Districts in Ethiopia, Discussion Paper No. 01094: IFPRI.

Crawford, G and Hartmann, C (eds) (2008) Decentralization in Africa: A Pathway Out of Poverty and Conflict? Amsterdam: Amsterdam University Press.

Croppenstedt, A., Goldstein, M. and Rosas, N. (2013). Gender and Agriculture: Inefficiencies, Segregation and Low Productivity Traps, The World Bank Research Observer Volume 28 (1) February.

Daudn, S., Okwoche, V. A and Adegboye, O. C. (2009). Roles of Youths in Agricultural Development in Makurdi Local Government Area of Benue State, Journal of Agricultural Extension 13 (2).

Davis, K., Nkonya, E., Kato, E., Ayalew, D., Konnen, M., Odendo, M., Miiro, R. and Nkuba, J. (2010). Impact of Farmer Field Schools on Agricultural Productivity and Poverty in East Africa, Knowledge, Capacity and Innovation Division, IFPRI, Discussion Paper No. 00992.

Dercon, S., Gilligan, D. O., Hoddinot, J and Woldehanna, T. (2008). The Impact of Agricultural Extension and Roads on Poverty and Consumption Growth in Fifteen Ethiopian Villages, Food Consumption and Nutrition Division, Discussion Paper 00840: IFPRI.

Dewees, P. A. (1995).Trees on Farms in Malawi: Private Investment, Public Policy and Farmers’ Choice, World Development 23 (7): 1085-1102.

Dolan, C., Opondo, M. and Smith, S. (2002). Gender, Right and Participation in the Kenya’s Cut Flower Industry, NRI Report No. 2768 SSR, Project No. R8077 2002-4.

Doss, C. (2011). Gender Differences in Assets, Prepared by SOFA Team ESA Working Paper No. 11-12, Agricultural Development Economics Division: FAO.

Doss, C. R and Morris, M. L. (2000). How Does Gender Affect the Adoption of Agricultural Innovations? The Case of Improved Maize Technology in China, Agricultural Economics 25 (2001): 27-39.

Djuara, L. P. (2011). Participatory Agricultural Extension Case Study, Strengthening South-South Cooperation, Bogor, Indonesia: Bogor Agricultural University

Ekboir, T. M., Munoz, M. M and Cardenas, J. R. A. (2005). On the Uneven Distribution of Innovative Capabilities and Why That Matters for Research, Extension and Development Policies ISNAR Discussion Paper 7, Washington DC: IFPRI.

Ellis, A., Cutura, J., Dione, N., Gilson, I., Manuel, C and Thongori, J. (2007). Gender and Economic Growth in Kenya, Unleashing the Power of Women, Washington DC: The World Bank.

Environmental Protection Agency. (2000). Interim Registration Eligibility Decision (IRED) Bensulide, Washington DC: United States Environmental Protection Agency.

FAO. (2010). Gender Dimensions of Agriculture and Rural Employment: Differentiated Pathways Out of Poverty: Status, Trends and Gaps, Rome: FAO.

FAO. (2011). The State of Food and Agriculture, Rome: FAO.

FAO. (2013). Policy on Gender Equality, Attaining Food Security Goals in Agriculture and Rural Development, Rome: FAO.

Farnworth, R. C and Colverson, K. E. (2014). Building a Gender Transformative Extension and Adivisory Facilitation System in Africa.

Fox, L., Mauel, R., Ehreinpreis, M., Gaal, M. S., Nordang, H and Owen, D. (2008). Beating the Odds, Sustainable Inclusion in Mozambique’s Growing Economy, Washington DC: The World Bank.

Gardner, B. L., Evenson, R. E., Rausser, G. and Pingal, P. L. (2007). Handbook of Agricultural Economics, Volume 3, Agricultural Department, Farmers, Farm Production and Farm Markets, North Holland: Elsevier.

Gautam, M. (2000). Agricultural Extension: The Kenya Experience, An Impact Evaluation, Washington Dc: The World Bank Publications.

Glendenning, C. J and Babu, S. C. (2011). Decentralization of Public Sector Agricultural Extension in India; The Case of the District Level Agriculture Technology Management Agency (ATMA), Eastern and Southern African Regional Office Discussion Paper 01067: IFPRI.

