

Transformative Change for Women Farmers in Sambalpur: ORMAS's Role in Enhancing Socio-Economic Empowerment

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Abstract - The agricultural sector in India, predominantly sustained by smallholder farmers, has increasingly focused on empowering women to drive rural economic growth and sustained social transformation. However, persistent challenges include limited access to land, finance, and markets, alongside gender norms that further restrict women farmers' economic potential. In response, ORMAS has implemented several initiatives in the Sambalpur district to enhance the socio-economic status of women farmers by focusing on skill development, entrepreneurial training, and institutional support through Farmer Producer Organizations (FPOs) and self-help groups (SHGs). This study examines the transformative impact of the Odisha Rural Development and Marketing Society's (ORMAS) interventions on the chilli value chain in Sambalpur. It focuses on empowering rural women through FPOs, identifies ongoing challenges limiting their growth, and proposes strategies to strengthen these interventions for sustainable development. Additionally, it explores how ORMAS's initiatives contribute to reshaping traditional gender roles and promoting inclusive community development. Using a mixed-methods approach, the study draws on both qualitative data from field observations and interviews with women farmers, as well as secondary sources detailing ORMAS's ongoing projects. ORMAS's interventions have led to notable improvements in women's participation in agricultural entrepreneurship, enabling them to diversify their income through value-added products and promoting greater social recognition. The establishment of FPOs and improved market linkages have empowered women with collective bargaining power and access to new markets. Results indicate a significant increase in household income and yield per hectare, attributable to enhanced access to quality inputs, training in sustainable agricultural practices, and direct market linkages with corporate buyers like Bharat Masala. However, challenges such as limited access to land, credit, and leadership roles in community institutions persist, affecting women's ability to fully maximize these opportunities. The study underscores the importance of building social capital, adopting gender-sensitive policy environments, and forming strategic partnerships. These actions are crucial for empowering women as agents of change within broader rural development frameworks and for the continued success of ORMAS's initiatives.

Keywords: Women Empowerment, Farmer Producer Organizations (FPOs), Chilli Value Chain, Socio-Economic Development, Rural Entrepreneurship

I. INTRODUCTION

Rural women in Odisha face significant socio-economic challenges. Traditionally, they have been marginalized in the labor market, confined to roles within subsistence agriculture or informal sectors with low income and minimal opportunities for economic advancement. In addition, they have limited access to education, health care, and decision-making roles within their communities. Studies show that women's participation in agriculture is high; yet, their involvement in commercial and profitable sectors remains low, often restricted by socio-cultural norms and limited access to resources. The state's rural economy largely depends on agriculture, and women contribute significantly, particularly in labor-intensive crops such as paddy, vegetables, and spices. Despite their crucial role, they often lack ownership of productive assets, and their contributions are undervalued (Agarwal, 2018).

The Odisha Rural Development and Marketing Society (ORMAS) was established as a state-level organization with the mission to enhance the socio-economic status of rural communities through sustainable livelihood promotion. ORMAS has focused on integrating smallholder farmers, especially women, into the formal market economy by building capacity, forming Farmer Producer Organizations (FPOs), and establishing direct marketing linkages. The rationale behind the chilli value chain initiative in the Sambalpur district is to address existing gaps in market access and income opportunities for rural women. By empowering women to participate actively in the chilli market, ORMAS aims to elevate their socio-economic status, promote gender equity, and enhance household incomes. The initiative also seeks to reduce dependency on middlemen, ensuring fair pricing and better returns for women farmers (NABARD, 2021).

This case study is significant because it highlights a successful model of rural development and women's empowerment by creating market linkages in the chilli industry. The objectives of the case study are to:

1. Assess the impact of ORMAS's interventions on the economic and social status of rural women involved in chilli farming in Sambalpur;
2. Analyze the effectiveness of forming FPOs and direct market linkages in increasing income and reducing price volatility for women farmers; and
3. Document the challenges faced during the implementation of this initiative and suggest strategies for overcoming these obstacles.

