

Livestock, livelihoods and women: An Indian perspective

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Abstract

India is an agrarian country where the livestock sector forms an essential component, serving as a vital asset for rural livelihoods. Women are the invisible backbone of India's livestock sector, contributing significantly to animal husbandry activities such as feeding, milking, healthcare, breeding, and marketing. The role of women in livestock production systems varies by region, with livestock ownership patterns between men and women shaped significantly by social, cultural, and economic factors. Despite women's vital involvement, their roles often remain unrecognized and undervalued. This review highlights the multi-dimensional contributions of women in livestock management, explores the socio-economic benefits of their participation, identifies the systemic challenges they face, and discusses emerging opportunities for their empowerment. This review also underscores the need for gender-sensitive planning, access to resources, capacity-building, and institutional support to make the livestock sector more inclusive and equitable. Empowering women in livestock not only enhances rural livelihoods but also contributes to national goals of food security, poverty alleviation, and sustainable agricultural development.

Keywords: Livestock; Livelihoods; Women; Indian Perspective

Introduction

The livestock sector in India is a critical component of the rural economy, contributing around 4.11% to the national GDP and approximately 25.6% to agricultural GDP (Kushwah et al., 2025). Beyond the economic contribution, it serves as a vital source of livelihood, nutrition, and financial security for millions of smallholder farmers, particularly in resource-constrained and climatic vulnerable regions (Petrov, 2025). The data shows that livestock plays a vital role in ensuring livelihood security more than 70% of rural households, particularly landless and small holder farmers who depend on it as their primary source of income. Women are the majority of the World's poor livestock keeper (Omondi, 2024) and dairying is the main source of employment for them (Mohapatra et al., 2026). Panda et al. (2020) argued that livestock offers significant potential for generating non-farm employment and income in rural areas, making it a key sector for promoting women's empowerment and gender equity. Women significantly contribute to livestock farming, with a particularly important role in dairy production and management. Women usually spend about 4 to 5 hours daily on different activities of dairy farming such as feeding, watering, cleaning of cowshed, milking, and such others (Farnworth et al., 2023). However, the role of women in livestock production systems differs across the world, as livestock ownership between men and women is shaped by social, cultural, and economic factors, and climatic variability (Kinati & Mulema, 2019; Usman et al., 2022). Women, especially those from marginalized and resource-poor communities, constitute a significant proportion of the workforce engaged in the livestock sector. Their roles span across species and tasks from tending Honey bees (Phogella & Anbaw, 2024) to backyard poultry to managing large ruminants (Patel et al., 2016). Compared to assets such as land or other agricultural enterprises, livestock and related products are more accessible and manageable for women, making them a practical and viable livelihood option. However, women's contributions often remain invisible in official statistics and undervalued in policy and programmatic interventions (Mehta and Mehta, 2025). This paper aims at to examine the multifaceted roles that women play in the livestock sector, the challenges they face, and the opportunities available to empower them for inclusive and sustainable rural development through a systematic review.

Women and Livestock

Women and livestock are deeply interconnected in rural economies, especially in countries like India, where livestock rearing play's important role for both a livelihood and a source of household nutrition. Women form the backbone of livestock farming, actively participating in every stage of the value chain, from animal rearing to product marketing. They play a pivotal role in livestock management across rural India, substantially contributing to household income, ensuring food security, and sustaining rural livelihoods. They are primarily responsible for day-to-day activities of livestock rearing including feeding, watering, milking, cleaning sheds, collecting fodder, and managing the herd health. Studies have shown that in India rural women spend about 32% of their time on agricultural activities, out of which 70% of women labour force engaged in the livestock sector (Panda and Sahoo, 2026), earn additional income by selling milk and animals. Women contribute between 60–90% of the total labour involved in livestock-related activities, particularly in tasks that are time-intensive but non-mechanized (Vijayamba and Swaminathan, 2024). According to Mishra et al. (2008) women predominantly perform key livestock-related activities, including fodder collection (88%), cleaning of animals and sheds (67%), feeding (79%), milking (46%), and administering traditional healthcare practices (67%). A study conducted in Karnataka by Rathod et al. (2011) revealed that 86.66% of women were engaged in feeding animals, 85% in providing water, and 82.5% in grazing activities, highlighting their substantial involvement in the routine care of livestock. Similarly, Kathiriya et al. (2013) found significant participation of women in various livestock feeding activities in Gujarat. In details, the study revealed that 80.83% of women were involved in feed collection, 75% in feed chopping, 86.66% in feeding livestock, 77.50% in feed storage, and 85% were responsible for collecting drinking water for the animals. According to Rath (2019) women spent two-third of the total time spent by a household on dairying. Women are primarily responsible for tasks such as fodder collection (94.7%), animal cleaning and care (94.7%), shed cleaning (96%), collection and disposal of manure (93.3% each), and milking (90%). Singh and Srivastava (2018) reported that in livestock-related activities, women consistently participated in all tasks except healthcare (13.88%) and marketing of produce (6.66%). Their involvement was notably high in fodder collection (66.66%), feeding (77.78%), shed cleaning (91.67%), milking (97.22%), and milk processing (97.22%).

