

Bridging the Digital Divide -Addressing Gender Disparities Among Women Farmers in India

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Abstract

The Sustainable Development Goal 5 aims for gender equality. In India, the goal is significant in the field of agriculture. Women constitute a significant proportion of this workforce and numbers are increasing. This paper discusses the position of women farmers in India and the Gender gaps in accessing modern farming technology, including digital technology.

Women farmers tend to encounter more constraints than men, due to a combination of factors. Modern information dissemination and training techniques are largely dependent on modern technology, that includes, computerisation, Mobile technology, AI applications and digital literacy. The digital divide among women farmers in India is a significant issue, impacting their ability to access vital information, resources, and opportunities.

Overcoming gender gaps in accessing technologies and online platforms continues to be a work in progress. Promoting digital literacy among the illiterate and changing patriarchal societal norms remains a challenge. It is important for digital content to be customised for the illiterate women farmers in local language, while embracing local cultural sensitivities. Agri-machinery designed for use by women farmers needs consideration. Through targeted interventions, India can significantly enhance the productivity and economic empowerment of women farmers, contributing to the achievement of SDG 5 and an equitable agricultural sector.

Key words – Gender, women farmers, technology, digital divide, climate change, agriculture, women empowerment, SDG5

1. INTRODUCTION

The Sustainable Development Goal 5 (SDG 5) aims to achieve gender equality and empower all women and girls.¹ In India, this goal is particularly important in the agriculture sector. In recent times, women play a crucial role in the farming sector. Agriculture holds a significant place in the Indian economy. An estimated 70% of rural households depend on agriculture as an important source of livelihood. Agriculture contributes around 17% to the total GDP and provides employment for approximately 58% of the population.²

Women constitute a significant portion of the agricultural workforce in India. Empowering them through education, training, and access to resources can improve productivity and sustainability. The government has introduced various schemes and programs for addressing gender gaps in agriculture. Training and capacity building, promotion of self-help groups (SHGs), land ownership and access to farming resources are some of them.

Of the 58% of population engaged in agriculture, women farmers contribute about 59% to the labour force.³ In rural areas, agriculture is the primary source of livelihood. This includes 80% of all economically active women. Of them,

33% are labour workforce and 48% are self-employed farmers. In 2020-21, women farmers increased to 62.2% from 57.0% in 2017-18. During the same period, the male farmers reduced to 39.8% from 40.2%.⁴

Rural women farmers work at all levels of agricultural sector. They are engaged in pre-harvest activities, post-harvest activities, packaging and selling in local markets. This has led to increased productivity in agriculture.⁵

With an increasing participation of women in agriculture and being engaged in skilled farming activities, it is important for them to access and utilise the latest, in farming technologies and be familiar with digital technology and online applications. This paper discusses the position of women farmers in India and the Gender gaps in accessing modern farming technology, including digital technology.

2. OBJECTIVE

To analyse and discuss Gender gaps among women farmers in India in accessing and utilising modern technology including digital technology.

3. METHODOLOGY

The paper discusses findings of various studies on Women farmers in India and specifically, the findings from the Gender vulnerability assessment done by Health and Beyond Foundation in 10 districts of Eastern Uttar Pradesh in India in 2021⁶.

4. DISCUSSION

A. Feminisation of Agriculture in India

According to M.S. Swaminathan, the famous agricultural scientist, women were pioneers who domesticated crop plants and laid the foundation of agriculture as a means to satiate the hunger. While men went out hunting for food, women gathered seeds and began cultivating them in their surroundings. Several studies done in the past support the fact that woman contribute much more in agricultural production than has been generally acknowledged.

Apart from participation in actual cultivation, women participate in various forms of processing and marketing of agricultural produce (Aggarwal 2003).⁷ A study (Chayal, 2010)⁸ in Bundi district of Rajasthan to analyse the participation of women in agriculture found that cutting, picking, cleaning of grains, drying of grains, storage and processing are the major farm operations wherein women participation was 100 percent. In winnowing, weeding, gap filling, grading, shifting produce to threshing floor and cleaning the participation of women was more than 75

percent. The tasks in which women participation was varied between 50-75 percent were thrashing, raising nursery for seedlings and thinning. The results also show that 25 to 32.5 percent of sowing, manure application and irrigation were performed by women. Least involvement of farm women was found in ploughing of field (2%) and in fertilizer application (1%). There was no participation of women reported in marketing and plant protection measures.

