

Adebayo, Johnson A.; Worth, Steven H.

## Article

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## Women as extension advisors

Johnson A. Adebayo<sup>\*</sup>, Steven H. Worth

*Agricultural Extension and Rural Resource Management, School of Agricultural, Earth and Environmental Sciences, University of KwaZulu-Natal, Pietermaritzburg, South Africa*

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### ABSTRACT

Extension plays very significant roles in enhancing agricultural production and community development initiatives in South Africa. However, sustainable agriculture, rural livelihood sustainability and food insecurity at household level are still of great concern and continue to be substantial challenges for the country's rural dwellers. While a framework for reform was developed to revitalize extension services in the country, the framework falls short in addressing gender issues in extension services. Given the significant role women play in agriculture in South Africa, this oversight compromises the effective attainment of the goals of extension. The review was undertaken to gain insight into the level of involvement of women as agricultural extension advisors and the challenges they face. Drawing from relevant published works, the paper examines the degree to which women and men jointly participate as extension advisors, with reference to South Africa. This paper argues that increased participation of women as extension advisors can help reposition agricultural extension to more effectively facilitate programs to deliver better and more direct impacts on reducing hunger and ensuring human nutrition and food security.

### Introduction

The important role women play in food production, agricultural transformation, rural development, and household food security has been increasingly understood in the agricultural field, as recognized by international development agencies, national governments, and researchers alike. According to the Food and Agriculture Organization of the UN (FAO, 1990a; FAO, 1990b; FAO, 1990c; FAO, 2011), women's influence on agriculture work is significant as they account for 40 % of agricultural labor in Latin America, and between 60 and 80 % in both Asia and Africa. Women in agricultural extension advisory services also have an important role to play in relation to achieving food security, sustainable agriculture, and rural livelihoods. However, women's participation as extension advisors at field- and policy-making levels is low. For example, Mali has 302 extension personnel at management level with only one woman among them, and in a survey of 70 extensions advisors in Ghana, only 10 of them were female (World Bank, 2010; Manfre et al., 2013). This notable gap and poor representation of women as extension advisors present a risk of hampering agricultural transformation and the overall development of the agricultural sector given that aggregate data shows that women comprise about 43 % of the agricultural labor force globally and in developing countries (Raney

et al., 2011; Mamun-ur-Rashid et al., 2017). The risk emanates from the reality that "In many cultures, it is unacceptable for male RAS advisors to talk to women in the villages. In other societies, women simply feel more comfortable interacting with other women" (Petrics et al., 2015:16).

Extension services possess significant public-good attributes. Extension services are a hub of knowledge dissemination. They are able to systematically foster the use of agronomic techniques to help farmers improve production with this ripple effect of improving rural incomes and welfare and alleviating or at least mitigating other rural problems (Mengal, et al., 2014). In this way, extension advisors serve as important catalysts for economic growth in both developed and developing countries (Aker, 2011). This adds to the imperative to establish women more firmly in extension advisory services to contribute to achieving agricultural extension goals.

As a context, this review argues the view that women's involvement in extension advisory services can accelerate achieving food security and sustainable agriculture and enhance rural livelihoods while promoting fairness in distributing extension resources among men and women farmers with particular reference to South Africa. The review, then, was designed to identify gender gaps among agricultural extension workers, and to identify more specifically some of the hindrances limiting

<sup>\*</sup> Corresponding author.

E-mail address: [jaadebayo@gmail.com](mailto:jaadebayo@gmail.com) (J.A. Adebayo).

women's involvement in extension advisory services, thereby laying a foundation for action to change the *status quo*.