Glendenning, C. J., Babu, S., & Asenso-Okyere, K. (2010). Review of Agricultural Extension in India. Are farmers information needs being met? Eastern and Southern Regional Office: IFPRI.

Hart, T and Aliber, M. (2012). Inequalities in Agricultural Support for Women in South Africa: HSRC Policy Brief.

Hasan, F., Imai, K. S and Sato, T. (2013). Impacts of Agricultural Extension on Crop Productivity, Poverty and Vulnerability, Evidence from Uganda, Discussion Paper Series, Japan Kobe University: RIEB.

Henderson, H. K. (eds) (1995). Gender and Agricultural Development, Surveying the Fields, USA: University of Arizona Press.

Herz, B., Subbaro, K., Habib, M and Raney, L. (1991). Letting Girls Learn, Promising Approaches in Primary and Secondary Education, Washington DC: The World Bank.

Hird-Younger, M and Simpson, B. (2013). Women Extension Volunteers: An Extension Approach for Female Farmers, MEAS Case Study No. 2, Canada: MEAS.

Hu, R.., Cai, Y., Chen, K. Z., Cui, Y and Huang, J. (2010). Effects of Inclusive Public Agricultural Extension Services, Results From A Policy Reform Experiment in Western China, Department Strategy and Governance Division, Discussion Paper 01037: IFPRI.

Johnson, K. E. (2006.) The Socio-Cultural Turn and its Challenges for Second Language Teacher Education, TESOL Quarterly 40 (1) : 235-264

Kaske, D. K. (2007.) Agriculture Information Networks of Farm Women and Role of Agricultural Extension: The Case of Dale Woreda, Southern Nations, Nationalities and People’s Region.

Kramer, E. (1997). The Early Years: Extension Services in Peasant Agriculture in Colonial Zimbabwe 1925-1929, Department of Economic History, University of Zimbabwe, Zambezia 14 (2).

Lauterbach, C and Matenje, I. (2013). Gender IFIs and Food Security, Case Study of Makwi, Gender Justice and Women Rights, Malawi: Gender Action

Lemma, M. (2007). The Agricultural Knowledge System in Tigray, Ethiopia: Recent History and Actual Effectiveness, Germany: Margret Weileraheim.

Lutz, E., Binswanger, H. P., Hazell, P and McCalla, A. (1998). Agriculture and the Environment, Perspectives on Sustainable Rural Development, Washington DC: The World Bank.

Ibrahim, A. A., Peter, M. B., Zainab, I. A and Dahiru, H. (2013.) Effectiveness of Agriculture Extension Methods in Conflict Resolution Among Pastoralists Communities in Adomawa State, Nigeria 10SR Journal of Agriculture, Veterinary Science 6 (3) 1-5.

Islam, M., Gray, D.I., Reid, J.I., Kelly, T and Kemp, P. D. (2011). Beyond Recurrent Costs: An Institutional Analysis of the Unsustainability of Donor-Supported Reforms in Agricultural Extension, JIAEE 18 (1).

Mbagaya, G. M and Anjichi, V. A. (2007). Gender Differences in Agriculture Extension Services and Training Programme in Western Kenya, Journal Home 3 (2): 122-130.

Manfre, C., Rubin, d., Allen, A., Summerfield, G., Colverson, K and Akeredolu, M. (2013). Reducing a Gender Gap in Agricultural Extension and Advisory Services: How to Find The Best Fit For Men and Women Farmers, Brief NO. 2 May: MEAS/USAID.

Manfre, C and Nordehn, C. (2013). Exploring the Promise of Information and Communication Technologies for Women Farmers in Kenya, Cultural Practice LLC, MEAS Case Study NO. 4: USAID.

Masangano, C and Mthinda, C. (2012). Pluralistic Extension System in Malawi, Discussion Paper 01171, Eastern and Southern Africa Regional Office: IFPRI.

Meludu, N. T. (2006). Conflict Management Strategies for Effective Performance of Agricultural Extension: A Case of Ife-Modakeke, Saga in Osun Satae Nigeria, International Journal of Agricultural and Rural Development 7 (1) 143-151.