A. Overview of the Chilli Industry's Potential in Sambalpur

The chilli industry in the Sambalpur district holds significant potential due to favorable agro-climatic conditions and a traditional knowledge base among local farmers. Chilli, as a high-value cash crop, offers substantial income opportunities, particularly compared to staple crops like paddy. Prior to ORMAS's intervention, the industry faced challenges such as poor quality control, lack of access to quality inputs, and limited market connectivity. By establishing structured market linkages and improving production practices, the initiative has enabled women farmers to tap into premium markets and increase their profit margins. The successful integration of rural women into this commercial value chain has also contributed to broader social transformations, including enhanced financial independence and leadership roles within their communities (Kumar *et al.*, 2019).

II. METHODOLOGY

This study utilized a mixed-methods approach, combining both qualitative and quantitative research techniques to assess the impact of ORMAS's interventions on women farmers in the Kuchinda and Bamra blocks of Sambalpur district, Odisha. The quantitative component focused on collecting and analyzing data related to income levels,

productivity, and market access before and after the implementation of the initiative. Data was gathered through structured surveys, providing a comprehensive view of the economic outcomes associated with the project. The qualitative component, including in-depth interviews, focus group discussions, and field observations, was employed to gain insights into the socio-cultural changes experienced by the women participants, their perceptions of empowerment, and the challenges they faced during the transition from subsistence to commercial farming. This combined approach enabled a holistic understanding of the initiative's impact, balancing statistical evidence with personal narratives and experiences (Creswell & Plano Clark, 2017).

A. Data Collection Techniques

Structured interviews were conducted with 200 women farmers to gather detailed information on their experiences and the tangible benefits of participating in the ORMAS initiative. The interviews explored changes in agricultural practices, decision-making roles within households, and overall perceptions of economic empowerment. Surveys provided quantitative data on household income, productivity rates, and access to agricultural resources before and after ORMAS's intervention. These surveys also evaluated the effectiveness of training programs and market linkages established through the initiative. Focus group discussions (FGDs) facilitated a deeper exploration of shared experiences and community dynamics. Each group consisted of 8 to 10 women farmers, with discussions focusing on topics such as leadership roles, changes in gender norms, and the impact of economic gains on family well-being. Field observations by researchers allowed for real-time validation of the self-reported data and a better understanding of the practical challenges women face in adopting new agricultural practices and engaging in market activities.

TABLE I DEMOGRAPHIC AND SOCIO-ECONOMIC PROFILE OF THE RESPONDENTS

Category	Sub-Category	Percentage
Age	15-20	4%
	20-25	18%
	25-30	47%
	30 and above	31%
Education	Below Matric	18%
	Matric	26%
	Intermediate	42%
	Graduate and above	14%
Primary Occupation	Farming	74%
	Business	19%
	Others	7%
Chilli Farming Duration	6-7 months	74%
	3-4 months (rice)	-
	3 months (vegetables)	-
Involvement in FPOs	Active members in FPOs	80%
	Inactive members in FPOs	20%

Source: Computed

B. Profile of Participants

The participants of the study were primarily women farmers actively involved in chilli cultivation. Their demographic profile varied across different age groups, educational backgrounds, and primary occupations, reflecting the diversity of rural women in the region. The age distribution of the respondents was as follows: 4% were in the 15-20 age group, 18% were aged 20-25, 47% were aged 25-30, and 31% were above 30 years old.

Regarding education, 18% had not completed high school (under matric), 26% had completed matriculation (high school), 42% had attained an intermediate education level, and 14% were graduates or had higher qualifications. These educational levels highlight the varying degrees of access to formal education among rural women, a crucial factor influencing their participation in economic activities.

Regarding their primary occupations, 74% of the participants were engaged in farming, dedicating 6-7 months annually to chilli cultivation and growing rice and vegetables during other periods. About 19% of the women were involved in business activities, such as operating petty shops or engaging in local sales, while 7% were classified as inactive members, indicating limited economic engagement. The duration of engagement in chilli farming was typically around 6-7 months per year, with additional time allocated to rice cultivation (3-4 months) and vegetable farming (3 months), demonstrating the participants' adaptive strategies for managing seasonal agricultural cycles.