Saini & Saini (2021) reported that women devote significant productive time in a day (approximately 294.34 minutes) in different dairy farm activities, such as feeding, watering, milking, housing management, breeding, animal healthcare, and marketing. A wide range of dairy-related responsibilities are thus predominantly managed by women. Kumar et al. (2022) revealed that in rural areas 10.7 percent women (age 6+) and 10.8 percent men (age 6+) participate in livestock sector, spending on an average 129 min/day by women and 147 min/day by men with highest time contribution of women was recorded in Himachal Pradesh (70.9%) followed by Rajasthan (66.5%), Gujarat (61%)

and Uttarakhand (60.8%), etc. Kaur (2015) reported that women make significant contributions through small-scale dairy processing activities, 64.60% of women involved in processing, while 74.00% participated in selling these products. However, women's involvement is relatively low in activities such as maintaining farm records (52.5%) and accessing bank loans or credit (49.16%) (Kathiriya et al., 2013). He argued that, influenced by entrenched social norms, financial activities within dairy farming have traditionally been perceived as male-dominated responsibilities in rural communities.

Women's engagement in livestock activities goes beyond mere employment, as they contribute to household income through the sale of livestock products and secure nutritious food for their families. Women's role in manure collection helps lower farm production costs through the provision of organic fertilizer, thereby improving soil fertility and contributing to higher crop yields (Batoool et al., 2014). Active engagement of women in livestock activities has been shown to increase their role in household decision-making, thereby fostering greater empowerment (Mahadi et al., 2014). Empirical evidence from Kolar district, Karnataka, shows that livestock ownership is positively associated with improved dietary quality and greater use of income for nutritious foods, enhancing both economic and nutritional outcomes for women (Vijayamba, 2024).

Socio-Economic Contributions

Income and Livelihood Security

Livestock activities provide women with a steady and relatively risk-free source of income, especially in regions with small landholdings or during agrarian distress. Sale of milk, eggs, and animals supports household income, children's education, and health needs.

Nutritional Security

Livestock, particularly poultry and dairy, enhances household nutrition by improving access to protein-rich foods such as milk, eggs, and meat. Women's involvement in food production translates into better dietary outcomes for the family.

Risk Mitigation and Resilience

Livestock ownership provides women with a form of economic security and a pathway to financial independence, especially where land ownership is limited. In times of crisis, such as drought or crop failure, livestock assets act as a buffer. Women often play a role in preserving these assets, demonstrating their contribution to household resilience.

The sector also fosters the formation of women self-help groups and cooperatives, strengthening community bonds and enhancing bargaining power. Overall, women's active engagement in livestock boosts rural livelihoods, reduces poverty, and promotes inclusive and sustainable economic development.

Challenges Faced by Women in Livestock Sector

Despite their vital contributions to smallholder farming systems, women continue to face multiple structural constraints, including limited access to and control over land, lack of ownership of productive assets, limited access to extension services, inadequate access to formal credit facilities, and restricted integration into market networks.

