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Empowering rural communities: The role of livestock in livelihood enhancement in Kathikund, Dumka

[1]Raes Ahmad and [2]Pratyush Kumar

[1]Coordinater-Livestock Program, PMU of Animal Husbandry Directorate, Hesag, Ranchi, Jharkhand, India

[2]Assistant Professor, College of Veterinary and Animal Sciences, Kishanganj (Bihar Animal Sciences University, Patna), Kishanganj, Arrabari, Bihar, India

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Corresponding Author: Pratyush Kumar

Abstract

Dumka, a sub-capital of Jharkhand, is characterized by its hilly terrain, monsoon-dependent agriculture, and predominantly marginal farmers. The region faces challenges in sustaining livelihoods due to limited landholdings and unstable agricultural productivity. However, production potential is often restricted by high mortality rates, inadequate veterinary care, and lack of awareness regarding improved rearing practices. To address these challenges, PRADAN, in collaboration with The ICICI Foundation, initiated a Model Goat and Backyard Poultry (BYP) Farming project in Dumka's Kathikund block. The project aimed to enhance income security, improve livestock productivity, and ensure sustainable rural livelihoods through structured interventions. Over a three-year period (2022–2024), the project expanded its coverage from 56 to 76 villages, increasing farmer participation from 1,700 to 2,064 through the formation of Producer Groups (PGs). Key interventions included capacity-building initiatives, advanced training programs and institutional strengthening. The project's multi-faceted approach - comprising production clusters, value chain development (feed, fodder, breed improvement and entrepreneurship), and strengthened service supply chains- demonstrates a sustainable model for improving rural livelihoods. These interventions collectively enhance income generation, reduce livestock mortality, and ensure long-term resilience for smallholder farmers in Dumka.

Keywords: Backyard poultry, Dumka, goat, Pradan

Introduction

Dumka, Jharkhand's sub-capital, is a breathtaking district surrounded by hills and dense forests. Known as the "Land of Temples," it sits at 472 ft above sea level, offering a serene hill retreat with a pleasant climate and stunning landscapes. Perched atop Damin-e-Koh, Dumka boasts diverse flora, fauna, rivers, and valleys, attracting nature lovers and tourists alike. It is also a major religious hub, home to Baba Basukinath temple and Maluti temple, drawing devotees from across India. More than 80% of the population in the Dumka district directly depends on agriculture or animal husbandry to earn their livelihood. 69.5% of marginal farmers own less than 1 hectare of land, despite the average land holding being 1.58 hectares (Bhawan and Marg, 2010) [2]. Long, undulating, steep mountainous stretches make up the region's agriculture, which is mostly based on paddy (66% of all cultivable areas), monocropping, and monsoon dependence. Even though the district receives an average of 1250 mm of rainfall per year (Govorushko and Govorushko, 2012) [6], the monsoon rain distribution is still quite uneven and unpredictable.

India has a goat population of 148.88 million, ranking second after China (Annual Report, 2022-23). The goat sector provides 4% of rural employment, supporting 20 million families (Hegde and Deo, 2015) [7]. Small ruminants are mainly reared in rain-fed areas by landless or resource-poor farmers with minimal agricultural land (Kumar, 2003; Singh *et al*., 2005) [9,14]. Goat farming has strong potential for year-round rural employment, known as the "poor man's cow," goats contribute to milk, meat, nutrition security and livelihoods. Studying production performance at the farm level helps assess output, while marketing studies reveal selling practices.

Raising small ruminants and poultry has long been a vital practice for the rural poor (Desta, 2021) [3]. Local poultry serves as an affordable protein source, a financial safety net, and plays a role in cultural traditions. With high market demand, it offers a steady income. However, its full potential remains untapped due to high mortality, predation, inadequate feed, poor shelter, and improper management (Wilson, 2021) [15]. Production remains unstable due to several challenges. In the proposed blocks of Dumka (including Kathikund), poultry mortality rates reach 80–90%, primarily due to deadly diseases like Newcastle Disease (ND) and fowl-pox, coupled with limited awareness and veterinary care. Additionally, a lack of knowledge about improved rearing practices further restricts production potential. Addressing these issues collectively could significantly improve nutrition, reduce poverty, and enhance the well-being of women in the region.