III. ORMAS INTERVENTION

The Odisha Rural Development and Marketing Society (ORMAS) has played a pivotal role in transforming the socio-economic condition of rural women in the Sambalpur district through a series of strategic interventions beginning in 2022. The primary focus of these interventions has been capacity building, forming Farmer Producer Organizations (FPOs), and establishing direct market linkages. The capacity-building initiatives aimed to enhance women farmers' technical and managerial skills, enabling them to adopt modern agricultural practices and effectively engage in market activities. ORMAS facilitated the formation of FPOs to empower smallholder farmers by providing a collective platform for resource sharing, knowledge exchange, and market negotiations. These FPOs have been instrumental in strengthening the bargaining power of women farmers and improving their access to national and regional markets (Khan & Singh, 2023). The establishment of direct market linkages with corporate buyers has ensured fair pricing and stable demand for their produce, thereby reducing dependency on middlemen and mitigating income volatility (NABARD, 2021).

ORMAS implemented a range of specific activities to support the empowerment of women farmers and the sustainable development of the chilli value chain. Training

programs were organized to educate women on modern agricultural techniques, post-harvest management, and quality control. These sessions included hands-on training in soil management, pest control, and the use of agricultural machinery. Financial support was provided through grants and subsidies to reduce production costs and improve access to quality inputs such as seeds and fertilizers. Infrastructure development played a crucial role in the initiative's success. ORMAS facilitated the construction of cold storage facilities, drying platforms, and packaging units, which helped maintain the quality of the chilli produce and extended its shelf life. Market access facilitation involved organizing buyer-seller meets and signing Memorandums of Understanding (MoUs) with corporate partners such as Bharat Masala, ensuring a steady demand and fair pricing for the farmers' produce. These activities collectively enhanced rural women farmers' economic resilience and market integration.

IV. ROLE OF DISTRICT ADMINISTRATION AND CORPORATE PARTNERSHIPS

The district administration of Sambalpur played a significant role in supporting ORMAS's initiatives by providing essential infrastructure and facilitating policy support. The administration assisted in conducting baseline surveys to identify suitable land for chilli cultivation and helped establish nurseries and irrigation facilities, which were crucial for the project's successful implementation. Training sessions and awareness programs were also organized in collaboration with the administration to ensure widespread participation and community engagement. Corporate partnerships, particularly with Bharat Masala, were vital in establishing robust market linkages. Bharat Masala's involvement provided a reliable and lucrative market for the chilli produce, stabilizing income for the women farmers and helping to create a brand identity for the region's produce. These partnerships were formalized through Memorandums of Understanding (MoUs) that outlined procurement agreements and quality standards, ensuring that the initiative's benefits reached the grassroots level. The collaboration between ORMAS, the district administration, and corporate partners exemplifies a successful public-private partnership model aimed at empowering rural women and promoting sustainable agricultural practices (NABARD, 2021).

TABLE II CHILLI SUPPLY ANALYSIS

Month	Quantity Supplied (quintal)	Total Amount (₹)	Average Rate per Quintal (₹)
2023-07	27.74	640910	23104
2024-04	144.92	2510739	17325
2024-05	520.031	9007856	17322

Source: ORMAS, 2024

The data highlights the quantity of chilli supplied by women farmers to Bharat Masala over three distinct periods: July 2023, April 2024, and May 2024. Table II shows a significant

increase in both the quantity supplied and the total revenue over time, indicating several benefits for the participating women farmers. In July 2023, the farmers supplied 27.74 quintals of chilli, generating a total revenue of ₹640,909.50. By May 2024, the quantity supplied surged to 520.031 quintals, resulting in a substantial total income of ₹9,007,856.19. This growth reflects the scaling up of their farming operations and improved market integration, leading to higher income levels and financial stability for the women involved. Although the average rate per quintal decreased from ₹23,104 in July 2023 to around ₹17,322 in 2024, the significant increase in the quantity supplied compensated for this drop, ensuring sustained income growth. This indicates effective capacity building and improved productivity, allowing farmers to maintain economic gains even when prices fluctuate.

The aggregated data shows that the collective efforts of women farmers, organized under Farmer Producer Organizations (FPOs), have enabled them to meet large-scale demands consistently. This organized approach enhances their bargaining power and provides a stable platform for market negotiations, further securing their economic benefits. The bulk of the supply occurred in May 2024, reflecting strategic engagement with market cycles. This concentration suggests that farmers align their production and sales with peak market demand, maximizing their profitability. Such market-driven approaches indicate increased market literacy and strategic planning among the women farmers, facilitated by ORMAS's interventions.