Menzein-Dick, R., Quisumbing, A., Behrman, J., Biermayr-Jenzano, P., Wilde, V., Noordeloos, M., Ragasa, C and Beintema, N. (2011). Engendering Agricultural Research, Development and Extension, Washington DC: IFPRI.

Mbo-o-Tchouawou, M and Colverson, K. (2014). Increasing Access to Extension and Advisory services: How Effective are New Approaches in Reaching Women Framers in Rural Areas? Nairobi: International Livestock Research Institute.

Mittal, S AND Mehar, M. (2013). Agriculture Information Networks, Information Needs and Risk Management Strategies: A Survey of Farmers in Indo-Gangetic Plains of India, Mexico: International Maize and Weat Improvement Centre (CIMMYT).

Mogues, T., Cohen, M. C., Birner, R., Lemma, M., Randriamamonjy, J., Tadese, F and Paulos, Z. (2010). Agricultural Extension in Ethiopia Through A Gender and Governance Lens, Development Strategy and Governance Division, Discussion Paper No. ESSP2 0007, Ethiopia: IFPRI.

Mogues, T., Cohen, M. J., Birner, R., Lemma, M., Randriamamonjy, J., Tadesse, F., & Paulos, Z. (2009). Agricultural extension in Ethiopia through a gender and governance lens (No. 7). International Food Policy Research Institute (IFPRI).

Mtshali, S. M. (1999). Training and In-service Training of Home Economics Extension Professionals in Rural areas of Kwazulu Natal, Journal of Family Ecology and Consumer Sciences 27 (2).

Namondwe, Z., Ukpere, W. I. (2014). Monitoring Public Participation Process at Local Government Level: With Specific Reference to Agricultural Processes in Ntcheu District, Mediterranean Journal of Social Sciences 5 (4): 626-631.

Ngwira, N, Kamchedzera, G and Semu, L. (2003). Malawi Strategic Gender Assessment , Volume 1: UNDP and World Bank.

Ntcheu District Agriculture Office Annual Report. (2014). Ministry of Agriculture, Irrigation and Water Development, Government of Malawi.

Ofuoku, A. U. (2011). Gender Representation in Agriculture Extension Work Force and its Implications for Agricultural Advisory Services, Tropical Agricultural Research and Extension 14(2).

Ogato, G. S., Boom, E. K and Subramani, J. (2009). Improving Access to Productive Resources and Agricultural Services Through Gender Empowerment : The Case of Three Ruarla Communities in Ambo District, Ethiopia, Journal of Human Ecology 27(2): 85-100.

Olajide, B. R. (2011.) Assessment of Farmers’ Access to Agricultural Information and Selected Food Crops in Iddo District of Oyo State, Nigeria, Journal of Agriculture and Food Information 12: 354-363.

Oniang’o, R. K. (2005). Women are Still Key in Agriculture and Food Security in Africa, South African Journal of Clinical Nutrition 18 (2) 150-154.

Ozor, N. (2010). A Comparative Analysis of the Alternative Approaches in the Provision of Agricultural Extension Services, Journal of Agricultural Extension 14 (1) 31-47.

Pezeshki-Rad, G. and Zamani, N. (2005). Information Seeking Behavior of Iranian Extension Managers and Specialists Information Research 10 (3): 229.

Popic, D and Patel, M (2011) Decentralization: Equity and Sectoral Policy Implications for UNICEF in East Asia and the Pacific, Social Policy and Economic Analysis Unit, Draft Working Paper, Bangkok: UNICEF EAPRO.

Qamar, K. M. (2011). Introducing Demand-Driven Extension Approach in a Traditional Region: A Case Study from Pakistan, Research and Exchange Branch, Rome: FAO.

Ragasa, C and Golan, J. (2012). The Role of Rural Producer Organization for Agricultural Service Provision in Fragile States, Development Strategy and Guidance Division, Discussion paper 01235: IFPRI.

Ragasa, C., Berhane, g., Tadesse, F and Taffesse, S. (2013a). Gender Differences in Access to Extension Services and Agricultural productivity, The Journal of Agricultural Education and Extension 19 (5): 437-468.

