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### Challenges and opportunities for women in India's Livestock Sector

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#### Abstract

The livestock sector in India is a vital component of rural livelihoods and agricultural GDP, with women playing a central yet often unrecognized role. Women contribute significantly to animal husbandry through daily tasks such as feeding, milking, healthcare, and processing of animal products, particularly in smallholder and backyard systems. Despite their substantial involvement, women face numerous challenges, including limited access to land ownership, credit, training, veterinary services, and decision-making process. Socio-cultural norms, mobility constraints, and underrepresentation in cooperatives further marginalize their role, resulting in limited economic gains and visibility. However, recent developments present promising opportunities. Government schemes like the Mahila Kisan Sashaktikaran Pariyojana (MKSP), National Livestock Mission (NLM), and initiatives such as Accredited Agent for Health and Extension of Livestock Production (A-HELP) and women-led dairy cooperatives aim to bridge gender gaps through capacity building, financial support, and institutional strengthening. The adoption of climate-resilient practices, digital tools, and inclusive policies is creating a more enabling environment for women in livestock. Strengthening gender-sensitive extension services, promoting women's leadership in producer groups, and ensuring access to markets and technology can significantly enhance women's livelihoods and empowerment. This review highlights both the persistent challenges and emerging pathways for inclusive, sustainable growth through greater participation of women in India's livestock sector.

**Keywords:** Challenges, opportunities, women, livestock sector, India

#### Introduction

Livestock rearing is a critical component of the agrarian economy in India, contributing about 4.8% to the national GDP and over 25% to the agricultural GDP (DAHD, 2022) <sup>[2]</sup>. Women constitute more than 70% of the labor force in livestock production, particularly in activities such as milking, feeding, fodder collection, and caring for sick animals (FAO, 2018) <sup>[4]</sup>. Despite their substantial contributions, women face numerous challenges including limited access to land, credit, veterinary services, decision-making power, and training opportunities. Cultural norms and gender biases further hinder their recognition and remuneration in the sector. However, growing policy focus on gender-inclusive agriculture, formation of women-led cooperatives, and the rise of self-help groups (SHGs) have created new opportunities. Technological innovations, digital platforms, and targeted capacity building also hold promise for improving women's agency and income. Addressing structural inequalities and ensuring women's full participation in livestock value chains are vital for enhancing both rural livelihoods and gender equity in India's agricultural landscape. This review aims to comprehensively explore the constraints and enablers for women in the Indian livestock sector, focusing on economic, social, and institutional dimensions. It highlights evidence-based insights and suggests policy interventions to bridge gender gaps.

#### Role of Women in Livestock Sector

Women play a critical and multifaceted role in India's livestock sector, serving as primary caretakers of animals and contributing significantly to household income and food security. They are extensively involved in animal care and feeding, dairy management and milking, fodder collection and feed preparation, manure management and processing and marketing of livestock products (Rathod *et al.*, 2011; Kathiriya *et al.*, 2013, Kaur, 2015) <sup>[18, 9, 10]</sup>. In poultry, dairy, and small ruminant farming, women often manage the day-to-day operations, especially in smallholder and backyard systems (Sahu *et al.*, 2024) <sup>[20]</sup>. These activities are often performed in addition to their domestic responsibilities, contributing to household nutrition, food security, and income generation (Patel *et al.*, 2017) <sup>[17]</sup>. Livestock offers one of the few income-generating opportunities accessible to women in rural India. For landless and marginal farm families, livestock (especially dairy, goats, poultry) acts as an "asset bank" that can be liquidated in times of distress, thus playing a critical role in livelihood security. Despite their contributions, their work is often undervalued and unpaid, with limited control over income or resources. However, their role is essential for the sustainability and productivity of livestock systems. Women also play a key role in maintaining traditional knowledge of animal health and nutrition. With proper access to training, technology, finance, and markets, women can become powerful agents

of change in the livestock sector (Yadav *et al.*, 2007; Panda *et al.*, 2021) <sup>[22, 16]</sup>. Empowering women through capacity building and institutional support can enhance productivity, improve rural livelihoods, and contribute to broader goals of gender equity and rural development.

### Challenges Faced by Women in the Livestock Sector

Despite their vital role, women livestock keepers face numerous challenges, grouped under socio-cultural, economic, institutional, and technical domains.

#### I. Socio-cultural Constraints

- Women in India's livestock sector face significant socio-cultural constraints that limit their full participation and recognition. Traditional gender norms often confine them to unpaid, labor-intensive tasks like feeding, cleaning, and milking, while decision-making and market roles are dominated by men. Even when women manage livestock, men often control income and asset ownership (Agarwal, 2010) <sup>[11]</sup>.
- Traditional norms limit women's access to markets, training programs, and extension services. Cultural taboos and undervaluation of women's work lead to invisibility in official data and policy planning, perpetuating gender inequality in livestock-based livelihoods (Kathiriya *et al.*, 2010) <sup>[9]</sup>.