In recent years, among women in agriculture, there's a change in the type of work. Skilled agricultural labour among women rose from 48% to 59.4%. According to the Economic Survey 2017-18, a rise in migration of men from rural to urban areas has resulted in feminization of agriculture to a large extent. The feminisation of agriculture has led to rural women labour being effectively and lucratively utilised.⁹

Also, with incentives for women becoming Land owners, more women are moving away from being a mere farm labour to becoming a cultivator. In the last three years, women's role as a cultivator increased from 64.5% to 70.3%.¹⁰

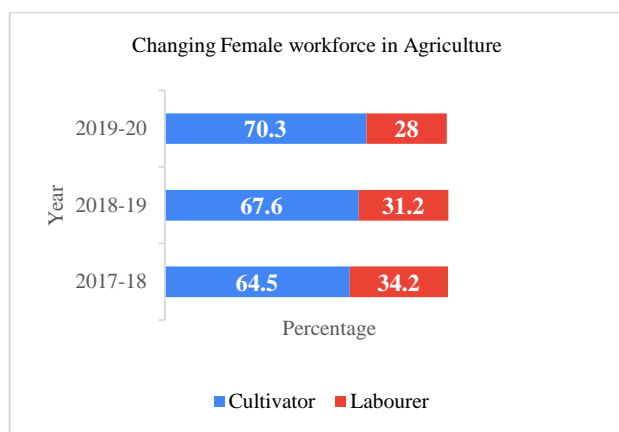


Fig 1. Changing Female workforce in Agriculture in India

However, a number of scholars have asserted that the feminization of agriculture labour does not necessarily mean women empowerment.¹¹ Women farmers will truly be empowered if all gender constraints and gaps are identified and addressed.

B. Constraints and the Digital divide

Though it has been identified that women play a significant role in all areas of agriculture including main crop selection and production, livestock production, horticulture, forestry and fisheries, the status of women farmers still need improvement.

Women farmers tend to encounter more constraints than men, due to a combination of factors. These include poor literacy, land ownership, financial constraints, patriarchal norms and limited access to knowledge upgradation and training. The problems of the women farmers need to be addressed more at the implementation level than at the policy level.

There are differences in the resources available to men and women. Women farmers can be equally efficient as their male counterparts. But owing to their less access to resources, they produce less. Promoting gender equality in agriculture can improve agricultural productivity. An

impact study, conducted by the India-based impact measurement firm Sambodhi, indicated greater independence among women in their program FPOs, and a smaller number of women farmers needing to borrow from their households to pay FPO share capital amount. (22% as compared to 40% in the non-program areas). Further, analysis of key farm indicators revealed that women farmers had significantly higher cropping intensity (210% as compared to 149%) and cultivated a greater diversity of crops.¹⁰

These findings emphasise the significant benefits of targeted support and customized training to women farmers. This enhances their economic empowerment and promotes sustainable agricultural development.

In order to make women farmers more capable, access to training and information on advanced agricultural practices, climate change updates and newer technology enabled farming equipment and online marketing platforms are needed. This has been shown not only to improve yields, reduce input costs, and increase incomes, but also enable women's participation in decision-making and enhance women's empowerment (DANIDA 2004; Agarwal 2011).

Agricultural development programs continue to be designed by men and male farmers in mind. Mechanization, for example alleviates the burden of tasks that are traditionally men's responsibility. In order that women farmers get a fair deal, one of the corrective measures that needs to be undertaken is to induct more women personnel in training and programs at all levels and more importantly, at the grass-root level. Also, modern information dissemination and training techniques are largely dependent on modern technology, that includes, computerisation, Mobile technology, AI applications and digital literacy.

The digital divide among women farmers in India is a significant issue, impacting their ability to access vital information, resources, and opportunities. Many women farmers in rural areas have limited access to digital devices and the internet. India's fifth National Family Health Survey (NFHS) revealed that there is a significant digital divide in the country, with rural women least likely to have internet access. Overall, the NFHS 5 showed that only 42% of Indian women included in the survey have ever used the internet, compared with 62% of men. The five states of Andhra Pradesh, Bihar, Tripura, Telangana and Gujarat reported the lowest percentage of urban women using the internet.¹¹

Traditional gender roles and social norms often restrict women's access to education and technology. This limits their ability to utilize digital tools effectively.