V. RESULTS AND DISCUSSION

The quantitative data indicate a significant increase in income and productivity among women farmers following ORMAS's interventions. Before the initiative, the average annual income from chilli farming was approximately ₹30,000 per household. After the intervention, this figure rose to an average of ₹70,000, representing a 133% increase in earnings. This surge in income can be attributed to enhanced productivity facilitated by access to quality inputs such as high-yielding seeds, fertilizers, and modern farming techniques. Productivity improvements were reflected in a 50% increase in yield per hectare, from an average of 8 quintals to 12 quintals post-intervention. Furthermore, market access was significantly improved through direct linkages with corporate buyers like Bharat Masala, which enabled farmers to bypass intermediaries and secure better prices for their produce.

The intervention has led to profound socio-cultural changes within the community, particularly in terms of women's financial autonomy and leadership roles. Women, who were previously dependent on male family members for financial decisions, now independently manage their agricultural income and household expenditures. This financial autonomy has enhanced their decision-making power within their families and community affairs. Many women have taken up leadership roles in Farmer Producer Organizations (FPOs)

and local governance bodies, serving as role models and inspiring other women to participate in economic and social activities (Miglani & Kaur, 2023). The empowerment derived from these roles has contributed to shifting gender norms, with increased recognition and respect for women's contributions to the household and community.

Several key challenges were effectively addressed through the intervention. Quality consistency was a major issue prior to the initiative due to a lack of knowledge about post-harvest handling and quality control. Training programs on sorting, grading, and packaging helped improve product quality, enabling access to premium markets. Resource access, such as the availability of credit and quality inputs, was facilitated through financial support and partnerships with suppliers, reducing production costs and enhancing productivity. Price volatility was mitigated by establishing direct market linkages and securing procurement agreements with corporate buyers, ensuring stable income for farmers. Lastly, skill gaps were addressed through comprehensive training programs that equipped women with the technical and managerial skills necessary for effective participation in the value chain.

The broader socio-economic effects of ORMAS's intervention extend beyond individual households to the entire community. The increased income and financial stability have led to improved living standards, with families investing in better housing, education for their children, and healthcare. Women's economic empowerment has also contributed to greater social cohesion and community development, as women have become active participants in local decision-making processes. Establishing FPOs has fostered a sense of solidarity and collective responsibility among farmers, promoting sustainable agricultural practices and community resilience. Overall, the intervention has improved economic outcomes and driven significant social transformation, positioning women as key agents of change in their communities.

VI. PRE- AND POST-INTERVENTION DATA ANALYSIS

Before the intervention, the average annual income from chilli farming was ₹30,000 per household. After the intervention, this increased to ₹70,000, representing a significant improvement due to better productivity and market prices. The income per quintal also rose, reflecting the premium rates achieved through direct market linkages. Productivity, measured as yield per hectare, increased by 50% due to access to high-quality seeds, fertilizers, and improved agricultural practices. Total chilli production per household doubled, indicating better management and utilization of available resources. Prior to the intervention, farmers typically sold to two buyers per season, often through intermediaries, which led to lower profits. Post-intervention, the number of buyers increased to five, including direct corporate buyers like Bharat Masala. The average selling price per kilogram rose from ₹120 to ₹165 due to improved quality and direct market linkages.

TABLE III PRE- AND POST-INTERVENTION DATA

Parameter	Pre-Intervention	Post-Intervention	Percentage Change
Annual Income per Household (₹)	30,000	70,000	+133%
Average Yield per Hectare (Quintals)	8	12	+50%
Total Production per Household (Quintals)	4	8	+100%
Number of Buyers per Season	2	5	+150%
Average Selling Price per KG (₹)	120	165	+37.5%
Market Linkages (Direct)	0	3	NA

Source: Computed

Improved income has enabled women to invest in their children’s education, upgrade housing, and access better healthcare, enhancing their overall quality of life (Verma, 2019). The adoption of better agricultural practices, facilitated by training, has boosted productivity and introduced sustainable methods that reduce environmental impact. Direct links with buyers like Bharat Masala have eliminated exploitation by middlemen, ensuring fair pricing and stable market access, which guarantees predictable income for the farmers. Women have emerged as community leaders through active participation in FPOs and local governance, gaining social respect and a stronger voice in community decisions.

