





Role of Women in Sustainable Agricultural Growth

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Abstract

The crucial and many responsibilities that women play in agriculture are examined in Importance of Women in Sustainable Agriculture Growth, especially in relation to sustainable growth. To effectively address issues like food security, environmental degradation, and climate change, it is critical to recognize and support women's contributions to agriculture. This study examines how women actively engage in a range of agricultural pursuits, from managing cattle to cultivating crops, and emphasizes the critical role that women play in the uptake of sustainable farming methods. It investigates the potential for gender-sensitive policies and programs to empower women and boost their participation in agriculture. The study also examines the social and environmental impacts of women employed in the agricultural sector, emphasizing the potential for increased food production, a decline in destitution, and the protection of the environment. This research emphasizes the value of acknowledging and promoting women's contributions to sustainable agricultural growth, thereby addressing global challenges and fostering equitable and resilient agricultural systems. It does this through a thorough analysis of case studies and empirical evidence.

Keywords: Agriculture. Women. Sustainable growth. Climate change. Contributions.

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1 Introduction

Women have always been the main holders of agricultural knowledge, passing on traditions and practices from generation to generation. In agricultural societies, women were responsible for important tasks such as planting, harvesting, seed storage, and animal care, all of which were essential to the community's livelihood (Doss & Morris, 2000). Today, women's role in agriculture has evolved significantly, with their participation spanning many different aspects of agriculture, agro-industry and rural development. Sustainable agriculture, which prioritizes environmentally friendly and economically viable practices, is essential to ensuring global food security. And environmental challenges. Research consistently emphasizes women's significant contributions to sustainable agriculture, including crop production, agroforestry, sustainable land management, and conservation of local crop varieties (Jora et al., 2022; Meinzen-Dick et al., 2019). Women's expertise in traditional and organic farming methods is invaluable in promoting sustainability. Despite their central role, women in agriculture must face many challenges. These issues include gender differences in involvement and information exchange, as well as restricted accessibility to land, financing, and extension services (Agarwal, 1994). Such barriers prevent women from realizing their full potential in sustainable agriculture and create obstacles to their economic empowerment. Furthermore, women play a vital role in protecting the environment and preserving biodiversity in sustainable agriculture. Their knowledge of local crop varieties and sustainable practices contributes significantly to the conservation of biodiversity and the preservation of diverse agricultural ecosystems. In addition to enhancing the availability of food and environmental sustainability, promoting women in environmentally friendly farming also has positive social effects including reducing poverty and promoting gender equality (Doss, 2018). It is also crucial for women to be involved in post-harvest tasks including manufacturing, protecting, and marketing agricultural products. Their proficiency in post-harvest handling contributes to the decrease of food waste and guarantees the availability of superior products.

Empowering women in sustainable agriculture not only improves food security and environmental sustainability but also creates social benefits such as poverty reduction and increased gender equality (Doss, 2018). Women's participation in post-harvest activities such as processing, preserving, and marketing agricultural products is also important. Their expertise in post-harvest management helps reduce food waste and ensure access to high-quality products. Women are essential to the agricultural and entrepreneurial sectors since they work in fields like value-added product development, marketing, and small-scale food processing. Achieving the Sustainable Development Goal 2, which aims to eradicate hunger, create adequate supplies of food, and promote sustainable agriculture, is strongly correlated with the contributions made by women in the agricultural sector (Lile, Oclean, & Balan, 2024; Mittal, 2020). In addition to improving food security, encouraging women

in agriculture provides wider economic benefits that lower poverty and enhance rural communities' standard of living. From planting and weeding to harvesting and post-harvest handling, underscores their significance in the cultivation of crops and the management of livestock. The preservation of traditional varieties of plants and seeds by women also adds to diversity in agriculture and resistance to shifting conditions in the environment. Notwithstanding, women in the agricultural sector encounter a multitude of obstacles, such as restricted field and property rights accessibility, restricted financial resources and credit availability, and uneven involvement in decision-making procedures (Doss & Morris, 2000). Reforming laws, funding training programs, and promoting sexual equality in the agriculture industry are just a few of the systemic measures needed to address these issues. Women who have contributions in agriculture are frequently disregarded and undervalued, despite their fundamental contributions.

