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Women Participation in Agricultural Extension Services in Bangladesh: Current Status, Prospects and Challenges

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Abstract

Women participation in agricultural extension service is inevitable for maintaining production and agriculture-led growth. With the aim of exploring the prospects and challenges of women's participation in agricultural extension services, the present study consulted secondary sources like published articles, survey and development reports, working papers, agricultural statistics, and conference proceedings. The findings of the study reveal that the participation of women in agriculture sector is pervasive and women have remarkable participation in crop processing, home gardening, and managing small scale livestock and fisheries. Women participation in agricultural extension service can reduce poverty; improve food security; develop family health and nutrition status, create new job opportunities and enhance efficiency of extension services. From the very beginning agricultural extension service in Bangladesh failed to boost women's participation as Training and Visit (T&V) approach didn't recognize women as an independent actor in agricultural production systems. Despite several strategic changes for improving agricultural extension and mainstreaming gender in agriculture, a bulk of women until recent years remain secluded from agricultural extension service. Major challenges in linking women with agricultural extension are lack of capacity, structure and policy of the extension service, patriarchal social norms, limited access of women to production inputs, lower education among women, and women's weak individual and collective agency. Initiatives necessary for including women in agricultural extension services are: recruiting sufficient number of female extension workers; skill development of extension workers in handling female farmer groups, providing integrated advice, and planning gender sensitive extension programs; revising criteria for selection of target farmers; persuasive motivational campaign on the importance of women participation in agricultural extension; increasing women access to production inputs, and educating women to develop self-confidence in carrying out agricultural businesses.

***Keywords*:** Women, agricultural extension service, Bangladesh, prospects, challenges

Introduction

Agriculture is the most important sector in rural Bangladesh as it is the major means livelihood for the plurality of the rural dwellers. Nearly half of the total workers and about 87 percent of the rural households depend upon agriculture for at least a proportion of their income (World Bank, 2016). Agriculture sector also plays a vibrant role in reducing incidence of poverty in the country. As poverty is largely a rural phenomenon, agriculture sector contributed to the scale-down of 90 percent poverty in the country between 2005 and 2010 (World Bank, 2016). Agriculture sector in Bangladesh is also playing a pivotal role ensuring food security through enhanced production and creating employment opportunities for the people (Center for Research and Information, 2014).

Women are essential contributors to agriculture and rural economics in developing countries. Although their role varies within and between different regions, but their involvement is conspicuous irrespective of country borders.

Women make up 43% of the labor force in developing countries (FAO, 2011). Same as other countries of Asia such as Bhutan, Nepal, India, Pakistan, China, Myanmar, Cambodia, Vietnam, etc., a high percentage of women are employed in the agriculture sector of Bangladesh (FAO, 2003). During the period 1999-2000 and 2004-05 the number of women employed in agriculture increased from 3.76 million to 7.61 million, which indicated a more than 100% increase (Sraboni et al., 2014). Not only the number of women's participation is mounting, recent literatures claimed that women's participation in agriculture as an entrepreneur is increasing in Bangladesh. Their role in agriculture is shifting from unpaid family workers to farm managers, a phenomenon called 'feminization of agriculture' (Jaim and Hossain, 2011; Birner et al, 2010).

Very often women participation in agriculture fails to capture much attention. Reviewing a number of studies Bose et al. (2009) concluded that the women's contribution to socioeconomic development remain fuzzy due to a set of social norms assist man to dominate women. Moreover, agricultural support services concentrate heavily on the field crop production, ignoring small scale agriculture like poultry raring, home-gardening, small scale aquaculture, etc., which is predominantly women's sectors of participation. Women failed to derive benefits of recent technological advances due to obstacles originated from a lack of educational awareness, lack of capitals, and insufficient extension education to create awareness and training on how to fully participate in agriculture (Abdulhamid et al., 2016).

Amplification of opportunities for women in agriculture can have widespread impact on productivity and agriculture-led growth. Women can perform as efficiently as male producers if served with equal access to resources, training, and services (USAID, 2011). An estimation of FAO (Food and Agriculture Organization of the United Nations) represents that if women enjoyed the same access to productive resources as man, they could enhance yields on their farms by 20-30 percent. This increase could uplift the total agricultural output in developing countries by 2.5-4 percent and trim down the number of starving people in the world by 12-17 percent equivalent to 150 million people (FAO, 2011). As a developing country, Bangladesh can also enhance agricultural productivity and growth by promoting women access to resources as well as agricultural extension service. In this background, the present study was conducted with the objectives to: (i) reveal the extent of women participation in different agricultural activities, (ii) explore the present status of women participation in agricultural extension services, (iii) identify the potentials of women participation in agricultural extension service, and (iv) detect the impediments hinder women from participating in agricultural extension services.

