2026 Volume: 02 Issue: 01 www.ijrpa.com ISSN 2456-9995 Review Article

International Journal Research Publication Analysis

Page: 01-16

"ROLE OF WOMEN FARMERS IN PROMOTING ECO-FRIENDLY AGRICULTURAL PRACTICES IN MADHYA PRADESH AND RAJASTHAN"

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Article Received: 24 December 2025
Article Revised: 13 January 2026
Published on: 02 February 2026

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DOI: https://doi-doi.org/101555/ijrpa.7284

ABSTRACT

Women constitute a significant proportion of India's agricultural workforce, contributing approximately 80% of rural labour in farming-related activities. However, their contributions in promoting sustainable and eco-friendly agricultural practices remain underrecognized in mainstream discourse. This paper examines the pivotal role of women farmers in advancing ecological agriculture in Madhya Pradesh and Rajasthan, two agrarian states where women-led initiatives are transforming agricultural landscapes. Through a comprehensive analysis of current practices, case studies, government initiatives, and grassroots movements, this research demonstrates that women farmers are not merely participants in agriculture but are emerging as leaders and innovators in promoting organic farming, natural farming, water conservation, and biodiversity preservation. The paper explores the mechanisms through which women farmers adopt and promote eco-friendly practices, the socioeconomic benefits they derive, and the institutional and policy frameworks that support their endeavours. By examining both successes and challenges, this study highlights how empowering women farmers is essential for achieving sustainable agriculture and climate resilience in India.

KEYWORDS: Women farmers, eco-friendly agriculture, organic farming, natural farming, sustainable development, gender and agriculture.

1. INTRODUCTION:

1.1 Background and Context:

India's agricultural sector has historically been dominated by conventional farming practices reliant on chemical fertilizers and synthetic pesticides. While these methods temporarily

increased productivity during the Green Revolution era, they have resulted in severe environmental degradation, soil health deterioration, and sustainability challenges. Approximately 76.95% of rural women in India are engaged in agriculture, with women comprising around 50% of self-employed farmers and 33% of agricultural workers. Despite their substantial labour contribution, women farmers have remained marginalized in decision-making processes and have had limited access to productive resources and modern farming technologies.

In recent years, there has been a paradigm shift toward eco-friendly and sustainable agricultural practices. Women farmers have emerged as crucial catalysts in this transition, particularly in the agrarian states of Madhya Pradesh and Rajasthan. These two states, with their semi-arid to arid climates, water scarcity challenges, and predominantly smallholder farming communities, provide an ideal context for studying how women-led sustainable agriculture can contribute to both environmental conservation and livelihood improvement.

1.2 Significance of the Study:

The promotion of eco-friendly agricultural practices by women farmers carries multiple dimensions of significance. First, it addresses the global concern of environmental sustainability and climate change mitigation. Second, it contributes to food security and nutritional health at household and community levels. Third, it empowers rural women economically and socially, thereby contributing to gender equality. Fourth, it preserves indigenous agricultural knowledge and biodiversity. This study is significant as it provides evidence-based insights into how women's participation in sustainable agriculture can drive transformative change in rural communities.

1.3 Research Objectives:

The primary objectives of this research are to:

- ✓ Identify and analyse the eco-friendly agricultural practices adopted by women farmers in Madhya Pradesh and Rajasthan.
- ✓ Examine the mechanisms and motivations through which women farmers adopt and promote sustainable practices.
- ✓ Assess the socioeconomic and environmental benefits resulting from women-led eco-friendly agriculture.
- ✓ Evaluate government schemes and institutional support systems for women farmers.

- ✓ Identify barriers and challenges faced by women in agriculture and propose recommendations for policy enhancement.

2. Women Farmers in Indian Agriculture: Current Status and Participation:

2.1 Demographic Profile and Labor Participation:

Women's participation in Indian agriculture has undergone significant changes, particularly due to increased male rural-to-urban migration. As per the Periodic Labour Force Survey (PLFS) 2023-24, approximately 76.95% of rural women are engaged in agriculture. The Agriculture Census of 2015-16 revealed that women operate approximately 11.72% of the total cultivated area in the country, though this represents only a marginal increase from 12.78% in 2010-11, increasing to 13.78% by 2015-16.