They encounter time limitations due to household's duties, as well as puts at risk to well-being and security, particularly when dealing with machinery or chemicals. In addition, women frequently experience price discrimination, have restricted opportunities in markets and financial institutions, and find it difficult to obtain fair prices for their goods. Achieving food security and sustainable development depends on recognizing the value of women in agriculture and addressing challenges. They confront. Empowering women in agriculture requires comprehensive approaches, including legal reforms, investments in education and training, and initiatives to promote gender equality in decision-making. Regulations. The Sustainable Development Goals (SDGs) recognize the importance of gender equality in achieving sustainable agriculture. Empowering women in agriculture is linked to sustainable practices and is essential to achieving SDG targets related to ending hunger, health, sanitation, and reducing inequality (Agarwal, 2018).

2 Social Enterprises Working for Women Empowerment in the Farming Sector

The characteristic of Indian agriculture is the Existence of informal value chains. Small and marginal farmers need help to make an impact. Collective bargaining regarding reliable procurement of materials. A local moneylender is providing the loan, and it is completely They rely on intermediaries to obtain their products market (Malik & Kajale, 2024). Over time, many social enterprises were born, emerging as an important factor in agriculture, An ecosystem that provides inputs along the entire value chain. She Provides access to high-quality input and shares knowledge. Promotes good agricultural practices and supports farmers in this. Reduce post-harvest losses and increase agricultural activities Productivity, product gross profit realization, and improve market connectivity. Table ?? shows the services provided and the results achieved by Social enterprises across all stages of the value chain. Companies like Dhanuka Agritech and Ulink Organics. Some companies provide high-quality seeds and pesticides; Agrosaw, etc., are leaders in providing

agricultural machinery to Improve agricultural productivity and income (Peng, Zhao, & Liu, 2022). Socializing Companies also offer resources to support cultivation Harvesting and irrigation equipment, etc. Crop yield increases. EM3 and Oxen Farm Solutions employ a "Farming-as-a-Service" model that reduces the need for large capital. Spending on machinery, equipment, etc., throughout Germany's value chain. Some companies like Basix Krishi Samruddhi Focus on building community-driven business channels. They engage with the community by first building their community. Build capacity and deliver services with A special focus on productivity across all value chain Improvements, risk mitigation strategies, and alternatives. In India, social enterprise gives women a voice and is crucial to the farming community's agricultural value chain. These companies deal with Women are an integral part of the overall program chain. Some people prefer working with women. Provide training and facilitate access to credit Support through market collaboration. Many social enterprises People we talked to liked collaboration FPOs established by women stakeholders citing various reasons Reasons that lead to more efficient processes.

Table 1. Role of social enterprises across the agriculture value chain

Pre Harvest	Harvest	Post Harvest	Market Linkage
<ul style="list-style-type: none"> • Provide inputs • Innovative models like "farming-as-a-service" 	<ul style="list-style-type: none"> • Provide cultivation support 	<ul style="list-style-type: none"> • Storage and processing solutions • Collateral management • Agri-logistics 	<ul style="list-style-type: none"> • Linking bulk buyers to farmer group • Provide information and advisory support
Service			
Improved farm productivity Improved income	Increased crop yield Reduced water use	Minimized post harvest losses Enabled farm to market linkage	Increased market understanding Better market connectivity
Outcomes Achieved			
Dhanuka Agritech, Ulink Organics, Agrosaw, EM3, Oxen Farm Solutions	GreenMax Technology, Zamindara Farm Solutions	Arya, StarAgri, WayCool, Freshleaf	VegFru, Farmily, EkGaon Technologies, Moksha Yug Access, DeHaat
SEs			