Limited Access to Resources

Despite women play a significant role in livestock production, they seldom possess ownership rights not only over agricultural land and the income derived from it, but also over livestock assets. This lack of control severely restricts their capacity to invest in productivity improvements, expand operations, or access formal credit and insurance. Study by Patel et al. (2016) observed that limited access to resources severely impacts women in the livestock sector by restricting their ability to enhance productivity and income. Similarly, Bravo-Baumann(2000) argued that insecurity of women's land tenure is one of the most serious obstacles to increase productivity of agriculture and livestock as well rural women. Evidence suggests that ownership of livestock assets contributes to improved household food security (Kariuku et al. 2013; Das and Singh, 2020) and can enhance the market supply and efficiency of livestock products (Njuki, 2013). Livestock ownership offers women a vital source of economic security and a pathway to financial independence, particularly in contexts where land ownership opportunities are limited (Gautam et al., 2026). For example, in rural India targeted livestock interventions and dairy programmes have increased women's income, market participation, and decision-making power, strengthening their economic resilience where land ownership is minimal (Patel et al., 2016). Without ownership of land or livestock, women often lack collateral for credit, limiting investment in better breeds, feed, and infrastructure. These challenges are particularly acute for poor women, who tend to be more risk-averse regarding credit (Kuma and Godana, 2023). As a result, high interest rates often deter them from seeking formal credit opportunities.

Inadequate Access to Extension Services

Access to extension services that disseminate modern technological innovations facilitates the adoption of improved dairy farming practices, thereby contributing to increased productivity and operational efficiency. Despite the importance, extension services in agriculture are poorly developed, reaching only a small fraction of farmers, and access is even more constrained in the livestock sector. The role of extension service in acting as a conduit between scientists and users is not very effective. The budgetary declines for research support and development have further undermined these services, leading to a breakdown in the dissemination of improved practices. As a result, the majority of the farming community continues to rely on traditional methods of dairy farming. About 60 percent of farmers are unable to access any information on modern technology (Laxmi Priya, 2025). Women livestock keepers are particularly disadvantaged, as entrenched social norms and gender-insensitive extension systems often exclude them from training programs. The statistics data indicated that only 18% of women livestock keepers had access to formal training. This exclusion not only limits their access to technical knowledge on feeding, breeding, and animal health but also perpetuates a significant gendered knowledge gap in the livestock sector. For instance, the National Livestock Mission (NLM) established in 2014–15 aims to boost livestock productivity through improved extension services, yet it lacks gender-specific provisions for women livestock keepers. Inadequate access to extension services significantly hampers women's participation and productivity in the livestock sector. Women livestock keeper often lack timely access to critical information on animal health, nutrition, breeding, and modern management practices, which significantly limits their ability to improve livestock productivity and income. A study by Bhuyan et al. (2018) in Haryana indicated that women dairy farmers had only occasional contact with veterinary surgeons, institutional experts, and feed dealers. Gender biases in extension delivery systems, limited mobility, low literacy levels, and exclusion from male-dominated training programs further marginalize women. Without tailored, gender-sensitive outreach, women remain unaware of government schemes, new technologies, and market opportunities. This exclusion perpetuates dependency on traditional methods and reinforces existing gender inequalities, ultimately undermining efforts to achieve sustainable livestock development and rural livelihoods.

High Drudgery and Poor Working Conditions

Activities like dung collection, animal washing, and water fetching are physically demanding and time-consuming, often leading to health issues and fatigue. The high drudgery combined with poor working conditions, disproportionately affects women in the livestock sector undermine their well-being and productivity (Nayak et al., 2013; Singh, 2017). Further, fodder collection, feeding, cleaning sheds, and milking are labor-intensive and time-consuming, often performed manually without access to tools or mechanization. These physically demanding activities lead to fatigue, health issues, and reduced productivity. A study by Juyal et al. (2023) in mid-hills of Uttarakhand, reported that rural women face constant pain and discomfort from repetitive, awkward postures in milking and shed cleaning to carrying heavy loads like food and dung – leading to both physical and psychological strain. Additionally, women often work in unsanitary and unsafe conditions, with limited access to protective gear or medical support. Despite their significant contribution, their efforts go unrecognized and uncompensated. The burden of balancing household chores with livestock responsibilities further limits their time and opportunities for skill development, income generation, and decision-making.

Social and Cultural Constraints

Social and cultural constraints significantly hinder women's participation in the livestock sector. Patriarchal norms, mobility restrictions, and lack of voice in decision-making hinder women's ability to actively participate in markets or cooperatives (Panda & Sahoo, 2026). Traditional gender roles often confine women to unpaid, labor-intensive tasks such as feeding, cleaning, and milking, while decision-making and ownership remain male-dominated. Social norms may restrict women's mobility, limiting their access to markets, training, and extension services. Additionally, taboos and community perceptions can prevent women from engaging in certain livestock-related activities or handling male animals. These constraints reduce their economic empowerment, visibility, and ability to benefit from livestock-based livelihoods, ultimately perpetuating gender inequality and underutilizing their potential in rural development.