Women's contribution to agricultural labour is substantial and often undervalued. Studies indicate that during sowing and harvesting seasons, women spend approximately 3,300 hours on fields compared to 1,860 hours spent by men. Women engage in multiple roles as labourers, landowners (though limited), cultivators, agricultural entrepreneurs, and knowledge custodians. However, their work is frequently categorized as supplementary or secondary, despite being essential to agricultural productivity.

2.2 Status of Women Farmers in Madhya Pradesh and Rajasthan:

Madhya Pradesh and Rajasthan represent important agricultural hubs with distinct characteristics. Madhya Pradesh, known for cotton, soybean, and grain production, has been witnessing increased involvement of women in sustainable agriculture through organizations like Bhumisha Organics, which works with over 3,000 farmers across 576 villages in the state. The organization has been instrumental in promoting organic farming and traditional agricultural practices, with a specific focus on empowering women farmers.

Rajasthan, characterized by its semi-arid climate and water scarcity, has seen significant women-led initiatives in sustainable farming. Organizations such as Vaagdhara have been working with women farmers in Banswara and Pratapgarh districts, promoting organic farming and natural pest management techniques. Women in Amlipara village of Banswara district have emerged as models of eco-friendly and self-reliant farming, using no chemical fertilizers, pesticides, or weedicides.

3. Eco-Friendly Agricultural Practices Promoted by Women Farmers:

3.1 Organic and Natural Farming:

Organic farming represents one of the most significant eco-friendly practices adopted by women farmers in the study region. The transition from chemical-based to organic farming involves the use of organic manures, composts, biofertilizers, and crop rotation systems. Women farmers in Madhya Pradesh have shown remarkable commitment to organic farming. Bhumisha Organics reports the production and promotion of diverse organic products including grains, pulses, jaggery, vinegar, rice products, small millets, aloe vera, and spices.

Natural farming, which emphasizes indigenous microbial cultures and minimal external inputs, has also gained traction among women farmers. This approach reduces farmer's dependency on expensive chemical inputs, thereby lowering production costs and increasing profitability. The Regenerative Production Landscape (RPL) Collaborative in Madhya Pradesh targets 1,40,000 farmers through regenerative agriculture practices across nine cotton-growing districts, with explicit emphasis on women's participation.

3.2 Preparation of Organic Inputs and Bio-Resources:

A remarkable innovation among women farmers is the creation of bio-resource centres where women prepare and sell organic inputs. In Madhya Pradesh's Mandla district, a group of ten women led by Siya Maravi operates the Narmada Organic Manure Committee's Bio Resource Centre (BRC). This facility produces organic fertilizers including Jeevamrit (microbial culture), super compost, and vermicompost. The group has sold 48 tons of vermicompost and 9,500 liters of Jeevamrit, enabling farmers across the region to reduce chemical fertilizer dependency.

Women farmers have demonstrated exceptional skill in producing homemade biopesticides using local seeds and agricultural waste. The traditional Dasparni pesticide, made from neem and other local plants, has proven effective in pest management without harming soil health or requiring synthetic inputs. Similarly, women have developed expertise in vermicomposting, azolla cultivation, and other bio-input production techniques.

3.3 Water Conservation and Rainwater Harvesting:

Water scarcity in semi-arid regions of Madhya Pradesh and Rajasthan has made water conservation a critical sustainability concern. Women farmers have pioneered and adopted advanced water management technologies and traditional practices. Organizations like ICRISAT have documented how rainwater harvesting through traditional haveli (tanks) and modern farm ponds have transformed agricultural possibilities in these regions.

In Rajasthan's Udham Singh Nagar and similar regions, women have been trained in water quality testing and have taken leadership roles in water management committees. Women's Climate Leaders (WCLs) in Gujarat have promoted Bhungroo - a locally developed rainwater management technology that protects crops from waterlogging during monsoons while ensuring adequate irrigation during dry seasons. Each Bhungroo unit can conserve 1-4 million Liters of runoff water and irrigate 22+ acres annually.