Methodology

This article is based on a review of existing literature on the status, importance, and obstacles of women's participation in agriculture particularly agricultural extension services in Bangladesh. This study includes research articles, census reports, survey reports, development notes, research reports, working papers, desk reviews, discussion papers, conference proceedings, project papers, etc. to achieve the objectives. It is noteworthy to mention that this article does not include any primary data or direct observations regarding women's participation in agricultural extension in Bangladesh. All the documents considered in this study were published after the year 2000.

Findings and Discussion

A Glimpse of Women's Participation in Bangladesh Agriculture

Alongside intensive participation in household and child caring activities, women in Bangladesh play a vital role in agricultural production. Their participation in agriculture depicts a highly progressive trend for last few decades. Results presented in Figure 1 show that in between the

period 1984 to 2010 women employment in agriculture have increased by 55.94 % while at the same period men employment have dwindled by 23.47%.

Sector wise employment data released by Bangladesh Labor force survey also represented that among the total employed women 63.1 % work in the agriculture sector (Figure 2).

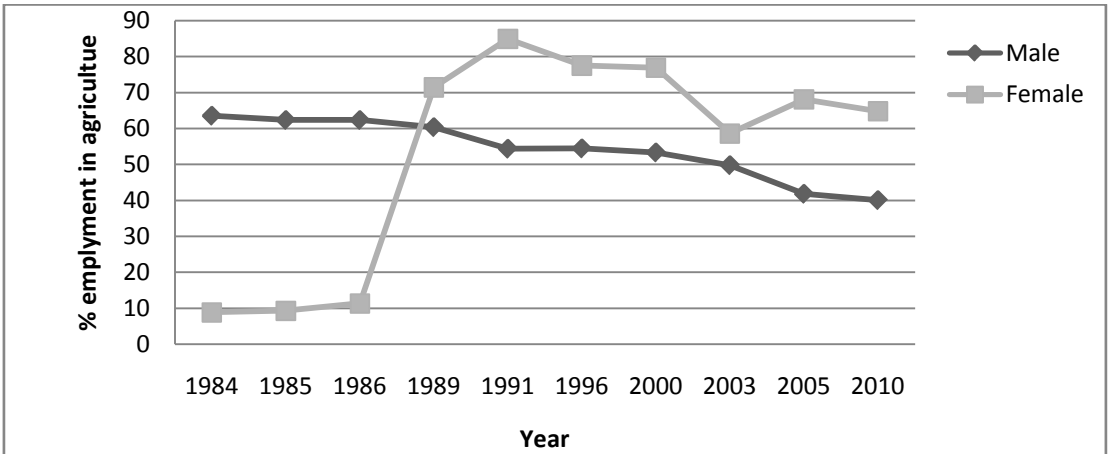

Figure 1: Gender based employment in agriculture in Bangladesh (1984 to 2010)

Source: International Labor Organization; ILOSTAT database, retrieved in March, 2017

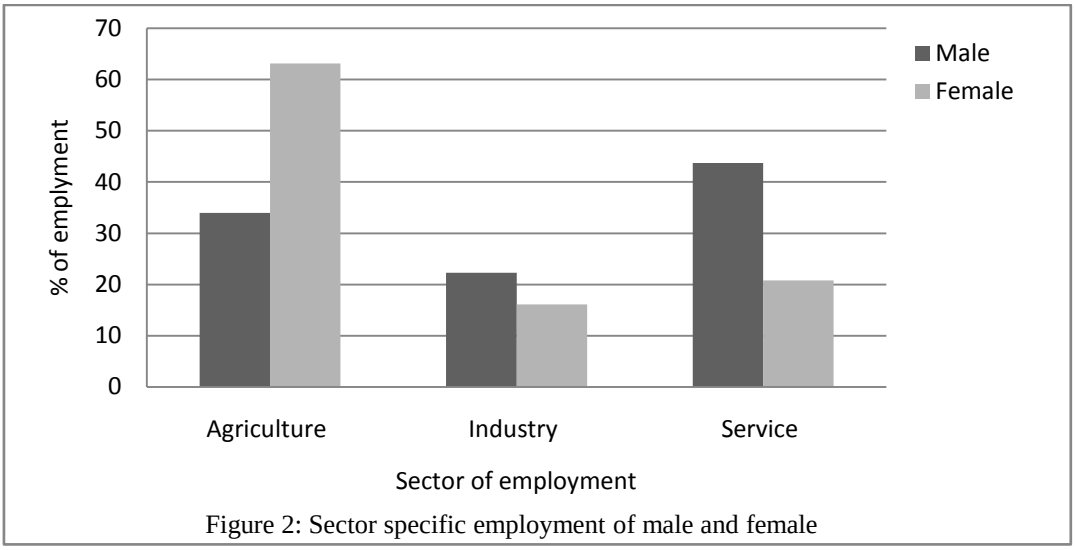

Figure 2: Sector specific employment of male and female

Source: BBS, Quarterly Labor Force Survey Bangladesh 2015-16

Women contribution to agricultural GDP is also conspicuously higher than men. Data released by Bangladesh Bank in November, 2010 revealed that women contributed 6 billion US Dollar more to total GDP from agriculture than their male counterpart.

