



Women as Agents of Change in Agricultural Innovation in India

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Abstract

Women in India are the unsung heroes of the agricultural sector, playing a pivotal yet often overlooked role in driving its productivity and sustainability. Despite their indispensable contributions, women farmers encounter systemic barriers that hinder their agency and perpetuate their vulnerability. These challenges include unequal access to resources, limited decision-making power, and pervasive gender-based discrimination. Gender disparities in land ownership exacerbate these issues, with women owning only a fraction of agricultural land despite their significant involvement in farming activities. This inequity extends to access to critical resources such as agricultural inputs and extension services, further constraining women's participation and hindering their ability to benefit fully from agricultural development initiatives. To address these challenges, various government programs and developmental initiatives have been introduced to empower women farmers. These initiatives focus on skill development, capacity building, and tailored access to resources and opportunities, aiming to enhance women's economic independence and livelihood security. Efforts are also underway to mainstream gender issues into agricultural policies, promote women's leadership, and create supportive environments that prioritize gender equality. Technology-driven strategies, including the development of women-specific agricultural technologies and the organization of women's groups for production purposes, are being employed to enhance women's participation and productivity in agriculture. Overall, empowering women in agriculture is essential for achieving sustainable and inclusive development in India, unlocking the sector's full potential and fostering more resilient and equitable agricultural systems.

Keywords: Women farmers, Agricultural sector, Gender equality, Empowerment initiatives, Resource access, Sustainable development



Introduction

Agriculture stands as the backbone of India's economic prosperity, with women serving as its unsung heroes. Despite their pivotal role, women's contributions to this sector often go unnoticed and undervalued. Dating back millennia, agriculture owes its very existence to women who pioneered its practices. Today, in rural India, a staggering 84 percent of women rely on agriculture for sustenance, illustrating their indispensable role in this vital industry. Moreover, in the livestock sector, where India boasts the world's largest production systems, over 70 percent of the workload is shouldered by women, underscoring their significant but under recognized contributions.

Despite significant advancements in the agriculture sector driven by technological empowerment, the progress has not been commensurate with uplifting the status of women laborers, who constitute a vital but often overlooked segment of the industry. In countries like India, where agriculture contributes substantially to the GDP (13.5 percent) and provides employment to a significant portion of the population (55 percent), women play a pivotal role. They represent 33 percent of the agricultural labor force and 48 percent of self-employed farmers. However, when households face challenges in cultivating output, the burden of sustaining the family often falls disproportionately on women. They resort to working in others' fields to supplement income, all while juggling household responsibilities. Unfortunately, many women hesitate to voice grievances due to fear of humiliation, assault, or harassment, especially when they struggle to balance household and field duties or when they fall ill. This fear of repercussion perpetuates a cycle of exploitation, underscoring the prevalence of gender discrimination in the workplace and society's attitudes toward women.

The plight of women in agriculture underscores broader societal issues of gender discrimination and unequal power dynamics. Despite their significant contributions to agricultural production and rural economies, women often face systemic barriers that limit their agency and perpetuate their vulnerability. Addressing these challenges requires comprehensive efforts to dismantle gender biases, promote gender equality, and create an enabling environment



that empowers women to fully participate in and benefit from agricultural activities. By recognizing and rectifying the inequities faced by women in the agriculture sector, societies can unlock the full potential of this critical workforce and foster inclusive and sustainable development.

Despite their substantial involvement, societal perceptions continue to undermine women's status in agriculture. Despite comprising nearly half of the agricultural workforce in key sectors such as tea plantations, cotton cultivation, oilseed farming, and vegetable production, women are often sidelined in discussions and decision-making processes. This systemic bias is further exacerbated by land ownership statistics, revealing a stark gender disparity: a mere 2 percent of agricultural land is owned by women, while men dominate with 83 percent. This glaring inequality underscores the urgent need to challenge prevailing norms and recognize women as rightful stakeholders and leaders in agriculture.