Through improved water management practices, women farmers in drought-prone regions have increased crop productivity by 20-80%. The restoration of over 300 traditional waterbodies in Madhya Pradesh through community participation has directly enhanced women's capacity to sustain year-round cultivation.

3.4 Biodiversity Conservation and Seed Saving:

Women farmers serve as custodians of agricultural biodiversity. Seed-saving movements led by women in Chhattisgarh and Odisha have revitalized traditional varieties of rice, brinjal, and millet that are drought-resistant, pest-tolerant, and nutritionally superior. In West Bengal's Jhargram district, women organic cultivators like Panchabati Bask and Nirmala Mahato have established rice seed banks preserving indigenous varieties including Kalabhat, Sathia, Kerala Sundari, and Mallifullo.

These women-led seed systems serve multiple functions, they preserve genetic diversity, reduce dependency on commercial seed markets, enhance food security, and strengthen climate resilience. Organizations like Navdanya have documented how women-led seed networks support biodiversity conservation and shield rural communities from commercial seed dependency risks.

3.5 Crop Diversification and Agroforestry:

Women farmers have promoted crop diversification as a strategy for income stability and nutritional security. Rather than monoculture, women-led farms increasingly feature poly-crops including vegetables, legumes, cereals, fruits, and fodder crops. This diversification reduces pest and disease pressure, improves soil health, and enhances household nutrition.

Agroforestry systems, combining trees with crop cultivation, have been adopted by women farmers to improve soil fertility, carbon sequestration, and income generation. Kitchen gardens and community farms, often initiated and managed by women, have evolved into significant livelihood sources and sources of nutritional security.

4. Socioeconomic Impacts and Benefits:

4.1 Income Enhancement and Economic Empowerment:

The adoption of eco-friendly agricultural practices has resulted in substantial income improvements for women farmers. The SEWA-supported maize farming initiative in Maharashtra documented a yield increase from 22 quintals per acre to 35 quintals per acre through sustainable cultivation methods. Women farmers achieved prices of ₹2,200 per quintal (approximately USD 25) compared to the market rate of ₹2,100, generating additional earnings of ₹100 per quintal.

In Rajasthan, women farmers transitioning to organic farming have reported income increases of 980% in some cases. Anita Damor's watermelon cultivation expanded tenfold in her village, resulting in her income jumping from ₹26,100 to ₹2.8 lakh within three years. Similarly, women engaged in vermicompost and organic input production in Madhya Pradesh have generated supplementary incomes that strengthen household food security and enable investment in education and health.

Market linkages facilitated through collective action have enhanced women's bargaining power. By showcasing their use of natural fertilizers and homemade biopesticides, women farmers have successfully negotiated premium prices for their produce, thereby improving profit margins and economic sustainability.

4.2 Cost Reduction and Improved Agricultural Efficiency:

A significant benefit of eco-friendly agriculture is the reduction in input costs. By eliminating dependency on chemical fertilizers and pesticides, women farmers save between ₹4,000 to ₹5,000 per bigha annually. These savings represent approximately 40-50% of production costs in conventional farming systems.

Collective procurement practices adopted by women's groups enable bulk purchasing of seeds and organic inputs at lower prices, further reducing costs. The labour efficiency improvements through mechanization support and shared resources within women's collectives reduce drudgery and operational expenses.

4.3 Food Security and Nutritional Improvements:

Eco-friendly agriculture promoted by women farmers has enhanced household food security and nutritional outcomes. Diversified cropping systems ensure year-round availability of nutritious food at the household level. Women's focus on food crops and nutritionally dense crops like millets, pulses, and vegetables contrasts with conventional system's emphasis on cash crops.

The cultivation of indigenous crop varieties conserved by women farmers provides enhanced nutritional profiles and micronutrients compared to modern high-yielding varieties. Improved food security has enabled families to redirect resources to education and health services.