Women participation in agricultural extension services

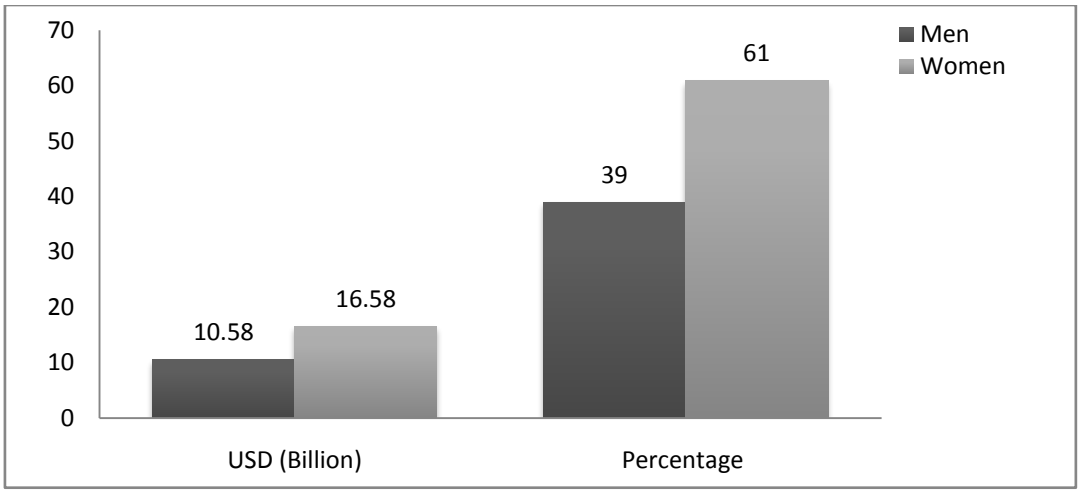

Figure 3: Gender based contribution on agricultural GDP in Bangladesh

Source: Urn (n.d.) referred to Bangladesh Bank; Data released on November 2010

Despite women's profound participation in agriculture, their participation varies remarkably based on different sectors such as crop production, livestock and poultry, fisheries, etc. Jaim and Hossain (2011) using unpublished longitudinal panel data from a nationally representative sample survey in 62 villages conducted in 2000 and 2008 showed that almost two third (68.93%) of the employed women in agriculture found their job in livestock sector followed by 21.85 % in crop cultivation and homestead gardening and only 0.48% in fisheries sector. They also spent highest time (0.91 hrs/day) for the management of livestock and poultry and least time (0.02 hrs/day) for the management of fisheries. Women participation also varies within the activities related to different sector which is present in Table 1.

Table1: Women employment and time spent in different agricultural activities in Bangladesh

Activities	1988		2000		2008	
	Employment (%)	Time	Employment (%)	Time	Employment (%)	Time
Crop cultivation	22.66	0.57	2.79	0.11	3.85	0.16
Livestock & poultry	43.18	0.64	50.77	0.84	68.93	0.91
Homestead gardening	9.72	0.11	9.24	0.14	18	0.19
Fisheries	1.01	0.01	0.39	0.02	0.48	0.02
Total	76.57	1.33	63.19	1.11	91.26	1.28

Note: Time spent= Hours/day/worker
Source: Jaim and Hossain (2011)

Several studies (Munmun et al., 2015; Rashid and Gao, 2012; Jaim and Hossain, 2011; Naved et al., 2011; Zaman, 2002) revealed that in case of crop sub-sector women have least participation in pre-production stage and highest participation in crop processing stage. They also perform almost all the activities of homestead vegetable production (Nave et al., 2011). Except from the construction of poultry and cattle shades, purchase of input and selling products of commercial livestock and poultry, women perform almost all the other activities related to

livestock and poultry sector. Preparation and application of fish feed, catching fish, and guarding fish from predators are the major activities performed by women in fisheries sector. However, a detail degree of women's participation in different sector wise activities is shown in Table 2.