### Agricultural extension

Agricultural extension is an essential service for advancing rural progress and agricultural development. It is an instrument used to enhance farming systems' sustainability, promote diversification of agricultural production systems, foster food security, and assist farmers adapt to changing markets (Saito and Weidemann, 1990; Kuyper and Schneider, 2016). However, there is no universally agreed definition for agricultural extension as its application is diverse. Anderson and Feder (2004) argued that extension's role is also one of facilitating networks connecting farmers with scientists, creditors, and consumers. Extension services transmit information to farmers to help them address their problems, and likewise transmit information on farmers' problems to research systems. This is particularly important in Africa where most households participate in subsistence farming and when a larger percentage of the farmers have little or no formal education and/or are unfamiliar with contemporary technologies (Anderson and Feder, 2004). Disseminating knowledge from researchers to farmers, guiding farmers in decision-making, stimulating desirable agricultural development, and assisting farmers to articulate their own goals and aspiration remain a vital part of extension objectives (Black, 2000; Anderson, 2004). Proposing a somewhat broader perspective, Kidane and Worth (2016:184) argue that: "ideally, extension approaches should address, in the first instance, building farmer capacity to manage his/her farming enterprise, manage the sustainability context in which that enterprise operates, and building farmer capacity to learn".

### Food security, agriculture, and rural livelihoods

In the face of increasing global population, more food production is required to ensure adequate food security for all people. The demand for food will increase further especially if current trends in diets and food management systems persist (Beddington et al., 2012). Complicating matters, in recent times, the world has been confronted with battles with broader food security and rural livelihoods including poor nutrition, rising food prices, a decrease in agricultural production, deficient practices of production and supply chains, and fast depleting funding for food systems research. Aside from causing global human suffering, food insecurity adds to the degradation and depletion of natural resources, leading to rural-urban migration and even migration across borders. It also contributes to political and economic instability in developing countries where the problem of poverty and inequalities are well pronounced (Beddington et al., 2012; Rodríguez-Pose and Hardy, 2015). Africa, Asia, and Latin America are hard hit by extreme poverty and food insecurity. In Africa, improvement in rural development, sustainable agriculture, food insecurity and the eradication of poverty has been at its lowest in decades. Africa, as a whole, has achieved less tangible or poor headway in addressing livelihood sustainability; a notable portion of the population throughout the continent experience high rates of poverty and hunger (Rodríguez-Pose and Hardy, 2015; Naylor, 2011; Godfray et al., 2010; Ahmed et al, 2007; Carvalho, 2006). The FAO (2012) projected that a 60 % increase in agricultural production will be required by 2050 to match the food demand of the growing population. This increase would come mainly from an increase in crop yields (80 % increase globally), in cropping intensity (10 %) and the rest from a limited expansion of land use. Thus, developing agriculture remains a key component to improving food security and alleviating poverty.

World Bank development indicators (2007) envisage that a staggering 1.2 billion poor people will live out their lives in rural communities, accounting for 75 % of abject poverty worldwide. While agriculture remains an essential tool for rural livelihood sustainability, rural people are seeking diverse avenues to increase their income and improve their living conditions including better health, nutrition, and

education. Hence, the livelihoods of rural people are not built only on agriculture but on different occupations and enterprises (Chapman and Tripp, 2004). Poor rural men and women engage in diverse economic activities to minimize vulnerability and risk while maximizing income generation, thereby bettering their chances of survival and achievement of their household goals (Lakra et al., 2014).

However, agricultural development remains a critical pillar of food and nutrition security across developing nations; it facilitates a transformation of rural economies and is a primary income source for most impoverished people around the globe. The sustainability of rural livelihoods and attaining food and nutrition security for all (now and in the future) depend on agricultural development that contributes to improving resource efficiency, strengthening resilience, and securing social equity (Legg, 2017; Ndlela and Worth, 2021). In South Africa, as in the rest of the developing world, the agricultural sector is a key provider of on- and off-farm employment and livelihoods, and is considered a key instrument to reduce poverty – in both sub-urban and rural areas of the country. Therefore, creating growth and sustainability in the agriculture sector will serve to improve rural livelihood systems and ensure food security at national and household levels (ARC, 2011).