4.4 Drudgery Reduction and Time Allocation:

Water conservation technologies have dramatically reduced women's water collection burden. Traditional water collection requiring women to carry heavy loads across long distances has been replaced with access to bore wells, hand pumps, and farm ponds. ICRISAT studies documented that women no longer need to migrate seasonally for wage labour in cities when water availability enables year-round cultivation.

Labor-saving technologies, including improved tools, drip irrigation systems, and mechanized processes, have reduced physical drudgery while enabling women to allocate time to productive activities and household responsibilities more efficiently.

5. Government Schemes and Institutional Support:

5.1 Mahila Kisan Sashaktikaran Pariyojana (MKSP):

The Mahila Kisan Sashaktikaran Pariyojana, implemented since 2011 as a subcomponent of the Deendayal Antyodaya Yojana-National Rural Livelihoods Mission (DAY-NRLM), represents the primary government initiative dedicated to women farmer empowerment. As of the latest reports, MKSP has supported approximately 1.44 crore (14.4 million) women farmers across the country, with 38 lakh women trained in sustainable agricultural practices.

MKSP focuses on enhancing productive participation of women in agriculture, creating sustainable agricultural livelihood opportunities, improving skills and capabilities, ensuring food security, facilitating access to government inputs and services, and building managerial capacities for biodiversity management. The scheme operates through State Rural Livelihoods Missions, establishing community resource persons (Krishi Sakhi) who provide field-level extension services and knowledge dissemination.

5.2 Other Government Schemes Supporting Women Farmers:

The Department of Agriculture and Farmers Welfare has mandated that at least 30% of funds under various schemes be allocated to women farmers. Key schemes include:

Per Drop More Crop (PDMC) and Rainfed Area Development (RAD): These schemes focus on micro-irrigation (drip and sprinkler systems) and integrated farming systems, directly benefiting women farmers in water-scarce regions of Madhya Pradesh and Rajasthan.

Namo Drone Didi Scheme: Implemented from 2023-24 to 2025-26 with an outlay of ₹1,261 crores, this scheme provides drones to 15,000 women self-help groups to offer rental drone

services for fertilizer and pesticide application. Women SHGs receive 80% central financial assistance up to ₹8 lakh per drone.

Pradhan Mantri Kisan Samman Nidhi (PM-KISAN): This scheme provides ₹6,000 per year to all landholding farmer families, including women farmers, enabling them to cover agricultural and domestic expenses.

Rashtriya Krishi Vikas Yojana (RKVY-RAFTAAR): This umbrella scheme provides flexible funding to states for seed hubs, custom hiring centres, and agri-incubators, with 30% of funds reserved for women farmers and entrepreneurs.

5.3 State-Specific Initiatives in Madhya Pradesh and Rajasthan:

In Madhya Pradesh, the state government has implemented programs through organizations like CARD (Chhattisgarh Anchal Samaj Sewa Samiti) under the Mahila Kisan Sashaktikaran Pariyojana. The Sensible Farmer Responsible Farming program supports adoption of sustainable agriculture best practices, with specific training programs for female farmers on advanced agricultural techniques.

Rajasthan has prioritized women farmer training through organizations like Vaagdhara and Spectra. Training programs covering field preparation, seed selection, natural fertilizer preparation, and drip irrigation have reached 2,338 farmers in Rajasthan, with 211 trained in vegetable cultivation using water-efficient irrigation methods.

6. Case Studies: Exemplars of Women-Led Sustainable Agriculture:

6.1 Anita Damor: Pioneering Eco-Friendly Farming in Rajasthan:

Anita Damor, a farmer from Amlipara village in Rajasthan's Banswara district, exemplifies the transformative potential of women-led sustainable farming. Her approach combines organic manure preparation using on-farm resources with natural pest management using traditional methods. By avoiding chemical fertilizers, pesticides, and weedicides, Anita has maintained soil health while improving productivity.

Her income increased from ₹26,100 to ₹2.8 lakh within three years through watermelon cultivation using sustainable methods. Her success catalysed community-wide adoption, with watermelon cultivation expanding tenfold in the village. Anita's initiative demonstrates how individual women farmers can serve as catalysts for community-level transformation toward sustainable agriculture.