Table 2: Detail of women participation in agricultural activities

Agricultural activities	Extent of participation
Crop Agriculture Sector	
a. Pre-production stage	
Land preparation	+
Fertilizer application; irrigating seed beds; seed processing; preparation of organic fertilizer; carrying seed, fertilizer, etc. to the field; irrigating seed bed; submerging seed for germination	+ +
b. Production stage	
Carrying rice and other seedling to the field and sowing; weeding; nursery raising and seed sowing; bringing lunch for husbands	+ + + +
Irrigating; applying fertilizer, pesticide, etc.	+ +
c. Post production stage	
Harvesting; Rice threshing, husking, winnowing, parboiling, drying and storing; bringing the harvest to home	+ + + +
All the activities of vegetable production	+ + + +
Selling crops and vegetables	+
Livestock Sector	
a. Cattles	
Breed collection, making cattle shades, selling animals	+
Cleaning shades Feed collection and preservation; feeding animals; cow dung collection; grazing;	+ + + +
b. Poultry	
Making poultry shades, collection of breeds for commercial farms, treatment of poultry for commercial farms; collection of feed for commercial farms; selling of birds and eggs for commercial farms	+ +
Collection of breeds for small scale farm; cleaning of poultry shades; feed collection and preparation; treatment of poultry birds in small scale farms; feeding of poultry birds; egg collection, preservation; selling of birds and eggs	+ + + +
Fisheries	
Pond preparation; collection of fry; collection of feed; fish selling	+
Preparation and application of feed; fish catching; guarding fish from predators	+ + + +

Note: '+' sign indicates the extent of participation

Source**:** Munmun et al. (2015); Rashid and Gao (2012); Jaim and Hossain (2011); Naved et al. (2011); Zaman (2002)

Although women have entered in agricultural sector in progressive numbers in the country, this participation do not yield equal earnings for man and women. Women operate smaller plots of land and farm less remunerative crops (World Bank, 2012). Farms operated by women have lower average yield than those operated by men, even for men and women of the same household and cultivating same crop (FAO, 2011). According to report prepared by SOFA team, FAO released in 2011, in Bangladesh large gaps are noticed between female and male headed households in

the average size of farms, ownership of household livestock assets, use of fertilizer, biocides, and mechanized equipments as well as in the access to and use of credit. Qusumbing et al. (2013) also identified Bangladesh women as disadvantaged compared to man in terms of land, livestock, and agricultural machinery. In a study evaluating empowerment of Bangladesh women in agricultural setting Sraboni et al. (2014) revealed that women experienced largest empowerment gaps in terms of leadership in community and control and access to resources. A striking gap is also visible in the wage between male and female working in the agriculture sector. Data arranged in Table 3 mirrored that a persistent gap is prevailing between male and female wage across different years and within different months of the year.

Table 3: Comparison of agricultural wage of male and female across different years and months

Year	January				May				September			
	With food		Without food		With food		Without food		With food		Without food	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
2013	268	191	230	156	311	236	280	201	279	210	240	165
2014	286	224	252	192	312	245	296	223	282	208	270	196
2015	291	218	276	201	322	244	300	225	304	225	284	206

Source: BBS (2016); Taka/day/worker; 1USD = 82.44 Taka (1 November, 2017)

Why Women's Participation/Access to Agricultural Extension is Crucial?

Linking women with agricultural extension service has a number of persuasive reasons. Bringing gender equality in extension and advisory services can contribute to different aspects of personal, social, and economic development (Table 4). As women play an imperative role in advancing agricultural development and food security, enhanced opportunities for women can have enormous impact on productivity and agriculture-led growth. Studies showed that ensuring same access between male and female farmers to fertilizer and other agricultural inputs can increase maize yields by 11 to 16 percent in Malawi and 17% in Ghana (Gilbart et al., 2002; Hill and Vigneri, 2009). Similarly, researchers in Kenya also found that women could enhance their crop yield by approximately 20% if privileged with the same access to same resources as men (Saito et al., 1994).

Participation in agricultural extension activities can enhance women income and possibilities of sharing valuable information, which in turn can improve the quality of their livelihood. As stated by Swanson and Rajalahti (2010), regardless of location, where women are organized into groups, expand their production, and increase the sale of products to nearby town and cities their strategic role in contributing household income increased sustainably. In addition, women farmers organized into producer groups enjoy privilege in sharing a broad range of information related to health and nutrition, hygiene, family planning, technical and economic knowledge than can enhance family income.

Greater control over household resources by women contributes to more investment in children's human capital with dynamic positive effects on economic growth. Evidences from Bangladesh, Brazil, Côte d'Ivoire, Mexico, South Africa, and United Kingdom represents that increased control on household income by women through increased income or cash transfer changes spending in ways that benefit children (Haddad et al., 1997; Katz and Chamorro, 2003; Duflo, 2003; Thomas, 1990; Hoddinott and Haddad 1995; Lunburg et al., 1997; Quisumbing and Maluccio, 2000; Attanasio and Lechene, 2002; Rubalcava et al., 2009; Doss 2006; Schady and Rosero, 2008). Increase in women income can also contributed to high expenditure on food which in turn enhances the possibilities of the

survival rate of infant. Rise of women income can also contribute to the schooling year of children. In China, the survival of girl child and children's year of schooling (both boys and girls) were found positively linked with the increase of adult female income (Qian, 2008). Parallel findings were also revealed in India where women's high earned income increases her children's year of schooling (Luke and Munshi, 2011).