Illiteracy including digital illiteracy is a factor for both men and women, as they do not understand how to register online to avail of government schemes, and are not aware of the working of the internet and are also unable to type. Financial limitations also play a role. Women farmers often have less access to financial resources, making it difficult to afford digital devices and internet services.

NABARD has promoted 5,073 Farmer Producing Organisations (FPOs), but just 178 (over 3%) are exclusively women FPOs. This disparity is important in view of the fact that women constitute 73 per cent of the agricultural work force.

The Gender Vulnerability assessment done in 10 districts of Eastern Uttar Pradesh in 2021 by Health and Beyond Foundation included 1014 women farmer households. In these households, 43% were female members. Of the 43%, females included, 39.6% of the women interviewed are illiterate or were educated only up to the Primary school level. Though, 77.5 % of the households had access to mobile phones, only 5.4% of the women were the exclusive users of the phone. A majority of them possessed a non-smart feature mobile phone.⁵

C. Overcoming challenges for an inclusive story

The Gender vulnerability assessment of women farmers also revealed that almost all agricultural labourer women said they are keen to participate in government-related agriculture training for women or given any government help will absolutely take it. They would be interested in attending future (82% women farmers) trainings to enhance their knowledge and skills on agriculture activities. The men farmers also said that the women will be more likely to come forward to learn in comparison to men and will be faster than men in learning the agricultural training They don't have any harvesting machine and do their harvest by using hand only.⁵

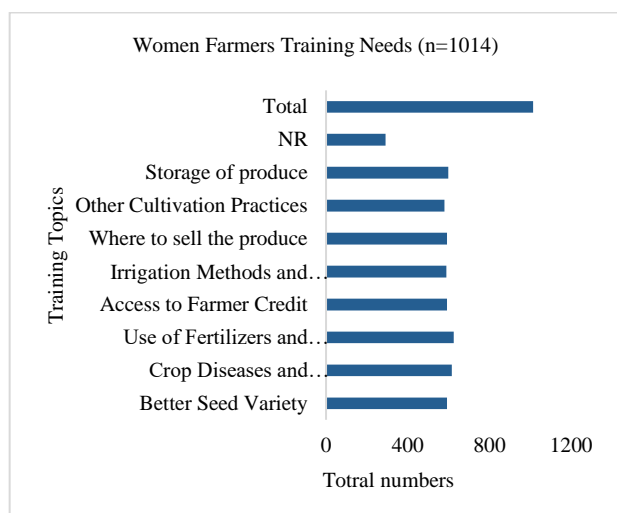


Fig 2. Women Farmers Training Needs

While designing digital information and online platforms, it is important that the above training requirements are included in easily accessible and local languages/dialects. There are many schemes and programs, which the government has launched for the benefit of women farmers. The Deendayal Antyodaya Yojana-National Rural Livelihood Mission (DAY-NRLM) is a government's SHG program covering nearly nine crore women through 83 lakh SHGs. This has been designed for women empowerment, self-esteem enhancement, reduced social evils, better education, higher participation in village institutions and better access to government schemes.

Within the Digital India efforts, more than 53% of the beneficiaries of the Prime Minister's Rural Digital Literacy Campaign (PMGDISHA) are women.

The digital platform, e-NAM (National Agriculture Market) launched in 2016 is a pan-India electronic trading portal connecting existing Agricultural Produce & Livestock Market Committee (APMC) mandis, is aimed at

promoting uniformity in agricultural marketing and real-time prices.

Other initiatives like PlantwisePlus are empowering women farmers by providing access to digital tools that offer agricultural advice, market information, and weather forecasts.

The Maharashtra State Women's Development Corporation (MAVIM) is working to enhance women farmers' access to digital agriculture technologies through inclusive agritech projects.

D. Digital schemes and programs

All these are well intended schemes and programs. Access to them is mostly through the digital mode and online platforms. However, it will be important to understand on how women access these programs. We tend to reach to a position of Digital literacy among illiteracy. For women to get equal or better access to technology and achieve digital literacy, the following issues will need to be addressed.