VII. INFLUENCE OF MARKET ACCESS ON OUTCOMES

Market access has been a critical factor in enhancing the economic outcomes for rural women engaged in agriculture. Improved market access has enabled women farmers to secure better prices for their produce, reduced their dependency on intermediaries, and facilitated a more stable income flow. The establishment of direct linkages with corporate buyers, such as Bharat Masala, has played a pivotal role in this transformation. By directly connecting women farmers to larger, more lucrative markets, these interventions have allowed them to bypass traditional market value chains dominated by middlemen, resulting in higher profit margins and reduced price volatility.

Access to markets is not merely about selling produce; it also encompasses access to information, technology, and financial services that empower farmers to make informed decisions. Studies have shown that farmers integrated into formal markets are more likely to adopt improved agricultural practices and invest in quality inputs, which subsequently enhances productivity and product quality (Barrett *et al.*, 2019). This is particularly significant for women farmers, as it translates into better economic returns and increased financial independence, thereby contributing to their overall empowerment.

Improved market access through Farmer Producer Organizations (FPOs) has facilitated collective bargaining and enabled women to gain a stronger foothold in negotiations, securing fair prices for their produce. The ability to negotiate directly with buyers has resulted in more

transparent transactions and reduced exploitation, a common issue in traditional agricultural markets. This transparency has fostered trust and encouraged more women to participate actively in the agricultural economy, boosting their confidence and leadership roles within their communities. Market access has also had a positive ripple effect on community development. Increased income and financial stability have led to improved living standards, such as better access to education and healthcare, and have enabled women to invest in business ventures beyond agriculture. These economic gains have empowered women to take on leadership roles within their communities, challenging traditional gender norms and advocating for broader socio-economic changes.

VIII. IMPACT OF FPO FORMATION ON MARKET DYNAMICS

The formation of Farmer Producer Organizations (FPOs) has significantly impacted market dynamics, particularly for smallholder farmers and women. By operating as collective entities, FPOs allow individual farmers to pool their resources, enabling them to access better markets, aggregate their produce, and negotiate fair prices. This collective approach helps address common challenges such as limited market access, price volatility, and inadequate information and resources. Improved bargaining power is one of the key benefits of FPOs, as they enable small-scale farmers to negotiate better prices, reducing their dependence on exploitative intermediaries. Through collective marketing, FPO members can achieve more stable income levels, which is especially important for women farmers, who often lack the individual influence to secure fair deals. This collective bargaining leads to more transparent and equitable pricing mechanisms, benefiting the entire community.

Enhanced market access is another advantage, as FPOs facilitate direct linkages with larger markets, including corporate buyers, retail chains, and e-commerce platforms. This access allows farmers to sell their produce at competitive prices and reach premium markets that were previously inaccessible. Partnerships with companies like Bharat Masala have provided stable markets and fair returns, encouraging farmers to invest in quality inputs and adopt improved farming practices. The pooling of resources by FPOs helps farmers achieve economies of scale, reducing costs associated with input procurement, transportation, and

marketing. This cost efficiency boosts profitability and allows for reinvestment in their farms, enhancing productivity and sustainability. FPOs also promote knowledge sharing and capacity building, equipping farmers with technical skills, market knowledge, and financial literacy, enabling them to respond proactively to market changes. By providing access to financial services like credit and insurance, FPOs help mitigate risks, particularly for women farmers, and contribute to the long-term sustainability of farming communities. Moreover, real-time market information provided by FPOs reduces information asymmetry and promotes transparency in transactions, empowering farmers to make informed decisions and optimize their revenue streams.