Table 4: Effect of women access to agricultural extension service

Action	Process	Effect
Increased access of women to agricultural extension service	Extension service for real actors	Improve the efficiency of business
	Enhanced use of new technologies and practice by women	Strengthen food security and poverty reduction
	Better performance of home garden, small scale livestock, poultry, and fisheries	Improvement of household nutrition
	Retain women to agricultural production to ensure long-term supply of quality products to value chain	Ensure the flow of quality goods
	Help women to enter chains as supplier of key inputs and services	Creation of new business opportunities for women
	Set instances and build awareness of equal access to extension service	Remove discriminatory beliefs and practices

Source: Adapted by authors based on Manfre et al. (2013)

Apart from poverty and food security reasons, efficiency of extension service largely depend upon addressing gender inequalities in service provisions (Manfre et al., 2013). Agricultural extension is defined as s system and mechanisms designed to build and strengthen the capacity of rural farmers (Mboo-Tchouawou and Colverson, 2014). Extension service also contributes to agricultural sustainability, livelihood improvement, and well-being of people in the rural areas (GFRAS, 2010; Meizen-Dick et al., 2012). So, to mobilize agricultural extension services for food security and to achieve a wide range of rural development goals, enhancing women's and men's access to and knowledge about new technologies are essential. Nonetheless, rural extension service must also address rural livelihood needs related to better nutrition, local institutional development (e.g. cooperatives, women associations) and promoting job creation (Christoplos, 2010).

Present Situation of Women's Participation in Agricultural Extension

A number of recognized extension approaches were trailed to develop the agricultural extension in Bangladesh. One of such approach forms the backbone of the extension service in Bangladesh is Training and Visit (T&V) approach, which was introduced in the late seventies with the assistance of the World Bank in collaboration with Food and Agriculture (Sobhan, 1995). The T&V system was introduced with the aim of increasing agricultural production via dissemination of information on agricultural innovations. It laid emphasis on improving farm and agricultural management practice, better land preparation, improved seed bed and nursery maintenance, use of good and quality seeds, adoption of seed treatment, timely field operation, appropriate plant spacing, etc. However, T&V system was proved ineffective in Bangladesh by the World Bank's own evaluation (ibid in Haque, 2010).

The T&V system was rigid and followed a top down approach. The needs of the farmers were ignored and their participation was not ensured. Mallorie (n.d.) has identified several weaknesses of T&V system in Bangladesh of which one of the major bottlenecks was majority of the contact farmers were male and resource rich. Manfre et al. (2013) in evaluating the early 'T&V'

extension system claimed that it failed to effectively reach women farmers, small-scale producers (women & men) and farmers of the ethnic communities. In T & V system women were largely considered as beneficiaries but not as actors in agricultural production.

To address the weaknesses of T&V and increase the efficiency of extension service DAE started its initiatives in 1993 and developed NAEP (New Agricultural Extension Policy) in 1996. Along with several other components NAEP include a component 'Working with farmers of all kinds' to increase the inclusion of youth and women in the extension work. However, execution of NAEP also failed to bring significant change in the scenario of women participation in agricultural work. The results of the National Extension Coverage Survey in 2003 presented in Figure 4 revealed that women are remarkably less aware of the public extension service providers such as Forest Department (FD), Directorate of Fisheries (DoF), Department of Agricultural Extension (DAE) and Department of Livestock Service (DLS). The survey further explored that women are comparatively more aware of the NGO service providers and their awareness varies significantly based on different NGOs (Figure 5).

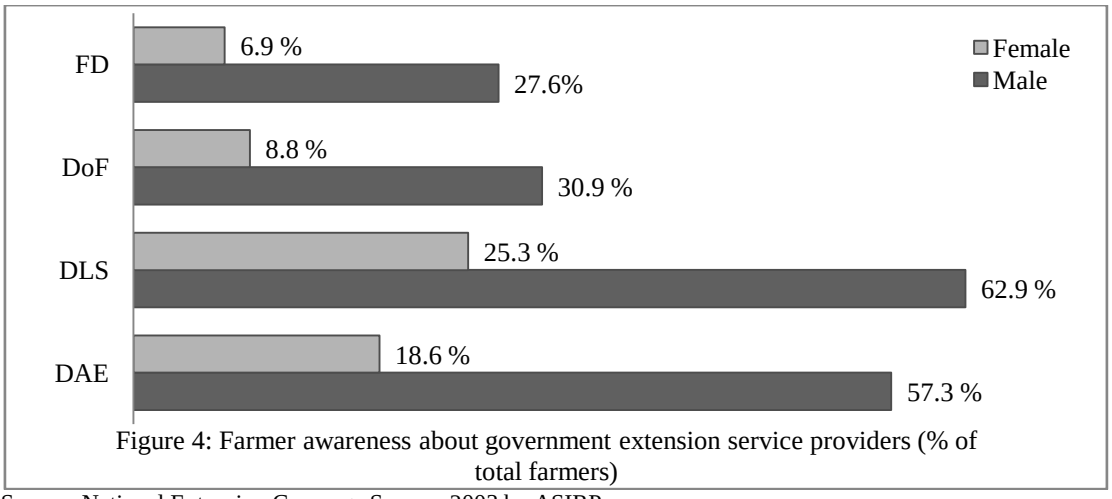

Figure 4: Farmer awareness about government extension service providers (% of total farmers)