- i) Can digital content and technology be made customised for the illiterate farmers?
- ii) Can content be designed in local language and local cultural sensitivities.
- iii) Can women farmers have access to SMART phones?
- iv) Can advocacy be taken up with husbands and Head of Households to provide exclusive access to mobile phones for their use.
- v) Can agriculture machinery be designed for the use by women farmers?
- vi) Can Helpdesks have local lady service providers for better communication?

There are several ways on how digital content can be tailored to meet the needs of illiterate women farmers. Using videos, audio messages, and pictorial guides and Interactive Voice Response (IVR) are two simple options. While, we have content which are automated translations, the use of AI and local language voice over narrations will make the consumer understand better and as per her intellect.

Studies have shown that women farmers and many others still use feature phones. There are several reasons which can be attributed to it. Feature phones are cheaper and they have been using these phones for a time. Hence, they are more comfortable using them, particularly, the middle-aged and senior community members. With Smart phones, online content will be more efficiently utilised. There must be a concerted effort to make Smart phones cheaper and accessible to the women farmers. Distribution of smart mobile phones as an incentive during training programs and adopting newer farming techniques can be a way forward. The Gender assessment from Eastern Uttar Pradesh, found that though families possessed a mobile phone, the exclusive use by the women farmer was only around 5%. Use of mobile phones by the women farmers was not considered important. This necessitates advocacy and sensitisation sessions for the husbands and other family members.

On many occasions, women farmers have faced constraints in utilising farm machinery. A study conducted by Mahila Kisan Adhikaar Manch (MAKAAM) in Telangana revealed that majority of women farmers suffered from body aches, pains and musculoskeletal disorders due to intensive manual farm labour. A better way would be to promote

customising suitability of technologies and tools through participatory approaches. *“There is a need to explore new ways of design and development of machinery through participatory approach”*.¹²

The Odisha Millets Misson (OMM) is another example where modifications have been made to make the machines women friendly. (horizontal handlebars are introduced in cycle weeder).

In many instances, and not necessarily limited to women farmers, the service providers managing Help desks of Digital companies and Technology companies are not well versed with the local dialect of the consumer. This hinders an effective communication and troubleshooting while providing support. Now, with Chatbots becoming popular, some of these issues can be resolved.

The gender assessment of Eastern UP districts concluded that for a better access to government schemes and effective utilisation of benefits would require facilitation for digital literacy and online registration services at the village level. Digital literacy- use of smart phone/Internet has emerged a significant gap across all the districts and needs focus.

CONCLUSION

Increasing feminisation of agricultural operations and ageing farmers are two social transformations taking place in rural areas in India. One of the major reasons has been the migration of the male population from villages to cities. This leaves the women of the house to be responsible for taking up farming and utilising their available land as a livelihood option.

Overcoming gender gaps in accessing technologies and online platforms continues to be a work in progress. It has been seen that just having more women in a male bastion of farming, does not lead to women empowerment and equal access to resources. Mechanisation, digital technology and online platforms are areas where a divide exists. There is an interest by the women farmers to be better equipped on advanced agriculture practices, organic farming, tackling climate change. Climate change is a major phenomenon affecting agriculture. Training programs that focus on the use of advanced farming machinery, the use of digital technology and online access to services including climate change updates will greatly improve standard of agricultural practices and crop production.

The Indian government has launched various initiatives and policies to promote gender equality and empower women. Various community-based programs focus on empowering women through collective and Self-Help groups.

All these programs and schemes need to be relooked at the operational levels. Gaps, that keep women farmers from making best use of online resources and digital technology need to be addressed. Access to internet and smart phones remains a challenge. Patriarchal societal norms often prevent women farmers in embracing newer farming methods and technologies. Localised digital content that is

customised for women farmers will overcome such a digital divide. The integration of gender-sensitive digital solutions, customized training programs, and better access to technology can bridge the gender gap in India's agricultural sector.

Through targeted interventions, India can significantly enhance the productivity and economic empowerment of women farmers, contributing to the achievement of SDG 5 and creating a more inclusive and sustainable agricultural future.

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