Intervention of NGOs and ICTs in Mainstreaming Indian Farm Women in Agriculture

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Authors' contributions

This work was carried out in collaboration among all authors. Author LNC initiated the idea, wrote the first draft of the manuscript and contributed in further refinement with critical inputs. Authors BJ and KR managed the literature searches and provided critical inputs to the several drafts of the manuscript. Author RN provided technical expertise, reviewed and facilitated the final shape of the paper. All authors read and approved the final manuscript.

Mini-review Article

ABSTRACT

Agriculture sector employees are nearly 80% of all economically active women in India; 33% of agricultural labour force and 48% are self-employed farmers. As youth are migrating to urban places, to meet the demand of current and future population mainstreaming of women in agriculture is the need of hour. Farm women play an important role in Indian agriculture. Empowering farm women is a multi-dimensional task. If women farmers in developing countries like India, have equal access to productive resources as men, their productivity can be enhanced by 20-30 percent and agricultural production could be raised by 2.5-4.0 percent. To enrich women digitally, association of capacity-building partners such as Non-Governmental Organizations and ICT initiatives plays a vital role. Collaboration of NGOs and ICT for digitalized outreach of customized timely information to farm women helps in their multidimensional empowerment.

Keywords: NGOs; ICTs; farm women; mainstreaming; empowerment.

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1. INTRODUCTION

Farm women are one of the strongest parts of Indian agriculture. According to OXFAM, over 80% of the farm women in India are economically active, among them 48% are self-employed and 33% are agriculture labour force. The percentage share of female operational holders has increased from 12.79 % (2010-2011) to 13.87 % (2015-2016) and the operational area has increased from 10.26% in 2010-2011 to 11.57 percent in 2015-2016 [1] GOI report). This shows the increased participation of farm women in agricultural activities. Globally, women constitute half of the world's population and produce half of the agricultural products (www.fao.org/economic/esa). About 63.00 percent of all the economically active men are occupied in agriculture as compared to 78.00 percent of the women (GOI Census report, 2011). This indicates that farm women play a vital role in agriculture. Youth accounts for a major share of India's population and as India is agriculture-dependent country, youth are the potential of the country. Due to various reasons, youth are migrating from rural to urban areas for their livelihood. This leads to feminization of Agriculture. Mainstreaming of women in agriculture will help in sustainable agricultural development. NGOs play an important role in mainstreaming of women in agriculture. Along with catering the information needs of farm women, NGOs also help in promoting the digital literacy in rural institutions and communities, taking into consideration local needs and constraints by providing learning opportunities which will enhance individual and collective decision-making skills. To increase the production and self-reliance of the women, dissemination of information related to agricultural operations is need of the hour and it will pave the way in bringing gender equality. But, farm women have poor access to extension services. This is because of the presence of less number of women extension personnel and the social stigma prevents them to contact the male extension personnel for extension services. Farm women are the potential source to carry out farming in India, NGOs and ICTs play a prominent and supporting role in the empowerment of farm women. Some of the NGOs in India delivering services to farm women, to increase their potentiality in using digitalized tools for agriculture development are SEWA, BAIF, Digital Green, Mahila Kissan Adhikaar Manch (MAKAM), Haritika, Rajasthan Bal Kalyan Samiti (RBKS), Bhagini Nivedita,

Gramin Vigyan Niketan, Dreams Alive, AARDE Foundation, Centre for sustainable agriculture, Centre for Dignity, MUKTI, VRUTTI. Many digital extension platforms like AKPS (Annapurna Krishi Prasar Seva), IFFCO- IKSL, Digital Green, Kalgudi, iKisan provides extension services to farm women and helps in their empowerment. As "EXTENSION" is for change, focusing on ICT based extension system mediated through NGOs result not only in transfer of technology but also help in empowerment and increased income generation. Hence, farm women related issues in agriculture are needed to be addressed through intervention of NGOs and ICT initiatives which result in faster empowerment.

2. SCOPE AND NEED OF THE STUDY

Farm women have been reported to be 20-30 percent less productive than men [2]. The less productivity among farm women is due to inadequate access to information [3]. Though farm women play a significant and crucial role in agricultural development, they have no or limited access to agricultural information, services or production assets. They have very limited control over their earnings [4]. Aiming at benefit of women in agricultural production and to challenge the existing gender disparities in rural areas, understanding the intervention of NGOS and ICTs in mainstreaming farm women in Agriculture is needed.

2.1 NGOs Empowering Women in Agriculture

According to FAO, [5] there are seven success factors to empower rural women through ICTs. They are adaptation of content to local needs, Creation for safe environment that facilities them to learn and share, being gender sensitive, providing access to ICTs and tools for sharing the information, building partnership, Providing the right blend of technologies and ensuring sustainability. One among them is to build the partnership i.e., small, local producer organizations, local companies and community-based non-governmental organizations (NGOs) often have the social capital to provide trusted information and good quality services. Diversified advisory and extension services offered by many types of providers are more likely to meet the needs of the farmers, as there is no unique type of service that suits all the situations.