IX. ROLE OF PARTNERSHIPS IN EMPOWERING WOMEN FARMERS

Partnerships play a critical role in enhancing the effectiveness and reach of rural development initiatives, such as those led by ORMAS, by leveraging the strengths and resources of diverse stakeholders, including government agencies, private corporations, non-governmental organizations (NGOs), and financial institutions. These collaborations are crucial in addressing the complex challenges faced by women farmers and ensuring sustainable development. The following are some of the key roles that partnerships currently play:

A. Market Access and Linkages

Partnerships with corporate entities like Bharat Masala and other agro-processing companies have been instrumental in creating direct market linkages for women farmers. Such collaborations eliminate dependency on middlemen, enabling farmers to receive fair prices for their produce. Corporate partners provide assured markets and better pricing, which, in turn, stabilizes income and encourages farmers to invest more in quality inputs and farming practices. This direct connection to larger markets also fosters transparency and accountability in transactions, enhancing trust and economic security for the farmers.

B. Capacity Building and Training

Partnerships with NGOs and academic institutions contribute significantly to capacity building by providing technical training and knowledge transfer. These collaborations help disseminate best practices in sustainable agriculture, modern farming techniques, and post-harvest management. Organizations like the National Bank for Agriculture and Rural Development (NABARD) and Krishi Vigyan Kendras (KVKs) conduct workshops and field demonstrations that equip women farmers with the necessary skills to increase productivity and improve the quality of their produce.

C. Financial Inclusion and Support

In partnership with ORMAS, financial institutions play a pivotal role in providing access to credit, insurance, and

savings products tailored to the needs of women farmers. Collaborations with banks and microfinance institutions enable women to secure loans at affordable rates, facilitating investments in farm inputs, equipment, and value-added processing units. These financial partnerships also support the development of financial literacy programs that empower women to manage their finances more effectively and plan for long-term growth (FAO, 2020).

D. Infrastructure Development and Resource Access

Partnerships with government agencies and local authorities are essential for developing rural infrastructure such as roads, storage facilities, and irrigation systems. These infrastructural improvements reduce post-harvest losses, enhance the shelf-life of agricultural products, and enable farmers to access more distant and profitable markets. For instance, collaborations with the district administration in Sambalpur have led to the establishment of cold storage facilities and drying platforms, which are crucial for maintaining the quality of perishable products like chilies.

E. Policy Advocacy and Governance Support

Partnerships with policy think tanks and advocacy groups help create an enabling environment for women farmers by influencing agricultural and gender policies. Collaborative efforts aim to address systemic issues such as land ownership rights, gender equity in resource allocation, and access to government schemes. By engaging in policy dialogues and advocacy campaigns, these partnerships contribute to creating a more supportive and inclusive policy framework that addresses the specific needs of women in agriculture (Kabeer, 2016).

F. Technology and Innovation

Collaborations with technology firms and research institutions are driving the adoption of innovative tools and digital platforms in agriculture. These partnerships facilitate the introduction of mobile apps for market information, weather updates, and crop management advice, which help farmers make informed decisions. Technologies like precision farming tools, remote sensing, and e-commerce platforms are being integrated to enhance productivity, reduce costs, and expand market reach. Such innovations are particularly beneficial for women farmers, who often have limited access to traditional extension services.

G. Social Empowerment and Community Development

NGOs and community-based organizations play a crucial role in building social capital and promoting community development. These partnerships support the formation of self-help groups (SHGs) and cooperatives, providing a platform for collective action, peer learning, and social support. Such collaborations are essential in fostering community resilience, promoting gender equality, and encouraging the active participation of women in local governance and decision-making processes.

X. CHANGING ROLES OF WOMEN POST-INTERVENTION

The transformations in the role of women in Sambalpur district post-intervention have led to a notable increase in their influence in both economic and social domains. One of the key changes is the rise in financial autonomy, as women have gained greater control over financial resources through enhanced income from chili farming. Prior to the intervention, women's role in household financial decision-making was minimal, as their contributions were often seen as supplementary. However, with increased earnings and direct access to income from chili sales, women are now managing household budgets, investing in their children's education, and making independent financial decisions.

This newfound financial independence has diminished their reliance on male family members and increased their agency within the household (Kabbeer, 2016). The formation of Farmer Producer Organizations (FPOs) has provided a platform for women to take on leadership roles, with many being elected as leaders or board members. Their participation in decision-making processes related to production, marketing, and financial management has not only developed their leadership skills but also empowered them to represent their communities in broader governance forums, advocating for the rights and needs of women farmers.