Source: National Extension Coverage Survey, 2003 by ASIRP

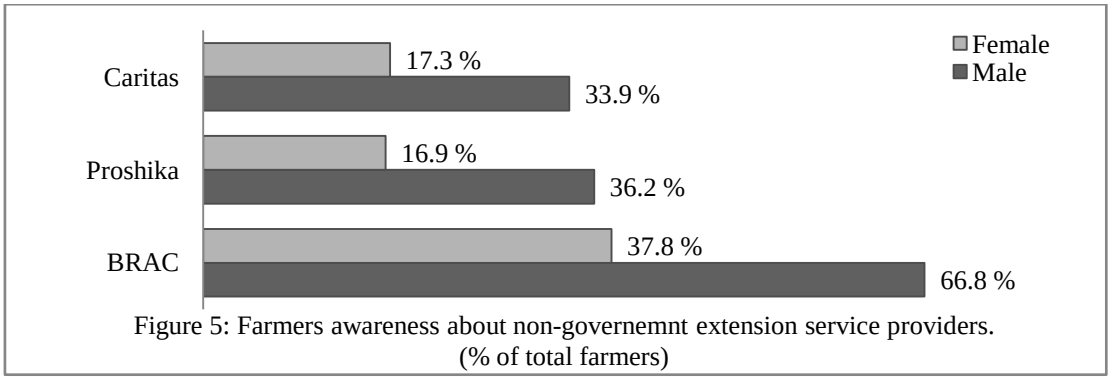

Figure 5: Farmers awareness about non-governemnt extension service providers. (% of total farmers)

Source: National Extension Coverage Survey, 2003 by ASIRP

Women access to agricultural extension service (both public and private) varies noticeably based on amount of daily income and farm size (Table 5).

After 1999 and onward DAE executed two strategic plan (in 1999-2002, 2002-2006) with the aim of mainstreaming gender in agriculture sector of Bangladesh. Despite these strategies the women in Bangladesh still remain largely unreached from agricultural extension support (Haque, 2010; Huber & Davis, 2017). Naved et al. (2011) in a Rapid Assessment of Gender in Agriculture of Bangladesh also revealed that women not only have less access to agricultural extension service but also most of the women don't even know much about government extension service.

Table 5: Comparison of male and female access to agricultural extension based on types of service and farm categories

Farmer category	GO service		Non-government Service	
	Male	Female	Male	Female
Based on income				
<15 Tk/day	20.6	4.9	6.3	9.2
>56 Tk/day	37	6.8	8.5	12.4
Based on farm size				
Upto 0.49 acres	14	6.3	2.7	5.8
>7.5 acres	57	8.6	10.2	6.3

Source: National Extension Coverage Survey, 2003 by ASIRP

Hindrances to Women Participation in Agricultural Extension

Involving women in agricultural extension service is often hindered by different factors. Many obstacles are even embedded on the capacity, structure, and policy of agricultural extension service. In Bangladesh, the number of agricultural extension workers is insufficient and they have to serve a huge number of clients. DAE the largest extension service provider in Bangladesh has 14,092 extension worker scattered throughout the country. But these workers have to bear a heavy toll of work as the ratio of extension worker to farm families is 1:900-2000 (Miah, 2015). The DOF (Directorate of Fisheries) and DLS (Directorate of Livestock Services) other two major extension service providers in the agriculture field have few field-level extension agents – usually only two or three at the Upazila level (which includes 60,000-70,000 farms) and none at the union or block level (Swanson, 2011). These massive shortages of extension agents limit inclusion of farmers with the extension service.

Female farmers are very often less mobile compared to male farmers. Usually, they stay at home and perform household chores and other productive activities along with agriculture. So, for maintaining contact with female clients extension workers need to visit them, which require high mobility capacity. In Bangladesh, the mobility capacity of extension workers is limited. Depending on Upazila only 15% extension workers have motorcycles, most of them have to walk or rely on public transportation for extension work (Swanson, 2011).