3 Women Farmers Producers Organization Role for Sustainable Agriculture Growth in India

Farmer Producer Organizations (FPOs) are now the institutional vehicle of choice for policymakers and development organizations to mobilize farmers. It is the lynchpin strategy for Doubling Farmer Income - recent announcements of inclusion of FPO credit in The creation of 10,000 FPOs, the Priority Sector, and five-year tax reductions highlight the recognition of FPO as an institutional structure to address some issues facing small farmers (Nikam et al., 2019). The 10th Agriculture Census (2015–16) found that around 14% of the nation's operational holdings are female. A significant and worthwhile contribution that is frequently unseen is played by women in agriculture and related fields. According to the 2011 Census, of all female workers, 55% were employed in agriculture, and 24% were cultivators. There are three primary roles that women play in agriculture: wage laborers, cultivators, laboring on their property, supervisors of agricultural operations through the oversight of labor, and specific actions taken after harvest. In spite of their significant contribution, women in agriculture continue to face several structural challenges that limit their access to resources, decision-making power, and financial services. Female farmers often lack ownership of land, access to credit, and participation in agricultural cooperatives or organizations like Farmer Producer Organizations (FPOs). This exclusion perpetuates the gender gap in agricultural productivity, income, and opportunities for skill development. Moreover, their role tends to be informal, and they are less likely to benefit from government schemes and interventions aimed at enhancing agricultural output. Recognizing and supporting women in agriculture through policies that ensure equal access to resources and involvement in FPOs is critical to achieving the goal of Doubling Farmer Income and fostering a more inclusive agricultural sector.

Table 2 states that the vital role that Women Farmer's Producers Organizations (FPOs) play in India's sustainable agricultural growth is noteworthy. By improving their access to markets, resources, and knowledge, they enable women in agriculture. Food security, greater production, and biodiversity conservation are all aided by FPOs, who also address the special issues faced by women farmers and raise awareness of gender equality. Their combined might promote a robust and sustainable agriculture industry, which is essential for India's future.

Table 2. Active Women FPO and their Focus

S. No.	Name of the FPO	Establishment / No of Women Members	Focus
1	Jeevan Sangini Krishi Vikas Women Farmer Producer Company	6th July 2013 / 1553 Women farmers	New marketing opportunities for women who never dreamt of venturing out of their homes.
2	Mann Deshi Farmer Producer Company	2017 / 1335 members to 310,000 women in Western Maharashtra	To give the farmer greater bargaining power through the farm-to-market value chain by restructuring the agriculture market.
3	Aaranyak Agri Producer Company Limited	2009 / 2601 members	Agricultural and animal husbandry service activities, except veterinary activities.
4	Samridhi Mahila Crop Producer Company	2011 / 2310 members	To help farmers earn a living and create awareness among farmers on how best to start their agricultural enterprise.
5	Apni Saheli Producer Company Limited	2013 / 4500 members	Working as a cooperative for low-cost lending for its members, equipping them with requisite training in the cultivation process.
6	Shreeja Mahila Milk Producer Company	2014 / 75000 members	To procure, process, and market milk, maximizing value for shareholders while providing high-quality milk and products to customers.
7	Savitri Bai Phule Goat Farming Producer Company	2016 / 550 members	Strengthening farmer's capacity through best goat-rearing practices and productivity.
8	Saahaj Milk Producer Company Limited	2014 / 80871 members	Rural youth awareness programs to understand the importance of dairying as a source of livelihood and explain the importance of animal management, feeding, breeding, and health care.
9	Sakhi Mahila Milk Producer Company Limited	2016 / 18000 members	Arranging to provide technical input services in the areas of breeding, nutrition, care, and management of milch animals to increase milk productivity.
10	Rudi Multi Trading Company Limited	2014 / 65000 members	Strengthening small women farmers by setting up a rural distribution network.