Literature Review

The pivotal role of women in agriculture emerges as a potent means to combat long-standing challenges of hunger and poverty, especially in rural settings. In these contexts, women's rights extend beyond mere freedoms; they encompass fundamental entitlements, from bodily integrity to property ownership and financial autonomy. Access to education, land ownership, water resources, machinery, and banking services profoundly influences women's capacity to provide for themselves and their families. Empowering women to make decisions and organize themselves stands as a linchpin for community development, yielding broad societal benefits.

Despite constituting a significant portion of the rural populace in BRICS nations, women encounter formidable barriers hindering their full participation in rural economies, thereby impeding their attainment of economic independence. Women often find themselves disproportionately engaged in non-productive tasks such as household chores and unremunerated farm work, while men typically assume roles responsible for income generation.



In instances where men migrate in pursuit of better employment opportunities, the resultant workload escalation falls upon women, necessitating their simultaneous engagement in agricultural and domestic responsibilities. Providing training to rural women not only enhances their resource accessibility but also bolsters their decision-making agency.

Scholars propose that interventions geared towards augmenting women's roles in agriculture should encompass training initiatives and incentives tailored to fortify their decision-making capabilities within agricultural projects and programs. Moreover, efforts aimed at bolstering land tenure security and expanding access to extension services are deemed vital in fostering women's empowerment within agricultural spheres (Joshi & Kalauni, 2018).

In the context of rural areas, social innovation emerges as a promising avenue for bolstering women's adaptive capacities. This is especially critical given the disproportionate impact of natural disasters, climate change-induced phenomena like rising sea levels, and erratic weather patterns on vulnerable populations, particularly impoverished women in rural settings. Given their heavy reliance on agriculture and natural resources for sustenance, women in these contexts face heightened vulnerabilities. Thus, fostering social innovation becomes imperative in equipping women with resilience against these existential threats (Cruz et al., 2016).

Yemisi et al. (2009) delved deep into the intricate web of gender dynamics within Nigeria's agricultural landscape, uncovering a sobering reality: rural women's voices remain largely unheard in decision-making processes. Despite their vital contributions, entrenched barriers such as cultural norms, economic constraints, and limited educational opportunities conspire to marginalize women, relegating them to the sidelines of agricultural governance. This study serves as a poignant reminder of the urgent need to dismantle systemic obstacles and empower rural women, whose invaluable role in driving agricultural production and rural development cannot be overstated.

In a similar vein, Chayal and Dhaka's (2016) investigation sheds light on the nuanced nuances of women's participation in agricultural activities, particularly in India. Their findings



paint a complex picture, revealing that while women contribute significantly to labor-intensive tasks such as harvesting and grain processing, their involvement wanes when it comes to more mechanized or technical aspects of farming. Factors ranging from age and family obligations to land ownership and educational attainment shape women's access to and engagement in various agricultural domains, underscoring the multifaceted nature of gender disparities within the sector.

Building upon these insights, Logeswari et al. (2016) offer a compelling narrative of empowerment and agricultural development. Their research underscores the transformative potential inherent in empowering women farmers, whose labor forms the bedrock of agricultural productivity. By addressing systemic inequalities and fostering an environment conducive to women's participation and decision-making authority, nations stand poised to unlock a powerful engine of economic growth and social progress. Indeed, as women assert themselves as equal partners in agriculture, the seeds of sustainable development are sown, nurturing prosperity that reverberates across communities and nations alike.

The intricate interplay between gender and agriculture in developing nations unfolds a narrative of both resilience and disparity. Women, constituting a significant proportion of the agricultural labor force, play a pivotal role in sustaining agribusiness, food processing, and consumer-related activities. Yet, despite their indispensable contributions, women often find themselves on the periphery of ownership and control over crucial resources like land. This disparity extends beyond mere farming to encompass access to formal information channels, perpetuating a cycle of gender-based inequality within agricultural systems. Poats et al. (1988) aptly characterize this dynamic as a complex tapestry of complementary, conflicting, and collaborative gender roles, underscoring the multifaceted nature of gender relations in rural development.