The intervention has also fostered entrepreneurial engagement, enabling women to venture beyond traditional farming. Training programs focused on value addition, such as processing chilies into powders or pickles, have opened up new business opportunities. Women are now diversifying their income sources by establishing small-scale processing units, managing local sales, and exploring new markets. This entrepreneurial shift is vital for their economic empowerment and provides a sustainable livelihood option beyond seasonal agriculture. Moreover, with increased economic contributions and leadership roles, women are gaining greater social recognition and respect within their communities (Shaijan, 2019). Their success stories are reshaping perceptions of women's capabilities, challenging traditional gender roles, and inspiring other women to step out of conventional domestic confines, fostering a more inclusive community environment where their opinions and contributions are valued. Improved access to resources and services, such as agricultural resources, training, and financial services, has also been a significant outcome of their active involvement in FPOs and community groups. This has enabled women to make more informed decisions regarding farming practices, investments, and risk management. Empowered women are now serving as role models and catalysts for change, motivating younger women and girls to pursue education and engage in economic activities. Their achievements in overcoming socio-economic barriers and gaining financial independence encourage a new generation of women to aspire to leadership roles and actively participate in community development.

Despite significant progress through initiatives like the formation of Farmer Producer Organizations (FPOs) and improved market linkages, women farmers continue to face several challenges that hinder their full economic and social empowerment. Women farmers face several challenges that limit their access to essential resources such as land, credit, quality inputs, and agricultural equipment. Although they have legal rights to own land, social norms and inheritance practices often prevent women from owning or controlling it, which is essential for securing credit and other institutional support (Agarwal, 2018). This lack of ownership restricts their ability to make independent decisions about crop production and investments, hindering their capacity to scale up agricultural operations. Financial constraints pose a significant barrier, as many women lack the necessary collateral to secure loans from formal financial institutions, and their limited financial literacy makes it difficult to navigate these systems. While microfinance options are more accessible, they often come with high-interest rates and limited loan sizes, which are insufficient for larger agricultural investments (FAO, 2020).

Furthermore, entrenched gender norms continue to limit women's roles in agriculture and community decision-making. Even within collective structures like Farmer Producer Organizations (FPOs), women often hold secondary roles, and their contributions are not valued as much as men's. This gender bias and household responsibilities limit the time and energy women can dedicate to agricultural activities, reducing their productivity and economic opportunities. Despite improved market linkages, many women still lack access to critical market information about prices, demand trends, and quality standards, leading to suboptimal decision-making and lower incomes. Their limited mobility and social networks further restrict their access to training and extension services, keeping them reliant on less profitable traditional practices (Bedford, 2024). Inadequate infrastructure, such as poor storage facilities, lack of cold chains, and inefficient transportation networks, also disproportionately affect women farmers, reducing the shelf life and quality of their produce and limiting their ability to reach distant and more profitable markets.

Price volatility and market risks continue to threaten the stability of women farmers' incomes, especially during unfavorable market conditions. Although FPOs help mitigate some of these risks through collective bargaining, women farmers still struggle to stabilize their income due to climate variability and fluctuating demand, which disproportionately impact smallholder women farmers. Despite their increased economic contributions, women often have limited influence in household and community-level decision-making, which extends to the governance of FPOs, where they may not hold leadership positions. This lack of representation affects their ability to advocate for their needs effectively. The dual burden of agricultural labor and domestic responsibilities places significant physical and emotional strain on women farmers, and inadequate access to healthcare, combined with

labor-intensive agricultural tasks, can lead to long-term health issues. Addressing these challenges requires a multi-faceted approach that includes improving market access and financial inclusion, and tackling deeper structural issues such as gender inequality, social norms, and access to resources through policy interventions, targeted support programs, and community awareness initiatives.