4 Results and Discussion

According to the Economic Survey 2016–17, women are heavily involved in related endeavors as well. They work in a variety of fields including raising cattle, growing vegetables, processing of fish, and milk production and maintenance. Outside of the farm, women are primarily responsible for gathering water, firewood, and fodder, and they also play a big part in both water and land management. The integration diversity into the agriculture sector is an important strategy for the promotion of gender equality as well as green agriculture and rural development, given the significant involvement of women in all facets of agricultural and related activities. With 44 percent of the workforce dependent on agriculture for employment and a means of subsistence in 2018 and 17.2 per cent of gross value added in 2017–18, the agricultural sector continues to be essential for growth in the economy, alleviation of poverty, and environmental sustainability. Depending on their family’s socioeconomic standing, rural women make significant contributions in three different ways to the agriculture sector. They participate in agricultural cultivation and post-harvest operations as managers and supervisors, as well as paid and unpaid laborers who work on their own or family’s farm. They embrace an integrated approach on farming systems that places an emphasis on resource efficiency and sustainable agricultural methods, as well as playing a significant part in the preservation of ecosystem services and natural processes. Their capacity to address farming’s obstacles with creative solutions that prioritize smaller farm sizes, varied valuable and high-value goods and businesses, distinctive marketing approaches, and environmentally friendly procedures. diverse agro-climatic zones and areas have diverse roles for women in farming and rural labor markets. Women depend on land to a disproportionate extent, as evidenced by the gender shifts in occupations and allocation of labor across sectors. Of all female workers in rural regions, 73% and 55%, respectively, are dependent on land. Nonetheless, it is evident that women continue to earn less than males for their labor, whether they work in rural or urban settings. In rural areas, the earnings of a male regular worker is 1.4 to 1.7 times more than that of a female regular employee, and it is 1.2 to 1.0 times higher still. In cities, three times.

Additionally, according to India’s census data, the percentage of women working in agriculture fell from 39% in 2001 to 37% in 2011, while the percentage of female farmers in In 2001, there were 46% more women working in agriculture than there were in 2011. These results demonstrate how important women have been to agriculture throughout history, from conventional farming practices to contemporary farming systems. A wide range of responsibilities, including laborers, landowners, business owners, researchers, and legislators, have been played by women in support of the growth and sustainable growth of agriculture. Their enthusiastic involvement in sustainable endeavors like agroforestry, crop cultivation, and local variety preservation encourages methods that are both econom-

ically and environmentally sound. Women still confront obstacles, nevertheless, including unequal distribution of agricultural goods among genders and restricted opportunities for land, financing, and services for agricultural extension, in spite of their enormous contributions. Increasing environmental sustainability and food security, encouraging women in agriculture also lowers poverty and advances gender equality. Emphasize the most important tactics for resolving these issues and empowering women in agriculture. Securing land ownership and promoting legislative changes that guarantee woman's equal access to land are essential for decision-making. The productivity and decision-making abilities of women will increase with investments in their education and training in contemporary farming techniques. In addition to encouraging the formation of women's agricultural cooperatives that can boost income and access near the market, expanding access to finance and financial services also benefits women's agricultural investment and financial independence. Developing programs and initiatives to enhance women's access to contemporary agricultural technology and knowledge, acknowledging and appreciating their contributions—especially those that are unpaid—and protecting their health and safety while engaging in agricultural activities are some other suggestions. In order to enable women to participate in the value chains of agriculture through training, finance availability, and business partnerships, social enterprises must also be used to empower women. All things considered, these steps are necessary for advancing sustainable agricultural practices worldwide and to fully utilize the abilities of women in agriculture.

5 Conclusions

In agriculture, women have played and still play crucial roles that have greatly aided in environmental preservation, food security, and sustainable growth. Notwithstanding the contributions they make, women in agriculture confront a number of obstacles, such as hurdles based on gender and restricted access to contemporary technologies, finance, and land. Achieving gender equality, lowering poverty, and promoting sustainable development goals all depend on empowering women in agriculture. Women's cooperatives, gender-responsive policies, training and education, access to capital, and legislative reforms should all be priorities in the fight for the empowerment of women in agriculture. Generating lasting improvements in the agriculture industry requires acknowledging the achievements of women and increasing public awareness of their worth. Social enterprises facilitate women's involvement in agriculture value chains by offering market cooperation, finance availability, and training. These businesses support more productive and efficient procedures as well as improving the status of women in rural regions by attending to the particular demands and difficulties encountered by women in agriculture.

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