### The role of agricultural extension in achieving food security, sustainable agriculture, and sustainable rural livelihoods

Agricultural extension structures play a very important part in promoting agricultural production and developing community-level initiatives and have great potential for improving food and nutrition security and sustainable rural development across the globe (Rivera et al., 1997; Shalaby et al., 2011). Extension operations have become increasingly important in working out viable solutions to confront the challenges of underwhelming yield, poor soil conditions, low water availability, crop insect-pest attacks, outbreaks of crop diseases, poor marketing outlets – all of which impact on food and nutrition insecurity. The extension framework involves identifying suitable and adaptable solutions to support farmers in sustainable agricultural practices (Al-Shayaa et al., 2012). Extension has the added, perhaps primary, responsibility of building farmer capacity to manage the technical, business and environmental aspects related to their farming enterprises (Worth, 2009; Ndlela and Worth, 2021) in the context of addressing the aforementioned challenges.

In recent times there has been a shift in extension: for decades extension was defined by technical innovations to increase yield and reduce costs. More recently, extension has evolved to embrace holistic farm management, rural development, youth, and home economics, among others (FAO and ISRIC, 2010). This changing role of agricultural extension is aimed not only at promoting food and nutrition security but at the wider objective of improving rural livelihoods through efforts to make them more sustainable, specifically among those who are dependent primarily on agriculture (Chikaire et al., 2011). This suggests that efforts to achieve high-level goals of international security and global development would benefit from giving greater attention to and enhancing the role that extension services play in food and nutrition security, sustainable agriculture, and sustainable rural livelihoods. One area of attention is the need to 'reinvent' extension and its activities beyond their historical role of simple technology transfer to farmers, to active involvement of extension advisors at every level of planning and policymaking (FAO and ISRIC, 2010, Naylor, 2011; Chikaire et al., 2011). Using its considerable first-hand information, this will enable extension to help ensure that policies and development planning are relevant to the very farmers the policies and plans are meant to assist.

In the specific context of engaging with farmers, the role of extension services and their officers must be broadened to facilitate such processes that will be beneficial all categories of farmers. It is increasingly evident that farmers require more than just information and technology, based on the analysis of fast changing agricultural sectors globally and in South Africa (ARC, 2011). Among these, as a key example, is

“innovation management” including “developing networks, organising producers, communicating research needs, mediating conflicts, facilitating access to credit, inputs and output services” and other functions related to innovation (Sulaiman and Davis, 2013:5-6).

Despite agriculture’s declining contribution to the South Africa’s national GDP, and perhaps because of it, its importance to the lives of people in the rural communities and families cannot be overemphasized as it is considered an integral part of South African life (Worth, 2012). Extension services must, therefore, be actively and fully engaged to maximize their role as the drivers of economic development, leading to reducing and ultimately eliminating poverty particularly among smallholder farmers. To do otherwise will serve only to further marginalize this already marginalized sector of the population given the range of challenges they face (Worth, 2012). A steady decline in land-to-person ratios, stagnant food crop productivity and inequitable land distribution are some of the challenges confronting agriculture, particularly resource-constrained farmers in South Africa and other African countries (Jayne et al., 2010). Although the amount of arable land under cultivation has risen marginally, the population of households engaged in agriculture has tripled (FAO, 2006; Jayne et al., 2010). This has caused a steady decline in the ratio of arable land to agricultural population in Africa. According to Christoplos (2010), the huge challenges confronting African agriculture require that extension advisors be fully involved in the system that facilitates the access of farmers organizations and other market actors to relevant knowledge and technologies, and interact with partners in agri-business, education, research, and other relevant organizations. Such extension advisors can actively assist farmers to grow and develop the required technical, organizational and management skills and to participate in their own human capital development. Of particular importance is “shifting the focus from access to markets to ownership of markets by smallholder farmers” (Steven Worth, personal communication, 25 March 2022).