#### II. Lack of Access to Resources

- Only about 13% of women own land, limiting their access to credit, inputs, and subsidies tied to land titles (NABARD, 2020) <sup>[12]</sup>. Lack of land ownership by women limits their access to credit, government schemes, and productive assets, restricting their ability to invest in livestock. It undermines their decision-making power, reduces economic security, and excludes them from formal institutions, thereby hindering their active and independent participation in livestock development and income generation (Saini and Saini, 2021) <sup>[21]</sup>.
- Women face difficulties accessing formal finance due to lack of collateral and credit history. Lack of access to credit and finance prevents women from purchasing quality livestock, feed, veterinary care, and infrastructure (Panda *et al.*, 2020) <sup>[15]</sup>. It limits their ability to scale operations, adopt new technologies, or cope with losses, thereby constraining productivity, profitability, and their overall empowerment within the livestock sector.
- Women are less likely to access veterinary care and vaccinations due to time constraints and lack of information. Limited access to veterinary services severely affects women's ability to manage livestock health, leading to higher mortality rates, reduced productivity, and economic losses. Due to gender norms, mobility restrictions, and low awareness, women often depend on male family members for veterinary interventions, delaying timely treatment. Inadequate female veterinarians and lack of women-friendly extension services further widen the gap. This not only affects animal welfare but also discourages women from expanding their livestock enterprises. Ensuring doorstep veterinary services, training female

animal health workers, and gender-sensitive outreach programs are crucial to empowering women and improving overall efficiency in the livestock sector.

#### II. Inadequate Training and Capacity Building

- Most training and extension services are not tailored to women's needs. Schedules, language, and pedagogy often fail to consider women's workloads and literacy levels.
- Inadequate training and capacity-building opportunities limit women's potential to enhance productivity and innovation in the livestock sector. Most training programs are male-oriented, overlooking women's schedules, literacy levels, and mobility constraints. As a result, women lack critical knowledge in areas such as disease management, breed improvement, value addition, and market linkages. This knowledge gap restricts their ability to adopt modern practices, improve animal health, or run profitable enterprises. Strengthening gender-sensitive training, using participatory methods, and involving women as trainers and extension agents can significantly enhance their skills, confidence, and leadership, leading to more inclusive and efficient livestock development (Dudi *et al.*, 2019; Panda *et al.*, 2020) <sup>[3, 15]</sup>.

#### IV. Lack of Recognition and Data

- Women's underrepresentation in cooperatives and producer groups limits their access to collective resources, decision-making, and market opportunities in the livestock sector. These platforms often serve as gateways to credit, training, bulk input procurement, and profitable markets, yet cultural norms and gender biases frequently exclude women from membership or leadership roles. As a result, women remain isolated, with reduced bargaining power and limited influence over value chain activities. This hinders the sector's inclusive growth and productivity. Promoting women's active participation in these groups can enhance equity, improve efficiency, and unlock the full potential of women's contributions to livestock-based livelihoods (Rewani and Tochwang, 2014) <sup>[19]</sup>.

### Opportunities for Women in the Livestock Sector

Despite challenges, there are numerous opportunities to enhance women's agency, income, and participation in the livestock sector.

#### I. Women-led Dairy Cooperatives and Producer Companies

- Women-led dairy cooperatives and producer companies have emerged as transformative models in India's livestock sector, empowering rural women economically and socially. These platforms enable women to collectively own and manage dairy enterprises, ensuring better access to markets, fair pricing, credit, veterinary services, and training. By enhancing decision-making power and income control, such initiatives improve household nutrition, education, and livelihoods. They also foster leadership, self-confidence, and community solidarity among women.
- Successful examples like the AMUL women's dairy

cooperatives and producer groups in states like Gujarat, Rajasthan, and Bihar highlight their potential in achieving inclusive growth and gender-equitable development in rural India. Mahila Dairy Cooperatives in Gujarat and Karnataka have improved women's access to markets, credit, and leadership roles (NDDDB, 2021)<sup>[13]</sup>.

## II. Self-Help Groups (SHGs) and Livestock Clusters

- Self-Help Groups (SHGs) and livestock clusters have significantly strengthened women's participation and income generation in the livestock sector. By pooling resources and building social capital, SHGs enable women to access microcredit, training, inputs, and markets (Jadoun *et al.*, 2021)<sup>[7]</sup>. Livestock clusters promote collective production, value addition, and marketing of dairy, poultry, or small ruminant products. These models reduce input costs, enhance bargaining power, and create local employment. They also facilitate technology transfer, veterinary care, and extension services at the grassroots level. Together, SHGs and livestock clusters foster women's entrepreneurship, improve household resilience, and drive inclusive, sustainable rural development in India's livestock value chains.
- The National Rural Livelihood Mission (NRLM) supports SHG-led livestock clusters to scale up production and marketing.

