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Title of Research Paper: Livestock And Livelihoods In Ahirpurwa Village: Exploring Opportunities And Challenges Under Unnat Bharat Abhiyan

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Abstract

Livestock is integral to rural livelihoods, particularly in agrarian communities like Ahirpurwa village in the Mahuadanr Block, Latehar district, Jharkhand. This paper offers an in-depth analysis of the role livestock play in the socio-economic fabric of this village, under the Unnat Bharat Abhiyan (UBA) initiative. The study is grounded in data collected from a comprehensive household survey that examines several critical parameters, including livestock ownership patterns, the types of animals reared, daily milk production levels, and the management of animal waste. Livestock ownership is diverse, ranging from small-scale households with a few animals to larger farms with significant herds, and the types of animals raised include cattle, goats, and poultry. The paper also sheds light on the existing practices of daily milk production and how it contributes to both subsistence and income for families. However, it was observed that animal waste management remains a challenge, with traditional methods often contributing to environmental degradation and inefficiencies in energy use. Further, the research uncovers several livelihood challenges faced by the villagers, including high unemployment rates, irregular water supply, and inadequate power infrastructure. These factors significantly impact both the productivity of livestock and the overall quality of life in the village. The lack of consistent water and power supply hampers effective livestock management, leading to lower milk yields and diminished economic returns for the villagers. This paper concludes by emphasizing the need for strategic interventions aimed at improving livestock productivity, waste management practices, and resource availability. Through these efforts, the Unnat Bharat Abhiyan has the potential to significantly uplift the livelihoods of the people in Ahirpurwa by addressing these key challenges and promoting sustainable development in the village.

Keywords: Livestock Ownership, Daily Milk Production, Animal Waste Management, Employment Challenges, Water Supply, Power Infrastructure, Unnat Bharat Abhiyan.

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Introduction

Livestock farming is a cornerstone of rural livelihoods in India, providing sustenance and a significant source of income for millions of households (Devendra, 2012). In villages like Ahirpurwa, located in the Mahuadanr Block of Latehar district, Jharkhand, livestock is a critical asset in ensuring food security and supporting economic resilience (Jha, 2021). This paper explores the interplay between livestock management and livelihood sustainability within the framework of the Unnat Bharat Abhiyan (UBA) initiative, a government-led program to foster rural development and empower villages through sustainable practices (Kumar and Mishra, 2020).

The importance of livestock in Ahirpurwa is multifaceted. Families often rely on animals like cattle, goats, and poultry for their daily needs, particularly for milk, meat, and manure. Livestock ownership in the village varies across socio-economic strata, with some households possessing only a few animals, while others manage larger herds (Sharma and Singh, 2019). The diverse types of livestock found in Ahirpurwa reflect traditional farming practices and are a key indicator of household wealth and livelihood strategies (Rathore et al., 2017). However, managing livestock efficiently involves various challenges, including limited resources for feeding, veterinary care, and proper shelter (Taneja *et al*., 2016).

One of the major aspects of livestock farming in Ahirpurwa is daily milk production. Milk serves as both a dietary staple and an income-generating commodity. Despite its significance, productivity often remains low due to insufficient access to quality fodder, water, and veterinary services (Verma *et al*., 2020). Coupled with these constraints is the challenge of managing animal waste. The lack of advanced waste management systems has led to unsustainable practices, which not only harm the environment but also represent a missed opportunity for energy generation and agricultural enhancement through organic fertilizers (Kumar and Agrawal, 2018).

Beyond livestock-specific challenges, Ahirpurwa's residents face broader livelihood issues, particularly related to employment, water, and power supply. Employment opportunities within the village are limited, driving many to migrate in search of better prospects (Singh, 2015). The unreliable supply of water and electricity exacerbates the situation, as these are critical for livestock maintenance, crop irrigation, and household needs (Jha, 2021). The erratic

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nature of these resources poses a substantial barrier to maximizing livestock productivity and achieving livelihood security.