### Gender in agricultural extension

Agriculture remains a sector with gender imbalances: stark gender inequalities prevent women from having equal access to assets, services and inputs, and women are often exposed to prejudice in rural labor markets (Duban et al., 2016). Research shows that when women are not active participants in decision-making and employment, this imbalance and negligence in addressing gender-based differences often results in disparities in development (Dayanandan, 2011; Nyasimi and Huyer, 2017). Gender issues must receive adequate and genuine attention particularly in the agricultural sector precisely because the vast gender imbalance in the access to and control of resources creates conflict, fosters exclusion, which together undermines the very sustainable development of the sector so often proposed in policy (Dayanandan, 2011).

### Gender in agricultural extension globally

In every field of life, including agricultural extension, women stand side by side with men. However, women’s prospects have not been fully explored, and their services and capabilities are not equitably rewarded (FAO, 2019; Khurshed et al. 2020). Despite their important role and extensive contribution to agricultural production and food security, women extension advisors and village level paraprofessionals (indigenous people who work as change agents at a village level) are poorly incorporated into mainstream extension activities and operate on an unequal basis with men (FAO, 2019). They are often said to be underpaid as compared to their men counterparts (FAO, 2019). According to Kilic et al (2015), the sources of gender gaps vary across developing and developed countries. In its cross-country survey of 97 countries, FAO (1993) found that only 15 percent of extension advisors across these countries were women. The low educational status of women in extension, where most women have a diploma or lower, has been

identified as a key challenge that hinders women from their effective participation in agricultural extension. (Colgan and Ledwith, 1996; Dayanandan, 2011; Hora, 2014). In Pakistan, Khurshed et al (2020) reported that women are often judged not to do their job efficiently as compared to men; a circumstance which they believe is triggered by cultural and social constraints that affect women extension advisors’ performance resulting from male-dominated societies that do not accept women’s status as workers. This situation occurs in many countries and appears to be sustained by two factors. First, traditional gender biases and prejudices impose barriers on women limiting their access to education that would qualify them to work in extension as well as diminishing their acceptance in the workplace if they are appointed. Second, employing men is given preference to appointing women and when they are employed, women are expected to maintain and are often overburdened with, domestic responsibilities. These conspire to compromise performance of women and rob them of gaining the experience necessary for taking part in agricultural extension activities (Colgan and Ledwith, 1996; Dayanandan, 2011; Hora, 2014). Therefore, given the importance of extension services to achieving the aims of agricultural developmental policies and programs, and given the structural bias against women even in the face of the unique contribution they can make in extension, there is need for fairness in representation, participation, and benefits afforded to women and men (Cohen, and Lemma, 2011). At the very least, this includes committing extension resources to men and women farmers equitably (Dercon et al, 2009; Lemma, 2011; Croppenstedt et al, 2013). But it may require more than merely treating women equally. It likely requires more careful consideration of the issue of redress. As argued by Villa and Smith (2008:58) policies intended to create equality for women are often insufficient to address the gender issues or are not mainstreamed and “will at best have a neutral impact on women and at worst negative impact on gender equality”. Similarly, Kapur (2007: 281) warns against gender neutral policy which by design ignores the unique requirements and historical disadvantage of women. She notes the challenge that, “failure to take difference into account will only serve to reinforce and perpetuate the difference and the underlying inequalities”. In short, ensuring genuine equality may require addressing specific issues unique to women extension advisors.

### Gender in agricultural extension in South Africa

Gender equity and women’s empowerment features prominently in South Africa’s Constitution, demonstrating the ambition of the country to achieve gender balance throughout society. However, despite these transformative national policies, South African institutions still face gender inequalities. In the agricultural sector, women farmers struggle to achieve equal representation and access to information and resources, compared to male farmers (Simmonds, 2014; Loots and Walker, 2015; Lamontagne-Godwin, 2019). Studies (Ngalawa and Derera, 2020; New Agriculturist, 2020) show that there are approximately 2.7 million farmers in South Africa of which the majority are women subsistence farmers, who are often marginalized and vulnerable in society. Masuku (2013), Van den Berg (2013), Simelane (2017), and Abegunde et al. (2019) all noted that in South Africa, farming, especially small-scale farming, is primarily practiced by women. For example, Masuku (2013) shows the percentage of women involved in farming in KwaZulu-Natal municipality (63 %) to be substantially higher than men (37 %). This position is consistent with Simelane (2017) and Jozini’s Integrated Development Plan Report (2016:24), which shows the number of female farmers to be higher (54 %) in South Africa.