The local poultry production in own backyard will

contribute to village economy by providing enough income to a family round the year, which in turn will also ensure all the nutrient in the food plate directly by consuming these products and indirectly by capacitating the family to earn. Thus, the vicious trap of poverty can be broken due to the availability of protein sources, increase in income sources and it will ultimately decrease the instance of diseases and disorders in human population. Local poultry cultivation could address the nutritional need of the family; if the mass mortality can be checked and improved rearing practices can be ensured.

Livestock sector plays an important and vital role in providing nutritive food and in supplementing family incomes and generating gainful employment in the rural sector, particularly among the landless, small and marginal farmers (Dixit *et al.,* 2017) [4]. Goat and backyard poultry husbandry are the important components of the livestock sector (Shanmathy *et al*., 2018) [13]. Faraz *et al.* (2023) [5] mentioned that livestock, especially small animals and poultry act as buffer to meet emergency requirement and cash flow for the community. With the above background, this proposal is prepared to reestablish the local backyard poultry rearing program in the proposed blocks of Dumka district. Therefore, PRADAN, in collaboration with The ICICI Foundation, initiated a project in Dumka District, Jharkhand, to enhance income security through model goat and backyard poultry (BYP) farming, aiming to uplift rural livelihoods. Given the significant potential for improving small ruminant and poultry production, targeted interventions can drive sustainable growth. The study assesses key progress indicators to evaluate the project's impact and effectiveness in achieving its objectives as mentioned table 1.

Outcomes and Impact Expected during the Project Period

The implementation of the Model Goat and Backyard Poultry (BYP) Farming initiative in Kathikund, Dumka, has shown significant progress in awareness building, skill enhancement, and farmer participation over three years (2022–2024).

1. Expansion of Project Coverage and Farmer Participation

The project inception began in 56 villages in year-1 (Feb 2022) and expanded to 76 villages by year- 2 (Feb 2023), maintaining its reach in year-3 (Feb 2024). The formation of Producer Groups (PGs) at the village level also increased from 56 PGs in year-1 to 62 PGs in Year-3, reflecting a growing interest among local farmers. The number of farmers included in PGs steadily increased from 1,700 in year-1 to 2,064 in year-3, indicating the project's successful outreach and engagement strategies. The increase in participation highlights farmers' growing confidence in structured goat and backyard poultry rearing as a means of income generation.

For capacity building and training for sustainable livelihoods, basic training was provided to 1,650 families in Year-1, increasing to 1,901 families in year-2, and further to 2,064 families in year-3. A key milestone was the introduction of advanced training in year-2, benefiting 1,514 families, and further expanding to 2,064 families in year-3. This suggests that farmers are progressing from basic rearing knowledge to more advanced husbandry practices, improving overall productivity and economic gains (Rege *et al*., 2011) [12].

2. Training and Grooming of Community Service Providers (CSPs)

To ensure sustainable livestock management, 33 Pashu Sakhis (community animal health workers) were trained and engaged consistently over three years (2022–2024). Additionally, six CSPs, Master Trainers (MTs), and Block-level Service Providers (SPs) were trained each year, ensuring a skilled workforce for livestock rearing and health management. This structured approach enhances the adoption of best practices, disease management, and productivity improvement in goat and poultry farming.

Exposure visits play a vital role in skill enhancement and knowledge sharing. While no visits were conducted in year-1, six exposure visits took place in year-2, increasing to nine in year-3. These visits provided farmers and community service providers with practical insights into modern livestock farming, market linkages, and value addition techniques, improving adoption rates and confidence among rural villagers as also studied by Ayele *et al*., 2012 [1].

3. Strengthening Institutional Framework for Sustainable Livelihoods

The establishment of a Farmer Producer Organization (FPO) with a structured business model in Year-1 (2022) has provided a centralized support system for farmers. This BPC has facilitated access to markets, quality inputs, and advisory services, ensuring long-term sustainability. Moreover, Producer Groups (PGs) increasingly adopted structured selling practices, particularly in weighing and marketing their livestock products. While no such adoption was observed in year-1, 29 PGs implemented proper selling practices in year-2, increasing to 30 PGs in year-3.