In dissecting the fabric of agricultural labor, it becomes evident that gender serves as a fundamental lens through which to understand the nuances of activity performance and resource allocation. With a significant portion of the farming community operating on small land



holdings, the influx of landless laborers underscores the need for a nuanced understanding of gendered roles within agricultural frameworks. Indeed, gender-based divisions of labor are universal, yet intricacies shaped by cultural and community dynamics create diverse manifestations. Recognizing gender as a cross-cutting social characteristic becomes imperative, transcending barriers of caste, class, occupation, and ethnicity.

Embracing a gender-inclusive approach to agricultural development holds immense promise for fostering mutual learning, dismantling entrenched prejudices, and amplifying gender perspectives in developmental endeavors. By empowering both women and men to harness their inherent strengths and capacities, agricultural initiatives can transcend traditional gender norms and pave the way for a more equitable and sustainable future. As the call for precise gender information reverberates, it becomes increasingly clear that integrating gender considerations into agricultural policies and practices is not just a necessity but a catalyst for transformative change.

Has farming in India contributed to the reinforcement of gender-based inequality?

The entrenched gender discrimination within agricultural systems perpetuates a cycle of deprivation and marginalization for women farmers, depriving them of essential resources and recognition. One of the fundamental challenges lies in the non-recognition of female farmers as legitimate stakeholders in agriculture. Despite constituting a significant portion of the agricultural workforce, women are often labeled as 'cultivators' or 'agricultural laborers,' denying them access to crucial government schemes and benefits. This lack of recognition not only undermines their contributions but also exacerbates their vulnerability to exploitation and exclusion from decision-making processes.

The glaring gender disparity in land ownership further exacerbates the invisibility and vulnerability of female farmers. Despite their pivotal role in agricultural production, women own a mere fraction of the land, rendering them marginalized and voiceless within the agricultural landscape. With a staggering 8 percent of agricultural land inherited by male family members



compared to less than 2 percent by their female counterparts, according to the India Human Development Survey (2018), the systemic bias against women in land ownership perpetuates their economic and social disenfranchisement.

The ramifications of this gender disparity extend beyond mere land ownership, as it intersects with broader issues of access to resources such as loans and irrigation systems. Without equitable access to these fundamental resources, women farmers are unable to fully realize their potential and contribute effectively to agricultural productivity and rural development. Addressing these systemic inequalities requires concerted efforts to challenge deep-seated gender norms, recognize the agency and contributions of women farmers, and enact policies that promote gender equality and inclusive agricultural practices.

The Vital Role of Women in Agriculture

Rural women in agricultural settings exhibit remarkable versatility in their engagement with farming activities, which varies based on socio-economic factors and regional dynamics. A significant number of women participate as paid laborers, contributing their labor to various stages of agricultural production. From sowing seeds to harvesting crops, they undertake a range of tasks vital for farm operation. This role often extends beyond mere physical labor, encompassing responsibilities such as weeding, irrigation, fertilizer application, and plant protection. Through their diligent efforts, these women not only support their families' livelihoods but also contribute substantially to the agricultural sector's productivity.

Many rural women are cultivators in their own right, working on their family-owned or leased land. As cultivators, they undertake the laborious tasks involved in agricultural production, from preparing the soil to planting and nurturing crops. Their involvement extends to nursery management, transplanting seedlings, and ensuring proper care and maintenance throughout the growing season. Additionally, these women actively engage in post-harvest operations, including harvesting, winnowing, and storing crops for future use or sale. Their role



as cultivators highlights their agency and autonomy in agricultural decision-making, as they manage their landholdings to sustain their households and communities.