During colonialism and apartheid, the role of women was seen as minor and irrelevant, especially with respect job opportunities and allocation (Zwane et al, 2017). This position changed, however, with the creation of a new constitution and democratic elections when greater opportunities for women to pursue any chosen career path began to emerge. Despite this, women’s participation in agricultural extension advisory services across South Africa is still low, indicating a vast gender

disparity (Zwane et al, 2017). Mmbengwa et al (2009), in his study in South Africa reported that South African women extension advisors are better educated and more exposed to management than their male counterparts. However, concurrently, women extension advisors are generally lagging behind compared to men in terms of the important marketing knowledge and exposure required for a sustainable farm practice. To bridge this knowledge gap, the exposure of women extension advisors to marketing must be considered (Mmbengwa et al, 2009). Additionally in South Africa, women extension advisors reported that their agricultural training level or exposure is inadequate, stating that inadequate training constitutes a major barrier in the delivery of their extension services contributing to the challenges of food insecurity, rural livelihoods, household poverty and the challenges facing farmers in South Africa today (Raidimi and Kabiti, 2017). There is, therefore, an urgent need to develop a useful capacity building model that features and prioritizes women extension advisors as implied by Kapur (2007). Attending to this need will help to ensure the empowerment of women extension advisors in a way that promotes the productive and effective delivery of their extension services to farmer and enhancing the overall performance of the entire extension service.

**Demographic distribution of agricultural extension officers in South Africa**

Table 1 and Fig. 1 show the demographic distribution of agricultural extension advisors across the different provinces in South Africa. According to the Department of Agriculture, Forestry and Fishery (DAFF) (2007), there were at the time approximately 2,210 extension advisors nationally of which 603 (27 %) were female and 1,607 (73 %) were male. Currently, seven of the nine provinces are male dominated; however, there is a 50/50 gender ratio in the case of KwaZulu-Natal, suggesting that female extension advisors may be well represented in that province. DAFF further revealed that among all the provinces, Limpopo, Eastern Cape and KwaZulu-Natal had the highest number of extensions advisors with 666, 623 and 360 respectively, while Gauteng and the Northern Cape had the lowest, with 29 and 23 respectively (Fig. 1). A fair personnel distribution of age groups between 21 and 55 years was evident in all the provinces. Based on years of experience, it was suggested that female extension advisors retired earlier than their male counterparts. DAFF (2007) further presented that more than 80 % of management related positions were occupied by males, despite females being more educated than their male counterparts in seven of the nine provinces (men had higher educational qualifications from Gauteng and Free State).

**Role of women as extension workers and in driving food security**

Involving and empowering women in different activities has been recognized as a key factor in improving development, particularly in developing countries (Burroway, 2015). Their role as extension advisors

**Table 1**  
Extension Officers by Province and Gender in South Africa.

Province	Number and Percentage of Extension workers				Total
	Female	%	Male	%	
Eastern Cape	137	22,0	486	78,0	623
Gauteng	12	41,4	17	58,6	29
Free State	20	28,6	50	71,4	70
KwaZulu-Natal	180	50,0	180	50,0	360
Limpopo	139	20,9	527	79,1	666
Mpumalanga	72	39,3	111	60,7	183
Northern Cape	3	13,0	20	87,0	23
North West	15	10,9	122	89,1	137
Western Cape	25	21,0	94	79,0	119
Total	603	27,3	1607	72,7	2210

Adapted from DAFF (2007) and Worth (2012).

can help boost agricultural productivity which is, and will continue to be, a cornerstone for African economies (Msuya et al., 2017). Women are deemed natural leaders due to their ability to use a more participatory and inclusive style of leadership, while men tend to use a more directive and controlling style, indicating that women tend to have more transformational leadership capacity compared to the more transactional leadership style of men (Moore and Rudd, 2006; Kim et al., 2007). In this way, operating extension activities without the input and active involvement of women extension advisors and women farmers would have negative impacts on agricultural production, women and their families in terms of food security, rural livelihoods, sustainable agriculture and economic development (Manfre et al., 2013).