6.2 Siya Maravi's Bio Resource Centre in Madhya Pradesh:

Siya Maravi leads the Narmada Organic Manure Committee in Madhya Pradesh's Mandla district, where ten women operate a Bio Resource Centre producing organic inputs. The most

innovative achievement is a solar-operated automated Jeevamrit unit capable of producing 2,000 Liters of organic input in four days. The group has produced and sold 48 tons of vermicompost and 9,500 Liters of Jeevamrit, enabling hundreds of farmers to transition to chemical-free farming.

This initiative demonstrates how women can become producers and suppliers of critical agricultural inputs, creating employment, generating income, and simultaneously promoting ecosystem health and sustainable agriculture across their region.

6.3 Women's Collectives in Vaagdhara's Rajasthan Program:

In Ghatol and Pipalkhoont areas of Rajasthan, the organization Vaagdhara supports women's groups in adopting traditional organic farming methods. Women in the Saksham Samooh have increased incomes while reducing market dependency through on-farm preparation of organic pesticides, vermicompost, and natural fertilizers.

The use of traditional Dasparni pesticide has eliminated the need for synthetic inputs while maintaining soil moisture and health. This approach demonstrates how revival of indigenous knowledge systems, combined with modern understanding of agroecology, creates sustainable and profitable agriculture.

7. Challenges and Barriers to Women Farmers in Eco-Friendly Agriculture:

7.1 Land Ownership and Control:

A fundamental barrier limiting women farmer's ability to adopt and promote eco-friendly practices is limited land ownership and control. While 11.72% of operated agricultural area is managed by women, only 60% of surveyed plots had formal title deeds, with 25% lacking any documentation and remaining plots held under informal documents without official authority.

Legal land rights are essential for accessing agricultural credit, implementing long-term sustainable practices, and securing investment returns. The slow growth in female-operated landholdings (from 12.78% in 2010-11 to 13.78% in 2015-16) indicates insufficient progress despite increased feminization of agriculture.

7.2 Limited Access to Credit and Financial Resources:

Women farmers face systematic barriers in accessing agricultural credit and subsidies. Banks often prioritize male farmers or require land ownership documentation that women frequently lack. This limits women's ability to invest in sustainable agriculture infrastructure, organic input production units, and improved technologies.

While government schemes like PM-KISAN and interest subvention schemes exist, their implementation often favours those with established land documentation and social networks, which disadvantage many women farmers.

7.3 Restricted Access to Agricultural Technology and Information:

Agricultural technology remains male-dominated, with many farming communities maintaining cultural taboos against women using particular tools or implements. The male monopoly over the plough, for instance, restricts women's independence in farming. This technological gender gap limits women's capacity for intensive agriculture and independent farm management.

Extension services and agricultural information systems have historically been oriented toward male farmers, creating information asymmetries that disadvantage women. While this is improving through digital platforms and women extension workers, gaps remain in many regions.

7.4 Mobility Restrictions and Time Poverty:

Social norms and household responsibilities restrict women's mobility, limiting their ability to attend training programs, access markets, and participate in farmer networks. The triple burden of productive agriculture, domestic work, and community responsibilities constrains women's capacity to engage in extensive sustainable farming transitions.

Gender-assigned care responsibilities, including water and fuel collection, childcare, and household food preparation, consume time and energy that could otherwise be allocated to farm management and income-generating activities.

7.5 Inadequate Government Support and Policy Implementation:

While government schemes exist, their implementation often lacks gender sensitivity. Training programs assume women already possess decision-making authority in agriculture, neglecting the prerequisite step of securing land ownership. Gender audits of major schemes like MKSP and CMNF reveal implementation gaps and inconsistent benefit distribution.

Policy emphasis on secondary interventions (training and skill development) without securing women's land rights and decision-making power limits the transformative potential of government programs.

8. Environmental and Sustainability Benefits:

8.1 Soil Health Improvement and Carbon Sequestration:

Eco-friendly agricultural practices promoted by women farmers significantly enhance soil health. Systematic research shows that organic farming practices increase soil organic matter

by 15-25%, increase microbial biomass by 20-40%, and improve aggregate stability and nutrient cycling. These improvements result in enhanced carbon sequestration, contributing to climate change mitigation.