Empowering Women Farmers:

The empowerment of rural women in India has been a focal point of various government initiatives aimed at enhancing their participation in agriculture and allied sectors. One such program, the Mahila Kisan SashaktikaranPariyojana (MKSP), operates under the Ministry of Rural Development, focusing on skill development and capacity-building for rural women. Through MKSP, implemented as part of the Deendayal Antyodaya Yojana-National Rural Livelihoods Mission (DAY-NRLM), women farmers receive training in agricultural techniques, household food security, and nutrition gardening, among other topics. These efforts are crucial for fostering economic independence and sustainable livelihoods among rural women.

Complementing MKSP, the DAY-NRLM scheme conducts training programs facilitated by community resource persons and extension agencies. These sessions cover a wide array of subjects pertinent to rural women, including low-cost diet development, high-nutrient efficiency diet planning, and food processing. Moreover, the involvement of institutions like the ICAR Central Institute for Women in Agriculture in research projects further bolsters women's participation in agriculture by introducing innovative interventions and gender-sensitive extension approaches.

Government schemes such as the Pradhan Mantri Kaushal Vikas Yojana (PMKVY) and the Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY) provide short-duration skill training programs and placement-linked skill development opportunities, respectively, for rural youth and women. These initiatives, coupled with community-centric efforts like the Mahila Shakti Kendra (MSK), which focuses on community participation and awareness-raising initiatives, underscore the multifaceted approach adopted by the government to empower rural women across India. Furthermore, specialized programs like the Biotech-Krishi Innovation Science Application Network (Biotech-KISAN) cater to the unique needs of women farmers,



especially those in the northeast region, by providing access to innovative agricultural technologies and scientific solutions. Through these concerted efforts, the government aims to facilitate holistic empowerment, economic self-reliance, and improved well-being for rural women in India.

Gender Issues

Women's indispensable contribution to agriculture, whether in subsistence farming or commercial ventures, is often undervalued and overlooked, despite their significantly greater involvement in tasks and time spent compared to men. A micro-study conducted in the Indian Himalayas starkly illustrates this reality, revealing those women on a one-hectare farm work substantially more hours than men or even pairs of bullocks. While men typically engage in operations involving machinery and animals, women rely solely on manual labor, leading to both overwork and the perception of their work as unskilled and less productive. Consequently, despite their labor-intensive efforts, women are often paid less than men, rendering their contributions invisible and perpetuating gender disparities in agricultural labor.

Women's limited access to critical resources further compounds their marginalization within the agricultural sector. Land ownership remains heavily skewed towards men, with less than 2percent of land owned by women, despite the increasing prevalence of female-headed households. Land reforms and communal land holding practices often fail to recognize women's rights to joint land ownership or their existence as heads of households, further exacerbating gender inequalities in land access.

Women face barriers in accessing agricultural inputs such as improved seeds, fertilizers, and pesticides, as they are frequently excluded from extension services and lack the financial resources to purchase inputs, even when subsidized. Furthermore, their access to education, training, and extension services is severely limited, with only a small fraction of extension services targeted towards rural women, and a disproportionately low number of women serving as extension agents. This lack of access hampers women's ability to adopt modern agricultural



practices and technologies, further perpetuating their exclusion from agricultural development initiatives. Addressing these systemic barriers to women's participation and access to resources is essential for achieving gender equality and enhancing the productivity and sustainability of agricultural systems.

Developmental Initiatives

Developmental initiatives aimed at incorporating gender issues into the agricultural development agenda have been implemented by the Department of Agriculture, ensuring the full and equitable participation of women in agricultural programs. Special schemes and programs have been introduced to provide comprehensive support to women farmers, including training, extension services, access to inputs, managerial support, and entrepreneurial assistance. These initiatives employ various approaches, such as skill-based capacity building exercises and the establishment of forums like "Mahila-Goshties" to facilitate technical backstopping and extension support for women farmers.

Despite the success of the Green Revolution in increasing crop yields and aggregate food supply, its benefits have not necessarily reached the lower strata of rural poor, including women. Hence, there is a pressing need for a gender-friendly second green revolution that ensures the inclusion and empowerment of women in agricultural development efforts.