Alongside men, women cultivate food crops both for subsistence use and on a commercial basis. They also manage livestock, are engaged in fishing and harvesting from the forest. They play an essential role in the translation of agricultural production into food and nutrition security for the well-being of their households, communities, and nations (Hill, 2011). Despite their enormous involvement in the agricultural value chain, it has been observed that the larger percentage of extension advisors is predominantly men, while the agricultural workforce is predominantly women. Insufficient women extension advisors is often mooted as a challenge to improving extension delivery of agricultural service to women farmers and achieving a food secure society (Mamunur-Rashid et al., 2017).

Specifically, Farnworth and Colverson (2015) posited that partnership between men and women farmers in farm activities would create greater empowerment for men and women. They emphasized that targeting both genders within a household can make agricultural extension programs more cost-effective and more productive. To confront and attend to gender in agricultural extension because of the contribution of gender inequalities to global hunger and food insecurity, increasing the number of women extension advisors may help a great deal. A key aspect of this will be to help overcome cultural barriers in communication between men extensionists and women farmers (Shibanda and Seru, 2002; World Bank 2009; Njuki, Parkins, and Kaler 2016; Diaz and Najjar, 2019). Further, women extension advisors can play a crucial role in promoting and reinforcing policy and regulatory frameworks for food, agriculture, fisheries, and forestry (Diaz and Najjar, 2019; Rivera and Qamar, 2003). They can also contribute to decision-making by providing information and assessments, fostering knowledge management for food and agriculture, and promoting technology adoption among women farmers (Lecoutere et al., 2020; Diaz and Najjar, 2019; Rivera and Qamar, 2003). The gender of extension advisors can be an essential part of this context.

**Role of women extension workers in driving sustainable agriculture**

Women are often regarded as organizational and social change agents as they possess attributes such as interpersonal skills, team-working, negotiation and being able to handle several projects at a time – all of which may be regarded as useful attributes for promoting a sustainable framework in any organization. In addition to having these natural skills, women have also become increasingly well qualified and their ways of organizing and managing resources would be more appropriate to driving sustainable agriculture (Colgan and Ledwith, 1996; McHugh, 2012). Women represent an essential stakeholder in the agricultural sector, yet they are disadvantaged in several areas, including their lack of or low educational levels that are often a hindrance to occupying various employment positions (URT, 1997; ILO, 2007). Given that agricultural institutions continue to be men dominated, there is a need to explore how the inclusion of more women in agricultural extension can help ensure sustainable agriculture (Garforth and Lawrence, 1997; Sachs et al., 2016).

Agricultural sustainability aims for the sustainable production of healthy and ample food for both the present and the future through the