Ragasa, C., Ulimwengu, J., Randriamamonjy, J and Badibanga, T. (2013b). Assessment of the Capacity, Incentives and Performance of Agricultural Extension Agents in Western Democratic Republic of Congo, Discussion Paper 01283, Development Strategy and Government Division: IFPRI.

Ragasa, C., Berhane, G., Tadesse, F., Taffesse, A. S. (2013c). Effects of Extension Services on Technology Adoption and Productivity Among Female and Male Farmers, Summary of ESSP Working Paper 49 “Gender Differences in Access to Extension Services and Agricultural Productivity, ESSP Research Note 21.

Ragasa, C., Berhane, G., Tadesse, F and Taffesse A. S. (2012). Gender Differences in Access to Extension Services and Agriculture Productivity, ESSP Working Paper 49: IFPRI.

Reij, C. and Waters-Bayer, A. (2014). Farmer Innovation in Africa: A source of Inspiration for Agricultural Development, New York: Earthscan.

Riley, P. J. (1995). Gender Issues and the Training of Agricultural Extensionists in Malawi, Human Values 12 (1) 1995.

Rivera, W. M and Qamar, M. K. (2003). Extension, Education and Communication Service Research, Extension and Training Division Sustainable Development, Rome: FAO.

Rivera, W and Gary, A. (eds) (2004). Privatization of Extension Systems, Case Study of International Initiatives, Volume 2, Agriculture and Rural Development Discussion Paper 9, Extension Reform for Rural development, Washington DC: The World Bank.

Robert, A., Sakala G. W. D and Todd, B. D. (2002). Gender Analysis of a Nationwide Cropping System Trial Survey in Malawi, African Studies Quarterly, Volume 6 (1&2).

Robertson, A. (2012) Enabling Agricultural Extension for Peace Building, US: Institution of Peace.

Seidman, A., Seidman, B. and Abeyesekere, N. (2001). Legislative Drafting for Democratic Change, A Manual for Drafters, Great Britain: Antony Rowe Limited.

Swanson, B. E. (2008). Global review of good agricultural extension and advisory service practices. Food and Agriculture Organization of the United Nations.

Thornton, P.K., R.L.Kruska, N.Henninger, P.M.Kristjanson, R.S.Reid, F.Atieno, A.N.Odero and T.Ndegwa. (2002). Mapping Poverty and Livestock in the Developing World. International Livestock Research Institute. Online at: <http://www.ilri.org/InfoServ/Webpub/Fulldocs/Mappoverty/index.htm>.

Ulimwengu, J and Sanyal P. (2011). Joint Estimation of Farmers’ Willingness to Pay For Agricultural Services Discussion paper 01070, West and Central Africa Office: IFPRI.

UNDP. (2010). Gender and Human Development Report, The Real Wealth of the Nations, Pathway to Human Development, New York: United Nations.

UN. (2005). Convention on the Elimination of All Forms of Discrimination Against Women, Article 18 of the convention of Elimination Against All Forms of Discrimination Against Women, Vanuatu: CEDAW.

Uzokwe, U. N and Ofuoku, A.U. (2006). Changes in Gender Division of Agricultural Tasks In Delta State, Nigeria and Implications for Agriculture Extension Services, Extension Farming Systems Journal 2 (1) 91-96.

Wellard, K. (2011). Knowledge Transfer: The Role of Community Extension in Increasing Food Security, Self Help Africa: dpu associates.

World Bank. (2010). Gender and Governance in Rural Services: Insights from India, Ghana and Ethiopia, Washington DC: The World Bank.

World Bank. (1983). World Bank Report 1982, New York: Oxford University Press.

World Bank (2011) Reproductive Health at a Glance, Malawi. http://siteresources.worldbank.org/INTPRH/Resources/376374-1303736328719/Malawi42211web.pd.

World Bank. (2012). Gender Issues in Monitoring and Evaluation in Agriculture, Tool Kit, Washington DC: The World Bank.

Zhang, W. (2013). Economic Reforms and Fertility Behaviour: A Study of the Northern Chinese Village, China: Routledge.

Zwane, E. M. (2012). Does extension have a role to play in rural development? South African Journal of Agricultural Extension, 40(1), 16-24.