Women's practices of composting, residue management, and crop rotation rebuild degraded soils, restoring productivity to areas previously considered permanent fallows or seasonal fallows. Increased soil organic matter improves water retention capacity, enabling agriculture under water-stressed conditions-critical for climate adaptation in semi-arid regions.

8.2 Biodiversity Conservation:

Women farmer's commitment to crop diversification and seed saving preserves agricultural biodiversity. Women-led seed banks maintain crop genetic diversity that provides resilience to climate variability and pest pressures. Traditional crop varieties maintained by women farmers often possess superior drought tolerance, pest resistance, and nutritional profiles compared to high-yielding modern varieties.

Indigenous crop systems managed by women support associated biodiversity of beneficial insects, soil microorganisms, and wild plants, creating resilient agroecosystems. This biodiversity conservation contributes to ecosystem services including pollination, pest control, and nutrient cycling.

8.3 Water Resource Protection and Conservation:

Women-led water conservation initiatives protect groundwater resources and reduce extraction pressures on aquifers. Rainwater harvesting structures constructed through women's initiatives recharge groundwater and increase water table levels by 2-10 meters in some regions. Improved irrigation efficiency through drip systems reduces water consumption by 40-60% compared to conventional flood irrigation.

Women's participation in water management governance ensures community-level decisions prioritize sustainable use and equitable allocation, protecting water resources for long-term sustainability.

8.4 Climate Resilience and Adaptation:

Agroecological practices promoted by women farmers enhance climate resilience through diversified income sources, improved soil water retention, and reduced dependency on external inputs. Women's indigenous knowledge about local crop varieties, water sources, and resource management enables rapid adaptation to climate variability.

The transition from water-intensive, chemically dependent monocultures to diversified, organic systems reduce vulnerability to drought, flood, and pest outbreaks exacerbated by

climate change. Women farmer's collective action and social capital strengthen community-level resilience to climate shocks.

9. DISCUSSION AND ANALYSIS:

Multiple factors explain women farmer's prominent role in advancing eco-friendly agriculture. First, gender socialization and household responsibilities align women's interests with food security, water availability, and environmental health motivations that drive sustainable farming adoption. Second, women's traditional roles as custodians of natural resources and repositories of indigenous knowledge position them as natural leaders in agroecological transitions.

Third, women farmers often work within economic constraints that favour sustainable practices. Limited access to credit restricts capital-intensive conventional farming, making lower-cost organic and natural farming approaches economically rational. Fourth, women's social networks and collective action capabilities enable peer learning, knowledge sharing, and mutual support that accelerate sustainable practice adoption.

Fifth, women's farm management decisions often prioritize household nutrition and livelihood stability over short-term profit maximization, encouraging diversified sustainable systems. Research indicates that when women farm together, profitability is higher compared to family farming where decisions are made predominantly by men.

While individual success stories and localized initiatives are inspiring, scaling these models to reach millions of women farmers presents significant challenges and opportunities. Organizations like SEWA, Vaagdhara, and Bhumisha Organics demonstrate that systematic scaling is possible when supported by institutional capacity, government integration, and market linkages.

The Mahila Kisan Sashaktikaran Pariyojana's reach of 1.44 crore women farmers indicates that government-led programs can achieve substantial scale. However, quality of implementation, sustained support, and integration with land rights and decision-making power remain critical gaps.

Decentralized models where women train other women through internal community resource persons and farmer field schools enable organic scaling without requiring massive government infrastructure expansion. This peer-to-peer knowledge dissemination has proven effective in spreading sustainable practices across communities.

The success of women farmers in sustainable agriculture depends increasingly on their access to remunerative markets. While case studies show women can obtain premium prices for

organic produce, many women farmers lack consistent market access, market information, and the bargaining power to negotiate favourable prices.