Underrepresentation in Institutions

Underrepresentation of women in institutions such as cooperatives, producer organizations, and decision-making bodies limits their influence and access to critical resources in the livestock sector. Without adequate representation, women's specific needs and challenges are often overlooked in policy-making, extension services, and financial programs (Jadoun et al., 2021). This exclusion reduces their opportunities for leadership, training, and market access. Institutional bias can also hinder equitable distribution of assets and benefits. As a result, women remain marginalized, with limited voice in shaping programs that directly impact their livelihoods, reinforcing gender disparities and constraining the overall growth and inclusiveness of the livestock sector.

Government Initiatives and Policy Support

Not only the central government but also various state governments have been implementing numerous programs aimed at enhancing the capacity, productivity, and economic security of women livestock keepers. Schemes such as the National Livestock Mission (NLM) and Rashtriya Gokul Mission (RGM) promote improvement, fodder development, and skill training, with special provisions for women's participation.

National Livestock Mission (NLM)

The NLM emphasizes women-centric activities and promotes gender-sensitive interventions such as skill development, entrepreneurship, and capacity-building in animal husbandry. It supports women by promoting gender-inclusive practices, offering financial assistance, skill development, and entrepreneurship opportunities in livestock rearing. It encourages women-led cooperatives, provides training in animal health and management, and ensures priority access to schemes, empowering women to enhance income and participation in the livestock sector.

Rashtriya Gokul Mission

This mission focuses on breed improvement and dairy development, with special provisions for involving women in the conservation of indigenous breeds. The Mission supports women in the livestock sector by enhancing productivity and income from indigenous bovines (over 70% of livestock tasks are performed by women). It establishes Gokul Grams for training and access to elite germplasm, expands doorstep AI services, and promotes adoption of advanced breeding technologies benefiting women smallholder farmers.

Dairy and Poultry Entrepreneurship Programs

Schemes under NABARD and Ministry of Animal Husbandry offer subsidies and loans for small-scale dairy and poultry units, especially for women SHGs. The Dairy and Poultry Entrepreneurship Program support women by providing targeted financial aid, technical training, and institutional support to women-led SHGs, cooperatives, and small-scale ventures. Women receive access to credit, capacity building in modern animal husbandry, value-added processing, and market linkages, thereby boosting their income, enterprise ownership, and empowerment in the livestock sector.

Mahila Kisan SashaktikaranPariyojana (MKSP)

Implemented under the NRLM, MKSP enhances the capacities of women farmers, including those in livestock-based livelihoods. The MKSP supports women in the livestock sector by promoting the Pashu-Sakhi model, which trains community-based women as livestock care providers for doorstep animal services. It integrates livestock with agriculture, fosters sustainable agro-ecological practices, and builds leadership and technical skills via SHGs.

Gender Budgeting in Livestock Sector

Gender budgeting in the livestock sector ensures that policies, programs, and financial allocations address the specific needs of women. By integrating gender perspectives into planning and budgeting, it promotes equitable access to resources such as credit, training, inputs, and technology. This approach helps design targeted interventions for women, including support for women-led cooperatives, capacity-building initiatives, and livestock-based enterprises. Gender budgeting also enhances accountability by tracking how public expenditure benefits women. Some state departments and central institutes have started gender budgeting exercises to ensure that a share of resources is earmarked for women-centric activities.

Opportunities for Empowerment

Gender-Sensitive Training and Extension

Customizing training content and timing to suit women's needs, offering doorstep extension services, and employing female extension workers can enhance women's skills and confidence. Gender-sensitive training and extension offer significant opportunities for women in the livestock sector by recognizing their roles and removing barriers to participation (Yadav and Preethi, 2024). These programs provide tailored knowledge, skills, and technologies suited to women's needs, enhancing their competence in animal husbandry, healthcare, and marketing. By building confidence and leadership, they enable women to participate in decision-making and improve productivity.