This shift towards structured selling improves income stability and market efficiency, ensuring better price realization for farmers. The combination of training, exposure visits and institutional support has resulted in enhanced livestock productivity through skilled CSPs and improved rearing techniques, better market access and fair pricing due to the adoption of structured selling practices and increased confidence and financial stability among goat and poultry rearing villagers.

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Table 1: Progress of Livestock-Based Livelihood Interventions in Kathikund, Dumka (Year-wise Comparison)

S. No	Parameters	Unit	Kathikund, Dumka		
			Year-1 (Feb '22)	Year-2 (Feb '23)	Year-3 (Feb '24)
A.1	**Awareness building and Enhancing knowledge & skills**				
a	Inception of the project and concept seeding at village level	Villages	56	76	76
b	Formation of PGs at Village / hamlet level	PGs	56	60	62
c	Inclusion of farmers into the PGs	Farmers	1700	1927	2064
d	Basic training on goat and poultry rearing to rearers	Families	1650	1901	2064
e	Advanced training on goat and poultry rearing to rearers	Families	0	1514	2064
A.2	**Training & Grooming of Community Service Provider**				
a	Pashu Sakhi groomed & engaged	Nos	33	33	33
b	CSPs, MTs, Block level SP groomed	Nos	6	6	6
A.3	**Exposure visits of Activity**				
a	Exposure visits of community/CSP	No.	0	6	9
A.4	**Institution Strengthening**				
a	PG adopt practices around proper selling of products (weighing etc.)	Nos.	0	29	30
B	Piloting, System setting and Adaptation of Practices				
B.1	Feed/ Fodder arrangement				
A	Establishment of feed production unit	No.	1	1	25
B	Farmers intervened in supplementary stall feeding practices for goat or BYP	Farmers	1200	1520	1550
B.2	Cold Chain system and Vet- care service delivery				
A	Establishment of cold chain service system	Nos	1	2	2
B	Farmer receive health care services with own contribution	Farmers	1450	1563	2060
C	Recruitment of Veterinary Expert	Nos	1	1	1
D	Farmers prepared improve shelter for goat or BYP	Farmers	120	120	1090
B.3	Breed Improvement				
A	Establishment of breed farm (goat/ BYP)	Nos	2	3	3
B	Production of quality buck from the farm	Nos	0	8	135
C	Farmers accessed improve breeding services for goat (Buck/ AI system)	Farmers	0	16	730

Fig 1: Backyard poultry rearing at farmer's home

Fig 3: Santhal Pragana Goat Breeding Centre, Bara Bhalki Village of Kathikund

Fig 2: Azzola unit at Santhal Pragana Goat Breeding Centre

Fig 4: Jharkhand Dehati Chicken Shop at Dumka city initiative by the FPO with support from Pradan

4. Establishment of Feed Production Units

The establishment of feed production units has significantly improved access to quality livestock feed. While only one feed production unit was set up in year-1 and year-2, there was a remarkable increase in year-3 (25 units). This expansion indicates a growing emphasis on self-sufficiency in fodder production, reducing dependence on external sources and ensuring consistent and cost-effective nutrition for goats and poultry. The adoption of supplementary stall feeding among farmers has shown steady growth. In year-1, 1200 farmers implemented stall feeding practices, which increased to 1520 farmers in year-2 and 1550 farmers in year-3. This increasing trend suggests that farmers are recognizing the benefits of improved livestock nutrition, leading to better growth rates and higher productivity, reduced mortality rates due to better disease resistance and health management and efficient feed utilization, ensuring cost savings and higher profitability.