## III. Technology and Innovation

- Technology and innovation are playing a transformative role in modernizing India's livestock sector. Mobile-based advisory services (like mKisan, Kisan Suvidha) are helping women access veterinary care and market information. Digital platforms are also enabling e-commerce of livestock products like milk, ghee, and eggs, empowering women to sell directly. Innovations in feed technology, such as Total Mixed Ration (TMR) and bypass protein, improve animal nutrition and productivity. Genetic improvement programs through artificial insemination and embryo transfer enhance breed quality. Cold chain infrastructure and mechanized milking systems ensure hygienic milk production and storage. Women farmers, in particular, benefit from user-friendly tools and doorstep advisory services. These technologies improve productivity, reduce drudgery, and enhance incomes, contributing to food security and sustainable livelihoods.

## IV. Climate-Resilient Livestock Practices

- Climate-resilient livestock practices are essential for sustaining productivity amid rising climate variability in India. These practices include improved shelter designs, heat-tolerant breeds, water-efficient feeding, silvi-pasture, and early warning systems for disease outbreaks. Adaptation strategies like integrated crop-livestock systems, drought-resistant fodder cultivation, and improved manure management enhance resource use efficiency and reduce greenhouse gas emissions. Climate-smart practices not only protect animal health and productivity during heat waves, floods, or droughts but also help maintain household income and food

security (Grossi *et al.*, 2019)<sup>[5]</sup>. Women farmers, who often manage livestock, benefit from reduced workload and more stable production cycles.

- Initiatives like the National Action Plan on Climate Change (NAPCC) and programs by ICAR and NDDDB are promoting these adaptive approaches at the grassroots level. Climate-smart livestock farming (e.g., heat-tolerant breeds, integrated fodder systems) offers sustainable avenues where women can be active players (ICAR, 2022)<sup>[6]</sup>.

## Policy and Institutional Support

### I. Government Schemes Promoting Gender Inclusion

The Government of India has launched several schemes to enhance gender inclusion in the livestock sector, recognizing women's critical role in animal husbandry.

- Mahila Kisan Sashaktikaran Pariyojana (MKSP), under DAY-NRLM, invests in women's institutions and training—helping women engage in livestock management, goat-rearing, and dairy entrepreneurship.
- Rashtriya Gokul Mission: Focuses on indigenous breeds and encourages women-led Gaushalas.
- National Livestock Mission: Has a special component on entrepreneurship development for women and youth. The Department of Animal Husbandry & Dairying (DAHD) mandates gender budgeting—advising states to allocate at least 30 % of program funds to women beneficiaries under the National Livestock Mission (NLM) and National Livestock Policy (NLP)
- Dairy Entrepreneurship Development Scheme (DEDS): Offers financial support for women to set up micro-dairies.
- Accredited Agent for Health and Extension of Livestock Production (A-HELP) - This initiative trains women as para-vets to deliver livestock health services at the grassroots.
- State-specific programs - In Jharkhand and Bihar, initiatives such as 'Pashu Sakhis' empower women as community livestock advisers, improving access to veterinary care and markets. State schemes like Chhattisgarh's 'Godhan Nyay Yojana' also benefit women SHGs that process cow-dung into vermicompost, offering income and empowerment

### II. Institutional Frameworks and Gender Budgeting

**Institutional frameworks and gender budgeting are crucial for mainstreaming women in India's livestock sector.** Ministries like DAHD and MoRD have adopted gender budgeting practices to allocate resources for women in livestock and rural livelihoods. ICAR institutes such as ICAR-Central Institute for Women in Agriculture, Bhubaneswar is engaged in gender mainstreaming and research focused on women in agriculture and livestock. The institute has been consistently working to understand the role and problems of women in agriculture, and based on research result, it has also been regularly giving inputs to researchers and policy makers for gender responsive decision making. By embedding gender priorities into planning and financing, these mechanisms enhance women's participation, boost productivity, and foster equitable growth in the livestock value chain.

### Recommendations for Empowering Women in Livestock

- **Enhance Access to Resources:** Enhancing access through land leasing models, joint titles, and customized financial products for women livestock keepers.
- **Gender-Sensitive Extension Services:** Creation of female para-vets, mobile veterinary units, and customized training schedules.
- **Promote Women's Collectives:** Support formation of FPOs and cooperatives with 50% or more women representation.
- **Invest in Women-Centric Technologies:** Promote tools for milking, feed preparation, and manure management that reduce drudgery.
- **Improve Market Access:** Create exclusive women's livestock markets or digital platforms to eliminate middlemen.
- **Data Collection and Monitoring:** Disaggregated data on women's roles and contributions to enable better planning and impact assessment.

### Conclusion

The livestock sector presents a powerful vehicle for women's empowerment, income diversification, and food security in rural India. However, deep-rooted gender biases, structural barriers, and institutional gaps limit their full participation. Challenges such as lack of land ownership, limited access to credit, training, veterinary services, and exclusion from cooperatives hinder their full participation. However, evolving government schemes, gender-responsive policies, and technological innovations are creating new opportunities for empowerment. A transformative approach involving gender-responsive policy, inclusive institutions, technology, and market integration is essential to harness the untapped potential of women in livestock. Bridging the gender gap in livestock will not only empower women but also enhance productivity, sustainability, and resilience of India's agricultural economy.

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