Access to Credit and Productive Assets

Promoting joint ownership of livestock, linking women SHGs to formal banking systems, and developing livestock insurance products tailored for women can increase their financial independence. With financial support and ownership of assets like land, livestock, and equipment, women can invest in improved practices, expand production, and establish small-scale enterprises. This access boosts their decision-making power, income generation, and self-reliance

Technology and Innovation

Technology and innovation offer transformative opportunities for women in the livestock sector by simplifying tasks, increasing efficiency, and expanding market access. Tools such as mobile-based advisory services, digital record-keeping, improved breeding techniques, and mechanized equipment reduce drudgery and enhance productivity. Access to such innovations empowers women with knowledge, improves decision-making, and enables value addition. Women's empowerment through livestock innovations depends on interconnected factors, including recognition of their roles, access to resources, availability of opportunities, and their ability to participate in decision-making (Gallie et al., 2022).

Institutional Strengthening

Microfinance initiatives, such as self-help groups (SHGs) and cooperatives, have the potential to significantly support rural women, with studies indicating that dairy cooperatives can play a key role in enhancing their economic empowerment (Dhakal and Nepal, 2016; Rewani et al., 2017). Inclusion of women in cooperatives, Farmer Producer Organizations (FPOs), and governance structures creates valuable opportunities for their empowerment in the livestock sector. Participation in these bodies enhances women's access to inputs, credit, markets, and training. It strengthens their collective voice, decision-making power, and leadership skills. Such inclusion ensures gender-responsive planning and equitable resource distribution. By actively engaging in institutional frameworks, women can influence policies, improve livelihoods, and contribute meaningfully to sustainable and inclusive livestock sector development.

Climate-Smart Livestock Practices

Climate-smart livestock practices present a strategic opportunity for women in the livestock sector by promoting resilience, sustainability, and productivity. Climate-smart practices like improved fodder management, breed selection, and resource conservation are being promoted among women livestock keepers to enhance resilience and reduce greenhouse emissions. Training and involvement in such approaches enhance women's technical knowledge, reduce risks, and support eco-friendly livelihoods. By integrating women into climate-smart initiatives, their roles as sustainable livestock managers are strengthened, fostering empowerment and long-term rural development.

Way Forward

To fully leverage the potential of women in livestock, a paradigm shift is required from viewing women as laborers to recognizing them as livestock managers and entrepreneurs. Key policy and research directions include:

Promoting gender-disaggregated data collection for better planning

Promoting gender-disaggregated data collection enables targeted planning by revealing women's specific roles, needs, and challenges in the livestock sector. This leads to more inclusive policies, equitable resource allocation, and tailored interventions, ultimately enhancing women's participation, productivity, and empowerment in livestock-based livelihoods.

Enhancing women's land and livestock ownership rights

Enhancing women's land and livestock ownership rights strengthens their control over productive assets, increases decision-making power, and improves access to credit and services. This fosters economic independence, boosts productivity, and ensures their recognition as key contributors in the livestock sector, leading to greater empowerment and livelihood security.

Expanding women-friendly technologies

Expanding women-friendly technologies reduces drudgery, improves efficiency, and enhances safety in livestock tasks traditionally performed by women. Tools tailored to women's physical needs and time constraints increase productivity, enable better animal care, and free up time for education or income generation. This technological inclusion fosters confidence, participation, and economic empowerment in the livestock sector.

Incorporating gender equity principles in livestock curricula and extension strategies

Incorporating gender equity principles in livestock curricula and extension strategies ensures that training and knowledge-sharing are inclusive and address the unique needs of women. It promotes awareness among professionals and farmers, challenges gender biases, and enhances women's skills and confidence. This approach leads to equitable access to information, services, and opportunities, empowering women as equal contributors in the livestock sector.

Strengthening public-private partnerships with a gender lens

Strengthening public-private partnerships with a gender lens fosters inclusive value chains, enhances access to resources, and creates tailored services for women in the livestock sector. These collaborations can provide gender-responsive training, market access, and financial support. By addressing structural barriers and promoting women's

participation across production and marketing, such partnerships significantly boost women's empowerment and economic resilience. Collaboration between government, NGOs, research institutions, and the private sector is crucial to build a gender-just livestock sector.

Conclusion

Livestock plays a crucial role in sustaining rural livelihoods in India, with women serving as the backbone of this sector through their extensive involvement in animal care, production, and processing. Despite their substantial contributions, women continue face barriers such as limited access to resources, services, and decision-making power. Addressing these gender disparities through inclusive policies, targeted skill development, and equitable asset ownership is essential. Empowering women in livestock not only enhances household income and nutrition but also drives broader rural development and poverty reduction. An inclusive livestock development approach that values women's contributions, addresses gender disparities, and promotes equitable access will pave the way for resilient livelihoods and a food-secure future for India.

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