Administrative reforms are essential to accelerate the process of gender mainstreaming in agriculture. Collaboration between the government and NGOs is crucial in implementing these reforms. Measures such as granting full and equal rights to women in land and property ownership, recording women's unpaid work and contributions in national accounts, providing appropriate technologies that utilize locally available materials, and revising legislation to ensure equal pay for work of equal value and improve working conditions are imperative. Additionally, increasing the number of female extension functionaries and agricultural researchers is essential to promote gender equality and empower women in agriculture.



Technology-Driven Strategies for Gender-Inclusive Agricultural Policies

Efforts to enhance the role of women in agriculture encompass a wide range of strategies aimed at improving their access to resources, skills, and technologies. One key aspect of these efforts is the development of improved farm and home technologies tailored to the needs of women. Research initiatives should prioritize the standardization of technologies for energy, cost, and time efficiency, while also incorporating indigenous knowledge. These technologies, such as seed treatment drums and pedal-operated threshers, have the potential to significantly enhance women's productivity and comfort in agricultural activities. Additionally, counselling and vocational training programs play a crucial role in empowering women in agriculture by providing them with the necessary knowledge and skills to engage in diverse agricultural enterprises.

Another important aspect of empowering women in agriculture is the organization of women's groups for production purposes. These groups foster collaboration and provide opportunities for entrepreneurial development, further empowering women in the agricultural sector. Safety precautions and occupational health awareness are also vital components of training programs to ensure the well-being of women engaged in agricultural activities. Furthermore, screening and documentation of women-specific technologies help identify and promote innovations that contribute to women's empowerment and employment in agriculture, thereby driving sustainable development in rural communities.

Supporting women's cooperatives and NGOs is vital for enhancing the participation of women in agriculture and promoting gender equality in rural communities. Recognizing and providing technical assistance to successful NGOs can bolster their capacity to empower women farmers and advocate for their rights. Establishing information shops in areas where women's programs are implemented ensures continuous learning and knowledge sharing, facilitating the adoption of best practices and innovative approaches. Advocacy efforts should prioritize policy reforms aimed at addressing systemic barriers to women's participation in agriculture, such as



securing land rights through tree pattas and promoting gender equity evaluation in research institutes.

The role of women in agriculture should also prioritize the development of databases and networking platforms to centralize information on publications, professional women in agriculture, and the activities and roles of farm women. Facilitating networking and awareness creation among organizations involved in agriculture and women's empowerment can foster collaboration and knowledge sharing. Furthermore, promoting environmentally friendly concepts such as natural and organic farming, which are traditionally practiced by farm women, is essential for promoting sustainable agriculture. Publications on gender issues and women-specific technologies should be promoted to sensitize stakeholders at both national and international levels, while modern technologies and concepts should be effectively communicated through traditional media channels that resonate with farm women. Organizing information-sharing events such as Mahila gosthis, farm women days, melas, and exhibitions can serve as platforms to disseminate information, gather direct feedback, and introduce modern technologies and concepts to farm women. Additionally, technology development and transfer should adopt a participatory approach, emphasizing action research and demonstration-oriented programs to ensure the active involvement and empowerment of women in agricultural practices.

Conclusion

To foster a gender-friendly policy environment, one of the most critical issues that demands attention is the significant gap between land control and ownership, particularly in addressing patriarchal norms and legal barriers entrenched in existing legislations. This is essential for promoting economic gender equality, a fundamental principle enshrined in Article 14 of the Indian Constitution. The prevailing neoclassical economic paradigm has exacerbated challenges for women, hindering their access to higher-quality and better-paying employment opportunities while perpetuating inequities in unpaid care responsibilities. Furthermore, it has constrained women's influence and decision-making power within economic spheres. To address



these systemic inequalities and promote women's economic emancipation, there is a pressing need for a shift towards a human economy that prioritizes the well-being and empowerment of both men and women alike. Such an approach is vital for achieving sustainable and inclusive economic development that benefits all members of society.