Producer organizations, collective marketing platforms, and e-commerce linkages present opportunities to connect women farmers directly with consumers, reducing intermediation and increasing value capture. Government support for forming and strengthening farmer producer companies (FPCs) and producer groups benefits women when explicitly designed with gender-inclusive governance.

Value-added activities, processing, packaging, and branding enable women to increase income per unit of raw material while capturing greater share of the value chain. Successful examples of women-led food processing units, herbal products, and agricultural input production demonstrate viable pathways for rural income generation and entrepreneurship.

10. CONCLUSIONS AND RECOMMENDATIONS:

This research demonstrates that women farmers in Madhya Pradesh and Rajasthan are not merely adopters of eco-friendly agriculture but are emerging as innovators and leaders driving agricultural sustainability. Through organic farming, natural farming, water conservation, biodiversity preservation, and crop diversification, women farmers are simultaneously improving livelihoods, enhancing food security, and protecting environmental resources.

The socioeconomic benefits of women-led sustainable agriculture are substantial, with documented income increases of up to 980% and annual income improvements of ₹50,000-₹1,00,000 at household levels. Cost reductions of 40-50% through elimination of chemical input dependency enhance economic sustainability and reduce environmental externalities.

Government schemes, particularly MKSP, have reached millions of women farmers, though implementation quality and gender-sensitive design require strengthening. Civil society organizations have pioneered models demonstrating scalability and replicability of women-led sustainable agriculture.

Environmental benefits including soil health improvement, biodiversity conservation, water resource protection, and enhanced climate resilience validate the sustainability claims of women-led agroecological systems.

10.1 Policy Recommendations:

1. Secure Land Rights for Women: Accelerate implementation of land title reforms, ensuring joint titles for married women and promoting women's independent land ownership. Link all agricultural schemes and credit programs to formal land documentation in women's names.

2. Strengthen MKSP Implementation: Increase budgetary allocation to MKSP, conduct gender audits of implementation quality, and ensure integration with land rights and market access components.

3. Establish National Mission on Feminist Agroecology: Create a dedicated national program modelled after successful state initiatives like Andhra Pradesh's Community-Managed Natural Farming, with specific targets for women's participation and leadership.

4. Expand Financial Inclusion: Establish dedicated agricultural credit lines for women farmers with reduced collateral requirements, interest subventions, and gender-sensitive loan appraisal processes.

5. Strengthen Extension Services: Train and deploy female agricultural extension workers, develop women-focused extension materials, and establish farmer field schools prioritizing women farmers.

6. Support Women-Led Producer Organizations: Provide targeted capacity building and financial support for women to form and lead farmer producer companies, self-help groups, and agricultural collectives.

7. Invest in Market Linkages: Facilitate connections between women farmers and institutional buyers (government procurement, schools, hospitals), e-commerce platforms, and organic certification bodies.

8. Promote Indigenous Knowledge Documentation: Support women-led initiatives documenting traditional agricultural practices, seed varieties, and natural resource management techniques for wider dissemination.

9. Conduct Gender-Disaggregated Data Collection: Implement regular gender-disaggregated data collection on agricultural practices, productivity, and incomes to enable evidence-based policy making.

10. Address Social Norms and Gender Relations: Integrate gender sensitization and masculinity programs in agricultural training and extension services to address restrictive gender norms limiting women's autonomy.

Women farmers in Madhya Pradesh and Rajasthan are demonstrating that ecological agriculture is not merely an environmental imperative but a viable, profitable, and empowering livelihood pathway. Their innovations in sustainable farming, water conservation, and agribusiness offer models that, if systematically supported and scaled, can contribute substantially to India's goals of sustainable agriculture, climate action, and rural prosperity.

Empowering women farmers requires moving beyond supplementary support programs to fundamental structural changes including land rights, decision-making authority, access to credit, and market systems. When women farmers are empowered as agents and leaders in agriculture not merely as beneficiaries of government programs, they catalyse transformations that benefit not only themselves and their families but entire communities and ecosystems.

The evidence presented in this paper suggests that recognizing, supporting, and amplifying the role of women farmers in promoting eco-friendly agriculture is essential for achieving sustainable development goals while advancing gender equality and rural prosperity in India.

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