Female extension workers play crucial role in eliciting the participation of women farmers (Manfre et al., 2013). Lamentably, the number of female extension agents in Bangladesh is extremely limited. For instance, among all the extension staffs of DAE – the largest extension service provider – only 7% are female (Malone at al., 2013). As a result, most of the training sessions and extension activities are executed by male extension agents. Women are unable to involve with such programs as women and men outside the family are not encouraged or even prohibited to socialize with one another (Shelly and D'Costa, 2000).

Farmer selection criteria adopted by the extension organizations often create impediments in the inclusion of women in agricultural extension service. Farmers are generally selected on the basis of land size. Due to limited ownership of land many women left out of extension services, though they exclusively

participate in agricultural production activities. Another criteria used for including women in agricultural extension service is male and female headed household. This criterion is also problematic as there are many women living in male headed household and heavily participate in agricultural production activities.

Women in Bangladesh very often perform a mixture of activities related to agriculture, livestock, and fisheries. Their involvement with different types of agricultural farming requires integrated advice from the part of extension workers. Nonetheless, working with female farmer groups and planning gender sensitive agricultural extension programs needs sophisticated skill which is not common among the extension agents. Almost all the SAAOs in the country received diplomas from 11 ATIs (Agricultural Training Institutions) but receive little or no in-service training. They urgently need update in skills and knowledge in organizing and managing farmer/producer groups, assisting farmers in building value chains, etc. (Swanson, 2011).

In Bangladesh, the success of agricultural extension activities is very often measured by the quantitative production achievement rather than quality of the service. The successes of different projects also focus on quantitative achievements overlooking quality. This ideology pushes extension workers to exert more attention on the tangible outputs to represent the success of extension service. They repeatedly contact only with the successful male and female farmers ignoring others.

Time schedule and location of extension programs is also an importance hindrance refrain women in participating agricultural extension programs. In most of the cases, problem based in-depth training programs are arranged in upazila extension offices which is a hard to reach place for many rural women. Women also failed to attend locally arranged extension programs due to the mismatch with their free time schedule. Extension programs generally arranged at times when the women remain busy with household chores.

Social norms and customs largely shape women's participation in agricultural extension programs in Bangladesh. The activities of women in the socio-cultural environment are generally confined to household based functions. This seclusion of women from the outside world can be attributed to the fear that their involvement may instigate them to challenge the dominance of men in controlling their rights and freedom. As stated by Shraboni et al. (2013) this cultural seclusion prohibits women from easily acquiring agricultural information in markets or from male extension agents.

Rural women's education and training can play a crucial role to access and benefit from income generating opportunities and improve their overall well-being. The rural women in Bangladesh are often marginalized from both formal and non-formal educational opportunities. In Bangladesh, the average literacy rate among the adults is about 50%, which drop significantly outside the urban areas and among the women it drops further (RED International, 2017). As claimed in 2011 Global Monitoring Report women constituted two third of the total adult illiterate persons on the globe (Rose, 2012). The absence of education among rural women limits their opportunities of getting much needed new skills. Many rural women lack even the most basic skills like literacy and numeracy which is very essential to learn job-specific skills. Lack of education also refrains rural women from adapting Information Communication Technology (ICT) based extension supports such as cell phones, websites, etc., which is possible to enjoy without changing spatial location.

Implementing agricultural extension advices necessitate ownership of certain levels of productive resources such as land, credit, agricultural inputs, etc. Data from different countries from varied regions of the world represents that female headed households are both less likely to own land as well as to do farming. Female entrepreneurs also have less access to credit and other inputs such as the use of fertilizer and improved seed varieties (World Bank, 2012). Parveen (2008) in her study on rural women access to productive resources in Bangladesh revealed that women access to technologies, formal and informal institutions, land and inputs for production, and extension services and training are limited. This lack of resources turns women as an unworthy choice for

many development agencies such as banks, credit providers, extension service providers (Shelly and D'Costa, 2000; Parveen, 2008).

Lack of individual and group agency can influence women's participation in agricultural extension programs. Agency is a process through which man and women utilize their endowments and take benefit of economic opportunities to achieve desired outcomes (World Bank, 2012). In different spheres women in Bangladesh lack ability in making effective choices. Their freedom of choice very often influenced by less control over productive resources, social restrictions over free movement, less participation in family decision-making, prevalence of domestic violence as well as other forms of sexual, physical, or emotional violence, and less voice in society and influence policy. Low number of agencies limits women's access to economic opportunities which in turn limit their access to services.

Enhancing Women's Participation in Agricultural Extension

Women inclusion to the agricultural extension is tagged with numerous factors related to extension service, social norms, resource and asset position, personal and individual agency, etc. So, enhancing women's involvement to agricultural extension needs widespread efforts involving individual, family, community and nation as a whole. As women in Bangladesh differ from one area to the other in terms of educational, personal, socioeconomic, and political potentials, hence piloting research project exploring the ways of women's involvement with agricultural extension programs are essential. Revision of the structure of extension service along with formulation of an effective policy is also fundamental. However, in the light of the findings of other studies in this review suggests the following strategies and solutions for enhancing women's participation in agricultural extension (Table 6).