According to Megan O'Donnell, [6] Digital green reached women through self-help groups in

India. The videos made by farm women themselves promotes sharing of agricultural tips and recent advances learned through training in their community and 89 percent of successful adopters of digital green practices are women. Hence, Digital Green facilitates women empowerment.

Besides, above mentioned activities some NGOs also facilitates ICTs usage among the farm women by providing them trainings and providing information through the use of ICTs.

2.2 ICT School for Empowerment of Women (SEWA)

ICT school for empowerment of women is implemented by SEWA. It aims at bringing a resource centre for livelihood generation, socioeconomic security and self-sustainability of women, SHGs and neglected communities through provision of relevant information and IT based training. It provides vocational courses on journalism, tele caller training, video editing, digital documentation, access to latest resources and information for livelihood issues. More than 8,000 rural women including farm women and community members have been trained on computer skills and about 25, 000 were trained in other ICT training or services (https://usof.gov.in).

2.3 BAIF

BAIF assists in championing the equality of women through empowering themselves digitally by training under different initiatives and also promote usage of smartphones by farm women to get messages through WhatsApp group about agricultural practices and technology interventions.

2.4 Digital Green

Digital Green intentionally features women as model farmers. It covers 1.9 million small holder farmers, 90 percent of them are women (https://www.digitalgreen.org/ india/). Farm women are involved in the production of improved production and livelihood technologies. They are involved in both the recording and screening of videos to understand the learning, adoption and innovation of better agricultural practices in different contexts. [8].

2.5 Connecting Dream Foundation

Connecting Dream Foundation through its ICT based Apna Tech Tree (ATT) model disseminates customized, personalized information according to the specific needs and resource base of the respondents. They provide information through ICTS on various aspects ranging from health, agriculture to entrepreneurship development etc. [9].

2.6 ICTs for Empowering Women in Agriculture

According to FAO, [5] there should be a right blend of technology for empowering the rural women through ICT which suits local needs and contexts. To increase the penetration of ICTs in rural areas, blending approaches with local relevant technologies and existing information systems should be adopted based on in-depth analysis of local needs. This also increases the efficiency of ICT initiatives in agriculture and serve different users and context.

For all knowledge networking that empowers women, governmental and international agencies need to follow a new approach to ICT based knowledge networking supplemented by start-up, capacity-building support, and making full use of accessible technologies in easy ways. Incubator initiatives therefore need to be launched for the creation of dynamic, result-oriented ICT models that focus on social benefits rather than individual profits [10]. Effective implementation of various ICT projects requires participation of various agencies as no single agency can effectively deliver this critical input. Need for a proactive participation by the private sector, NGOs and other civil society organisations are being increasingly felt and the millennium declaration adopted in 2000 underscored the emergency of verifying the benefits of new technologies, especially ICTs, are made available to everyone [11]. ICT plays a vital role for socio-economic and political empowerment of women and in the promotion of gender equity [12]. MAgri (Mobile agri) services are acting as an income-generating activity and tool for empowerment of women [6]. NAARM is collaborating with two NGOs in Nalgonda district for empowering farm women through agriculture information and facilitating e-business to bring about sustainable development in their livelihoods [10].

ICTs promotes exchange of knowledge, adoption of targeted recommendations, market integration and access to finance that makes agriculture profitable. Better, faster, cheaper and targeted timely delivery of information to farmers based on

Table 1. List of NGOs activities

No.	NGOs	Activities
1.	SEWA https://www.ilo.org/wcmsp5/groups/public/--- ed_emp_policy/documents/publication/wcms_234890.pdf	1. Organizing women for collective action and cooperative solutions. 2. Creation of Cooperatives 3. Rural producers' Groups and Associations 4. Social Security Organizations 5. Capacity building and Asset Building 6. Creating grassroots organizations 7. Fostering livelihood security 8. Market linkages
2.	BAIF https://ccafs.cgiar.org/partner/baif-development-research-foundation	1. Livestock development 2. Resilient Agriculture 3. Community Health 4. Water Centric Development 5. Women Empowerment
3.	DIGITAL GREEN https://www.digitalgreen.org/india/	1. Training frontline workers 2. Improving health outcomes 3. Connecting farmers to markets
4.	SANJEEVANI https://www.sanjeevaningo.org/	1. Organic farming 2. Women's Empowerment 3. Health Education
5.	MAKAAM (MAHILA KISAN ADHIKAAR MANCH) http://makaam.in/about-us/	1. Farm Suicides 2. Forset rights 3. Agro-ecology 4. COVID- 19 Resources 5. FPOs 6. Land Rights 7. Water 8. Identify and recognition
6.	PRAGATHI http://pragatikoraput.org/about.php	1. Empowerment of People's Organizations 2. Natural Resource Management 3. Sustainable Agriculture 4. Women Empowerment 5. Climate change Intervention 6. Disaster Risk Reduction
7	CONNECTING DREAM FOUNDATION [7]	1. To empower youth and rural women in rural India through connectivity and entrepreneurship

their need helps to empower them with the informed options. This is transformational especially for women and youth to increase their productivity and benefits in poverty reduction, ensures nutrition, education and income. Some of the ICT initiatives that deliver digital extension services to farm women are IKSL, AKPS, Digital green, ICT e-choupal, Nurture farm, Gyan Kisan (Pilot basis).