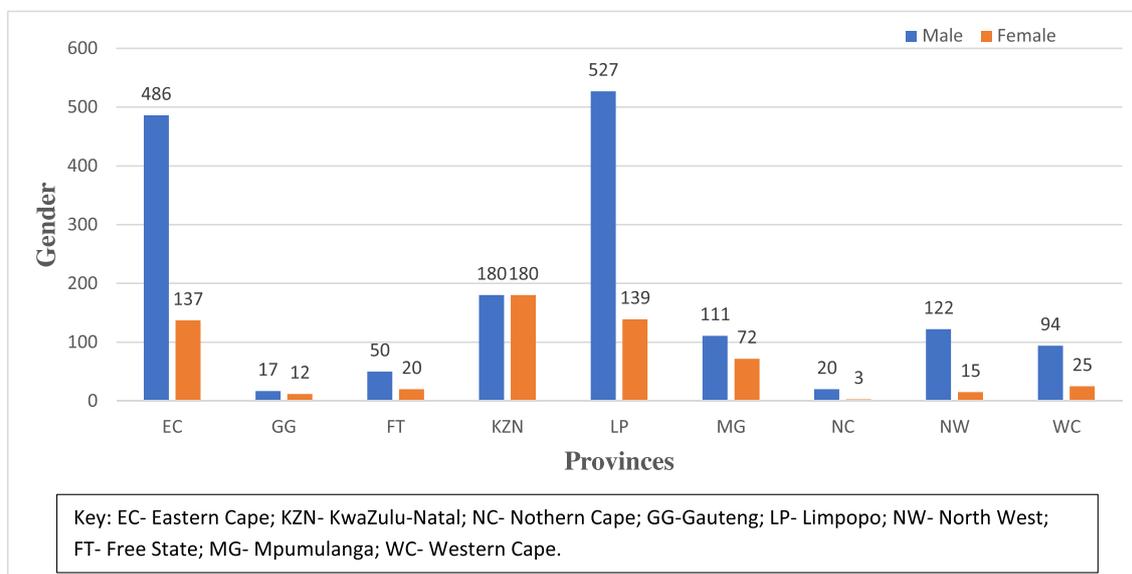


Fig. 1. Extension Officers by Provinces & Gender in South Africa. Adapted from DAFF (2007) and Worth (2012).

wise use of natural resources (Al-Subaiee et al., 2005) that ensures the protection of land, water, plant and animal genetic resources, and using operations that are environmentally non-degrading, technically appropriate, economically viable and socially acceptable (Lockeretz, 1990; Schaller, 1998; Al-Subaiee et al., 2005; and FAO, 2014). Empowering women agricultural extension advisors may be highly beneficial in driving and ultimately achieving sustainable agricultural development as their work can help to promote the wider recognition and participation of women within the diverse activities of agriculture. The World Food Program (2002) determined that women represent the channel through which food security and sustainable agricultural development can be actualized.

### Role of women extension workers in driving sustainable livelihoods

Agricultural extension has an important role to play in achieving sustainable livelihoods and several learning frameworks have been derived (Worth, 2006). Extension represents a gateway of information and technical knowledge to smallholder farmers and recognizing the low literacy levels among smallholder farmers, extension advisors will continue to be essential in Africa (Msuya et al., 2017). Women’s input, (including women extension advisors) in the pursuit and actualization of current and future sustainable livelihood transformation and choices is thus critical (Harriss-White and Heyer, 2009; Minarovic and Mueller, 2000). Chambers and Conway (1992) stress the importance of sustainable livelihood strategies in maintaining natural resources. This is applicable at various levels and groups such as individual, women extension advisors, village, regional, household, extended family groupings, or even a country. It can further be applied within rural (Scoones, 1998) and urban contexts (Rakodi and Lloyd-Jones, 2002; Kpoor, 2019), although living conditions in urban centers provide a clearly different experience from living conditions in rural communities. Regardless of where people reside, they generally have the same needs and share alike a quest for franchise, agency and benefit (de Haan, Drinkwater, Rakodi, and Westley, 2002; Kpoor, 2019). In either urban or rural settings, people require assets, income, clothing, shelter, health care, education, skills, and social support to promote their healthy living. As such, empowering women extension advisors can contribute to this by fostering a sustainable increase in the supply and availability of food and rural livelihood improvement, supporting the conservation, improvement, and sustainable use of natural resources for food and

agriculture. Incorporating women extension advisors into the pursuit of sustainable agricultural extension aims and objectives not only tends to enhance the lives of women but also that of society, as their empowerment and involvement can have a direct impact on reducing hunger, ensuring sustainable rural livelihood, and promoting human nutrition and food security in Africa (World Bank, 2011; Conceição et al., 2016; UNDP, 2012).