XI. STRENGTHENING THE ROLE OF ORMAS

ORMAS has made notable progress in empowering women farmers and improving their economic status through various interventions. Several strategies could further enhance these benefits and ensure sustainable development in rural areas. These strategies can address existing challenges and build on the progress of ongoing initiatives. For instance, ORMAS could work with financial institutions to provide affordable credit facilities tailored specifically for women farmers. This could include low-interest loans or revolving funds, allowing women to invest in higher-quality inputs and equipment. Moreover, conducting financial literacy programs would enable women to manage their finances, plan investments, and better understand insurance and savings options. Linking women to digital financial services, such as mobile banking and digital payment systems, can facilitate easier financial management and reduce dependency on cash transactions, which often pose security and accessibility challenges in rural areas.

Expanding market linkages is another critical area where ORMAS can focus its efforts. By forming partnerships with more corporate buyers, retailers, and export markets, ORMAS can diversify and expand market opportunities for women farmers, reducing their reliance on a limited number of buyers and mitigating risks associated with price fluctuations. Promoting regional branding of products, such as "Organic Sambalpur Chilli," can increase the market value and demand for women farmers' produce. Investing in small-scale processing units and training women in value addition, such as producing chili powder, pickles, and sauces, can significantly increase profit margins. ORMAS can provide the necessary equipment and offer certification and branding support to help women farmers enter higher-value markets. Capacity building through advanced training programs in modern agricultural techniques, digital marketing, and entrepreneurship skills can also be instrumental in helping women farmers adapt to changing climatic conditions and reduce environmental impacts.

ORMAS can further improve rural infrastructure by working with the government to develop better roads, storage facilities, and cold chains. This would reduce post-harvest losses, improve the quality of produce, and enable women farmers to access more distant and profitable markets. Introducing technology and digital tools, such as mobile apps for market information, weather forecasts, and crop management, would allow women to make informed decisions and increase productivity. Moreover, ORMAS can build social support networks through Self-Help Groups

(SHGs) and cooperatives, providing financial and emotional support, which can help address social issues like domestic violence and create an environment conducive to pursuing economic goals. Lastly, establishing robust monitoring and evaluation frameworks will allow ORMAS to assess the impact of its interventions, make data-driven adjustments, and ensure the programs remain responsive to the evolving needs of women farmers (Kabeer & Subrahmanian, 2017).

XII. CONCLUSION

The transformative impact of interventions like those undertaken by ORMAS in the Sambalpur district underscores the need for a more nuanced understanding of rural development that transcends economic metrics and embraces social, cultural, and institutional dimensions. The enhancement of market access, coupled with the formation of Farmer Producer Organizations (FPOs), has provided a structured pathway for women farmers to assert their agency and redefine their roles in traditionally patriarchal agricultural systems. However, the progress achieved so far also reveals the limitations of market-based interventions when detached from broader structural reforms that address systemic inequities, such as land rights, financial inclusion, and gendered power dynamics. To sustain and deepen the gains made, it is essential to adopt a feminist political economy perspective that critically examines how power relations shape women's participation in agricultural value chains. This approach highlights the importance of integrating women into markets and transforming the very structures of these markets to be more inclusive and equitable (Elson, 2016). Efforts must be directed toward dismantling the socio-cultural barriers limiting women's access to resources and decision-making platforms. This requires a concerted focus on building social capital through community-driven initiatives prioritizing women's leadership and collective action (Cornwall, 2018). The role of partnerships, both vertical (linkages with corporate entities) and horizontal (alliances with other community-based organizations), must be reconceptualized to move beyond transactional relationships. Strategic alliances should be grounded in principles of co-governance and shared value creation, where all stakeholders contribute to and benefit from the process of rural transformation. This calls for a paradigm shift from the current focus on economic empowerment to a more holistic model of development that integrates social justice and environmental sustainability. The implications of these interventions must be situated within the broader context of global food systems, which are increasingly influenced by the dual challenges of climate change and market volatility. Women farmers, who often bear the brunt of these disruptions, must be at the center of adaptive strategies that promote resilience through diversification, sustainable practices, and policy support. This necessitates rethinking agricultural policies and development programs to ensure that they are gender-sensitive and responsive to the evolving realities of rural livelihoods (Chant & Sweetman, 2019). Initiatives like those of ORMAS have laid the groundwork for empowering

women in rural India; achieving lasting change requires a transformative agenda that addresses both immediate economic needs and long-term structural challenges. Future research and policy must create enabling environments that facilitate participation and genuine empowerment, where women can envision and shape their development.

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