2.7 IKSL Services

IKSL is addressing the issues of the farmers by providing Agro-ICT Services like localised tailor-made solutions at free of cost to farmers through free voice messages for focused communities and subscribers, Helpline, Call Back Facility and a dedicated team of experts provides solutions to both rural and urban consumers on daily basis. (https://www.iffcokisan.com/home/services).

2.8 AKPS (Annapurna Krishi Prasaar Seva)

AKPS address the problems of farmers by providing right information at right time in user-specified mode and time in local language.(https://dic.gov.in/index.php/technology-deployment/akps).

2.9 ITC E-Choupal

It is an initiative that directly links the farmers for procurement of the Agri, Aqua products via Internet.(https://en.m.wikipedia.org/wiki/E-Choupal).

2.10 Nurture Farm

It provides holistic solutions to farmers on sustainable, scientific, high yield practices for growth, harvest, post-harvest and supply chain by providing centralized access to diverse, curated products, services and intelligence across input and output sectors. (https://nurture.farm/about-us/).

2.11 Gyan Kisan

It is a holistic approach to empower rural India by delivering content specific actionable scientific knowledge to the farming community through mobile phone at the right time enabling all the stakeholders to optimize and coordinate their offerings based on both published knowledge and real time-based information generated by aggregating farmer actions and transactions (http://www.gyankisan.com/).

SEWA provides information related to current and future commodity prices to its members, which allows them to make informed decisions about selling the produce. Women having mobile phones receive SMS messages directly, while women without mobile phones can access the information by visiting a computer based village notice board. To overcome illiteracy constraints, the association is piloting an interactive voice response system that would provide the same information using speech recognition software. Initial results from the pilot indicate that over 20,000 women are using the system [13].

Collaboration between Bharti Airtel and Indian Farmer's Fertiliser Co-operative (IFFCO) led to the development of IFFCO Kisan Sanchar Ltd. Agri Helpline aims to provide information, inputs, and services in real time through affordable mobile communication. Farmers can purchase a "Green SIM" card that allows them to receive five free voicemail messages daily on various aspects related to agriculture. It also provides a helpline service to which farmers can call and ask questions. Although women reportedly make up a number of the listeners of the daily messages, they are only 13 percent of direct users [14]. The majority of SIM card holders are men.

Though the intervention of NGOs and ICTs has great advantage in mainstreaming women in agriculture, there are few NGOs and ICTs providing services especially for farm women. ICTs like RML Ag Tech (Reuters Market Light), Mkisan, etc. provide services majorly to farmers and don't cater needs of farm women. These can be further improved upon to meet the requirements of farm women [15].

Adebisi and Martins [16] concluded that poor ICT infrastructure facility, difficulty of utilization of ICT gadgets, average monthly income, educational level are the constraints of the farm women's access to information and communication technologies for agricultural information. Verma et al. [17] revealed that extension personnel of government organizations face more constraints than NGOs personnel in the application of ICT gadgets like computer, internet, mobile phone, kisan call centre and information kiosk in agriculture sector. Hence, intervention of NGOs play an effective role in mainstreaming of women in agriculture.

3. CONCLUSION

Drudgery, poverty and unemployment have negative effect on rural women and ruin their

sustainable future. Studies revealed that feminist researches on Women Empowerment Through Technological Initiatives - Challenges of Women Digital Inclusion Strategies shown that technologically supportive initiatives and all policies for rural women have borne authentic results. Hence, there is an emergency to keep focus on technology-driven schemes for rural women. Promotion of liaison with various women focus agencies, NGOs, self-help groups, welfare nodal centers is crucial to make the initiatives a grand success and necessary to make women own technical tools first and learn to operate them effectively and efficiently with various stakeholders. Digital transformation in agriculture is enabling ICT as a tool for agri sector development by integrating the timely, need – based, customized, localized information with innovations required for that particular area. Leveraging the ICT tools in agriculture to maximum extent through developing a digital extension platform and bringing customized solutions to the farmers' doorsteps with the help of NGOs create technological reach for both input, output sectors of agriculture and for farm women in particular.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Links:

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Available:https://usof.gov.in

https://www.digitalgreen.org/ india
Available:http://www.fao.org/e-agriculture/news/focus-women-and-icts agriculture #:~: text= Information%20and%20Communication%20Tech nologies%20
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