As demonstrated earlier, women's contribution to agriculture in the developing world is indispensable, with their labor forming the backbone of agricultural activities. Despite this crucial role, women's work in agriculture often remains misunderstood, undervalued, and marginalized due to entrenched gender norms prevalent in their homes and communities. Gender dynamics permeate every aspect of daily life, shaping women's access to resources, decision-making power, and recognition for their contributions.

Recognizing the centrality of gender in agricultural development is paramount. Failure to address gender disparities risks perpetuating existing inequalities and hindering overall development efforts. Gender considerations must be integrated into social institutions and structures, including policies, laws, markets, and public agencies, to ensure that women's needs, perspectives, and rights are adequately addressed.

Efforts to enhance the efficiency of resource use, promote equality, and empower women in agriculture are inherently complex due to the multifaceted nature of gender dynamics. These efforts require comprehensive approaches that go beyond token gestures and address the underlying structural barriers that perpetuate gender inequality.

Empowering women in agriculture involves not only providing them with access to resources and opportunities but also challenging deep-seated cultural and societal norms that limit their potential. This requires transformative change at both the individual and institutional levels, including promoting women's leadership, enhancing their access to education and training, and creating supportive policy environments that prioritize gender equality.



Ultimately, gender equality in agriculture is not just a moral imperative but also a strategic imperative for sustainable development. By harnessing the full potential of women in agriculture, societies can unlock significant economic, social, and environmental benefits, leading to more inclusive and resilient agricultural systems.

Reference

1. Foundation on Future Farming. (2020, April 8). Women in Agriculture. Retrieved from <https://www.globalAgriculture.org/report-topics/women-inAgriculture.html>.
2. Joshi, A., & Kalauni, D. (2018). Gender role in vegetable production in rural farming system of Kanchanpur, Nepal. *SAARC Journal of Agriculture*, 16(2), 109-118.
3. Cruz, P., et al. (2016). Social Innovation as a tool for enhancing women resilience to climate change: a look at the BRICS. *BPC Papers*, V.4 N.03, May-August 2016.
4. Srivastava, N., & Srivastava, R. (2010). Women, Work, and Employment Outcomes in Rural India. *Economic and Political Weekly*, 45(28), 49-63.
5. Gill, M., & Wallenstein, A. (2019). Making infrastructure work for both women and men. Retrieved from <https://blogs.worldbank.org/voices/making-infrastructure-work-both-womenand-men>.
6. Reddy, A., & Rani, H. (1982). Role of Women in Rural Development. *Social Scientist*, 10(6), 51-57.
7. Chayal, K., & Dhaka, B. L. (2016). Analysis of role performance of women in farm activities. *Indian Research Journal of Extension Education*, 10(2), 109-112.
8. ForamIAS. (2021, January 4). Gender based inequality in agriculture sector in India. Retrieved from <https://www.foramias.com/gender-based-inequality-in-agriculture-sector-in-india/>
9. Singh, K. M., Meena, M. S., Kumar, A., & Singh, R. K. P. (2017). An Overview of Gender Issues in Agriculture. *SSRN Electronic Journal*, 9, 1-10.
10. Logeswari, & Thiruchenduran. (2016). Empowerment of women farmers for agricultural development. *Imperial Journal of Interdisciplinary Research*, 2, 990-992.



11. Ministry of Science & Technology. (2021, June 19). DBT Issues a Special Call under Biotech KISAN Programme for improving Agriculture Productivity in the North East Region [Press release]. Retrieved from <https://pib.gov.in/PressReleasePage.aspx?PRID=1728507>
12. Poats, S. V., Schminck, M., & Spring, A. (1988). Gender issues in farming systems research and extension. Boulder: Westview Press.
13. Sakamma, & Umesh, K. B. (2018). Gender issues in Indian agriculture: An overview. Indian Journal of Economic Development, 6, 1-6.
14. Yemisi, I. O., & Mukhtar, A. A. (2009). Gender issues in agriculture rural development in Nigeria- the role of women. Humanity And Social Sciences Journal, 4, 19-30.