5. Establishment of Cold Chain Service System

The expansion of cold chain service units from one to two has significantly improved the storage and transportation of vaccines, medicines, and other perishable veterinary supplies. This advancement facilitated the distribution of essential vaccines, including Foot and Mouth Disease (FMD), haemorrhagic septicaemia, and enterotoxaemia for goats, as well as vaccines for Marek's Disease, Infectious Bronchitis, and Newcastle Disease in poultry. A robust cold chain system plays a crucial role in disease prevention by preserving the potency of vaccines and medicines, thereby enhancing livestock health management. This, in turn, reduces livestock mortality rates and improves overall farm productivity. Additionally, the strengthening of cold chain infrastructure, increased access to veterinary services, and advancements in livestock housing collectively contribute to the resilience of the livestock sector in Dumka district.

The growing participation of farmers in veterinary healthcare and the adoption of improved shelter management reflect a positive transition toward scientific livestock rearing practices. These integrated efforts not only enhance income generation and livestock productivity but also promote sustainable, livestock-based livelihoods.

The number of farmers availing veterinary healthcare services through their own contribution showed a substantial increase from 1,450 to 2,060 over the observed period. A remarkable increase in the number of farmers adopting improved shelter practices is evident, rising from 120 to 1,090. This suggests a growing awareness and willingness among farmers to invest in livestock healthcare, leading to improved animal health, reduced disease outbreaks, and better weight gain in goats and poultry. This trend underscores the success of veterinary service delivery and the impact of awareness programs on animal health management.

6. Breed Improvement

Breed improvement plays a critical role in enhancing livestock productivity, increasing farm profitability, and ensuring sustainable livestock rearing practices (Hoffmann, 2011) [8]. The observations from Dumka district indicate significant advancements in breed development and genetic improvement programs, particularly in goat and backyard poultry farming. The number of breed farms increased from 2 to 3 as shown in Fig. 3 of Santhal Pragana Goat Breeding Centre, Bara Bhalki Village of Kathikund, demonstrating a steady expansion in breeding infrastructure. This increased accessibility to high-quality breeding stock for local farmers, leading to genetic improvement in livestock and higher productivity. Breed farms serve as a nucleus for disseminating superior genetics, ultimately contributing to better growth rates, disease resistance, and reproductive efficiency in livestock. The production of quality bucks showed a remarkable increase from 0 to 135, indicating a significant emphasis on selective breeding and genetic upgradation. Quality bucks play a crucial role in improving the genetic potential of local goat populations, leading to better meat yield, higher reproductive efficiency, and improved adaptability to local climatic conditions (Raheem *et al.*, 2024) [11]. This intervention ensures long-term sustainability and enhanced economic benefits for goat farmers.

The number of farmers accessing improved breeding services increased from 0 to 730, reflecting widespread adoption of advanced breeding techniques such as use of superior bucks for natural breeding and introduction of Artificial Insemination (AI) technology for genetic improvement. This mass adoption of breeding services signifies a positive shift towards scientific breeding practices, which will enhance reproductive efficiency, increase kid survival rates, and improve overall livestock productivity. As according to Nicholas (1996) [10]and Yousuf *et al.* (2024) [16] also mentioned that AI technology also enables rapid genetic progress, allowing farmers to access superior breeds at a lower cost.

The expansion of breed farms, production of quality bucks, and adoption of advanced breeding services highlights a comprehensive approach to breed improvement in Dumka district. These interventions have led to better livestock productivity and genetic gain, higher profitability for farmers due to superior breed performance and increased farmer participation in scientific breeding programs (Rege *et al.*, 2011) [12]. The substantial increase in farmer engagement in breeding services suggests a growing awareness and acceptance of scientific livestock improvement methods. The long-term impact of these breed improvement strategies will include enhanced income generation, greater self-reliance among farmers, and a more sustainable livestock farming ecosystem.

Conclusion

The inclusion of goat farming and backyard poultry (BYP) systems with help of external assistance has significantly improved farm production and resource efficiency in tribal areas, addressing the basic needs of farmers' families while enhancing household income. The project's comprehensive approach—including the establishment of production clusters, value chain development (focused on feed, fodder, breed improvement, and entrepreneurship), and the strengthening of veterinary and service supply chains-demonstrates a sustainable model for rural livelihood enhancement. These strategic interventions not only contribute to increased income generation and reduced livestock mortality but also ensure long-term resilience and economic stability for smallholder farmers in Dumka.

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