### Women in agricultural extension: key learning points

Women in agricultural extension advisory services have key and significant roles to play in relation to the design, operation and achievement of food security, sustainable agriculture, and rural livelihoods. The following are some key learning points drawn from a review of diverse literature.

- Gender inequalities are visibly evident and dominant in the agricultural sectors given the discrimination women experience in the rural labor market, and their poor input and limited access to assets. Failure to address these disparities can mar development outcomes both in agricultural extension and, more generally, where women are not well represented in employment ratios and decision-making bodies (DAFF, 2007; Duban et al., 2016).
- For most parts of the world, the vast input of women to the development of the agricultural sector, particularly its extension systems, does not attract the deserved recognition and is poorly documented compared to their men counterparts (FAO, 2019).
- Women farmers generally prefer working with women extension advisors and in many parts of the world it is culturally more acceptable (Petrics et al, 2015).
- In South Africa, equal privileges exist for women to pursue any career path of their choice. Nonetheless, women’s participation in agricultural extension advisory services across the provinces is still drastically low, indicating a vast gender disparity (Zwane et al, 2017).
- Given the importance of agricultural extension services to addressing challenges of food insecurity, rural livelihoods, household poverty and the challenges facing farmers in South Africa today (Raidimi and Kabiti, 2017), there is urgent need to encourage the participation of women agricultural extension advisors and village-level para-professionals in the developing the agricultural sector, and incorporate

them into mainstream extension activities on an equal basis with men (Ogato, 2013).

- Increasing the role of women as extension workers can help to boost agricultural productivity which is, and will continue to be, the economic cornerstone for African countries, recognizing its considerable input into the local and export earning of these countries (Msuya et al., 2017).
- Executing extension activities or priorities without the participation of female extension personnel and female farmers risks having negative impacts on the attainment of food security, rural livelihoods, sustainable agriculture and economic development (Manfre et al., 2013).
- Across many Africa countries, it has been observed that a larger percentage of extension personnel are male, while the agricultural work force are predominantly female farmers. As such, insufficient female extension officers is often mooted as a challenge to improving extension delivery of agricultural services to women farmers and achieving a food secure society (Mamun-ur-Rashid et al., 2017).
- Women in developing countries are pivotal to global food security, rural livelihoods and the agricultural system at large (FAO, 1998); therefore incorporating female extension workers in the pursuit of agricultural extension aims and objectives not only tends to enhance the life of women but also that of society, as their empowerment and involvement can have a direct impact on reducing hunger and ensuring human nutrition and food security in Africa (World Bank, 2011; Conceição et al., 2016; UNDP, 2012).
- Given that agricultural institutions continue to be male dominated, there is a need to explore how the inclusion of more females into agricultural extension can be facilitated to help promote more sustainable agricultural development (Garforth and Lawrence, 1997; Sachs et al., 2016).

## Conclusion

Extension services possess significant public-good attributes given their services are a hub of knowledge dissemination and their ability to systematically use agronomic techniques to improve rural populations' income, welfare and alleviate problems. Agricultural extension is an essential service for advancing rural progression and agricultural development. Agricultural extension advisors provide support to farmers to increase agricultural productivity, food security, and improve sustainable rural. However, as discussed, this review reveals that women's participation as extension advisor at the field and policy making levels is low. A large percentage of extension advisors are men, while the agricultural work force are predominantly women farmers. This is true across Africa; South Africa is no exception, where only 27.3 % of extension advisors are women, while subsistence farmers are predominantly (54 %) women.

As such, it is posted that insufficient women extension advisors is a challenge to improving extension delivery of agricultural services to women farmers and achieving a food secure society. Considering the important role women play in food production, agricultural transformation, rural development, and household food security; including women in the design and operation of agricultural extension can serve as an effective tool in driving and achieving agricultural goals which are the goals of agricultural extension. It is imperative, therefore, to establish women more firmly in extension advisory services to contribute to achieving these goals.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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