Table 6: Strategies and key considerations for enhancing women participation in agricultural extension

Hindrance	Key considerations	Strategies for solution
Limited number of extension workers	• Geographical distribution of the extension agents • Ratio of extension workers and farm families	• Recruiting more extension workers • Developing the skill of local leaders so that they can act as para-extension workers
Less u capacity extension workers	• kind vehicle is appropriate for the working area • Does the vehicle fit to the skill and status of female extension workers? • Management and fuel efficiency of the vehicles	• Providing subsidies to the extension workers to purchase vehicles • Mileage used for extension works with women can be used as an additional weaver of monthly installment of vehicle loan
Scarcity of female extension workers	• Does the female have easy access to agricultural education? • Does the recruitment policy is biased to male extension workers? • Status of gender discrimination prevailing in the organization • Motivation and interest of the female extension agents in working with farmers	• Conserving quota for females in agricultural education institutes • Using advanced female farmers as para-extension works • Preserving quota for females during recruitment • Extra incentives for female employees for encouraging women to find their job in the agricultural extension service
Farmers selection criteria	• Do the selection criteria exclude any specific group of farmers such as e.g. women, landless, etc.? • Efficiency of the selection criteria to include the right clients	• Setting criteria (e.g. time spend in agricultural activities) to include women in the groups
Lack of skill of extension agents	• Does the course curriculum in agricultural education institutions correspond to	• Periodic update of course curriculum in agricultural education institutions

Hindrance	Key considerations	Strategies for solution
	farmer's need? • Does the education integrate all the sectors of agriculture such as agriculture, fisheries, livestock, etc.? • Does the education provide basic understandings of gender issues in agriculture?	• Formal and informal training of extension workers in contemporary issues • Making gender related basic education compulsory for all kinds of education
More focus on quantity rather than quality	• Does the service contribute to the change of farmer's behavior (Knowledge, skill, and attitude)? • Does extension service cover all the needed dimensions by the clients? • How many new clients, particularly women get involved with the extension service each year?	• Measuring the success of extension service based on the behavior change rather than only increase of production • Beside technology transfer extension service also need to concentrate on natural resource management, human resources development, etc.
Location and schedule of extension program	• Do women have leisure time during the program period? • Does the location of extension program reachable/accessible for the women clients • Is it possible to reach women client via Information Communication Technologies e.g. mobile phone call, SMS, community radio, etc.	• Making plans of extension program considering the leisure time of women • Arranging extension program in locations where women have easy access, e.g. where women usually gather for gossiping • Emphasizing ICT based extension information dissemination for women
Patriarchal social norm	• What is the present status of women in the society? • Who or which group is executing this norm? • Where is the root of this norm e.g. family, community, etc.?	• Creating separate groups for women • Mixed group based on male and female member from same families • Awareness building on benefits of women involvement in agricultural extension programs
Less education among the women	• What is the age category of the women learners? • Leisure time of the learners? • Does the teaching system appropriate for the learners?	• Special program for rural adult education • Special incentives for the adults participate in mass education programs
Lack of resources among women	• How lacks of resources exclude women? • What kind of resources they require?	• Ensuring women land rights • Supply of production inputs for women at a lower rate • Longer loan payback period for women • Creating legal rights so that women can use family properties as mortgage for credit
Low collective and individual agency among women	• Gender equality in terms of laws, services, and income • Do women have political voice and representation? • Do women have greater access to services and infrastructure? • Who is regulating the relationship between man women e.g. country, community, household, etc.?	• Increasing abilities and willingness of the government in implementing women's legal rights • Change in social norm limit women's agency through legal measures and their implementation • Concentrating economic development so that the women have more access to job • Increasing women farmer's representation in agricultural extension planning and policy development.

Source: Adapted by the authors following Manfre et al. (2012)

Conclusion

Bangladesh is experiencing a rapid growth in the participation of women in the agriculture sector since the middle of 1990s. Their participation covers almost all the sectors of agriculture, particularly crop processing, small scale vegetable, poultry, cattle, and fish production. Linking women with agricultural extension service could provide widespread benefits, such as improving business efficiency, strengthening food security, reducing poverty, and ensuring household nutrition. It will also open a new window of job opportunities and remove discriminatory beliefs and practices. Despite the numerous benefits, women's participation in agricultural extension programs is still not convincing and their participation is often hindered by limited capacity and structure of the extension service, male biased client selection policies, limited access to assets and resources, and low individual and group agency. As women's participation in the agricultural extension program is influenced by a number of factors from inside and outside of the legitimate functions of agricultural extension service, so all out efforts from family, community, and national level is indispensable along with the development of the capacity, structure, and policy of extension service.

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