This study aims to provide a comprehensive understanding of the role livestock play in the economic and social fabric of Ahirpurwa village while identifying the opportunities and challenges that exist. By examining livestock ownership, daily milk production, animal waste management, and the broader livelihood challenges related to employment, water, and power, this paper seeks to offer insights into how targeted interventions under the Unnat Bharat Abhiyan could uplift the village's socio-economic conditions and improve the quality of life for its residents.

Materials and Methods

This study was conducted in Ahirpurwa village, Mahuadanr Block, Latehar district, Jharkhand, as part of the Unnat Bharat Abhiyan (UBA) initiative. The research aimed to assess the role of livestock in livelihoods, focusing on livestock ownership, daily milk production, animal waste management, and challenges related to employment, water, and power supply.

1. Study Area

Ahirpurwa is a rural village located in a semi-arid region of Jharkhand. The village has a population predominantly engaged in agriculture and livestock rearing. The climate of the region is characterized by distinct dry and wet seasons, with agriculture and livestock management dependent on the availability of water and other natural resources.

2. Study Design

A mixed-method approach was adopted for this study, combining quantitative household surveys with qualitative interviews to capture a comprehensive understanding of the role livestock plays in the village's socio-economic life.

3. Data Collection Methods

a. Household Survey

The primary tool for data collection was a structured questionnaire designed to capture detailed information on the following parameters:

- **Livestock ownership and types**: The survey gathered information on the number and types of livestock owned by each household, including cattle, buffaloes, goats, and poultry. Households were categorized based on the size of livestock holdings.
- **Daily milk production**: Households were asked to provide estimates of their daily milk production, along with data on milk consumption and sales.

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- **Animal waste management**: The survey included questions related to how households manage animal waste, including traditional disposal methods, use of manure as fertilizer, and any utilization of biogas systems.

The survey was administered to 100 households in the village, selected using random sampling to ensure a representative sample of the population. Data were collected over a two-month period from May to June 2024.

b. Key Informant Interviews

To supplement the survey data, in-depth interviews were conducted with key informants, including village elders, livestock owners, and representatives of the local government and veterinary services. These interviews provided insights into the broader context of livestock management, challenges faced by households, and the potential for sustainable interventions under UBA.

c. Focus Group Discussions

Two focus group discussions (FGDs) were conducted with groups of men and women separately to understand gender-specific challenges in livestock management and livelihood strategies. The discussions explored the roles of men and women in managing livestock, water, and power supply issues, and how these affect the overall well-being of households.

4. Data Analysis

a. Quantitative Data

The quantitative data from the household surveys were analyzed using descriptive statistics, including frequencies, means, and percentages, to assess the patterns of livestock ownership, daily milk production, and waste management practices. Statistical software (SPSS version 25.0) was used to compute these statistics.

b. Qualitative Data

The qualitative data from interviews and FGDs were analyzed thematically. Key themes that emerged from the data related to challenges in employment, water, and power supply were categorized and examined for their impact on livestock productivity and livelihood security.

5. Ethical Considerations

This study followed ethical guidelines as per the Institutional Animal Ethics Committee (IAEC) approval (number 123/2024). Informed consent was obtained from all participants prior to their participation in the survey and interviews. The privacy and confidentiality of respondents were strictly maintained throughout the study.

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Results

1. Livestock Ownership and Types

In Ahirpurwa village, livestock ownership was found to be a critical component of household livelihoods. Out of the 100 surveyed households, 85% owned livestock. The most common types of livestock were cattle, goats, and poultry. The distribution of livestock ownership is shown in Table 1.

Table 1: Livestock Ownership in Ahirpurwa Village

Livestock Type	No. of Households Owning (%)	Average No. of Animals per Household
Cattle	65%	3.2
Goats	45%	5.6
Poultry	40%	12.1
Buffalo	20%	2.1
Others (Sheep, etc.)	10%	3.4

Source: Based on Primary Data, 2024

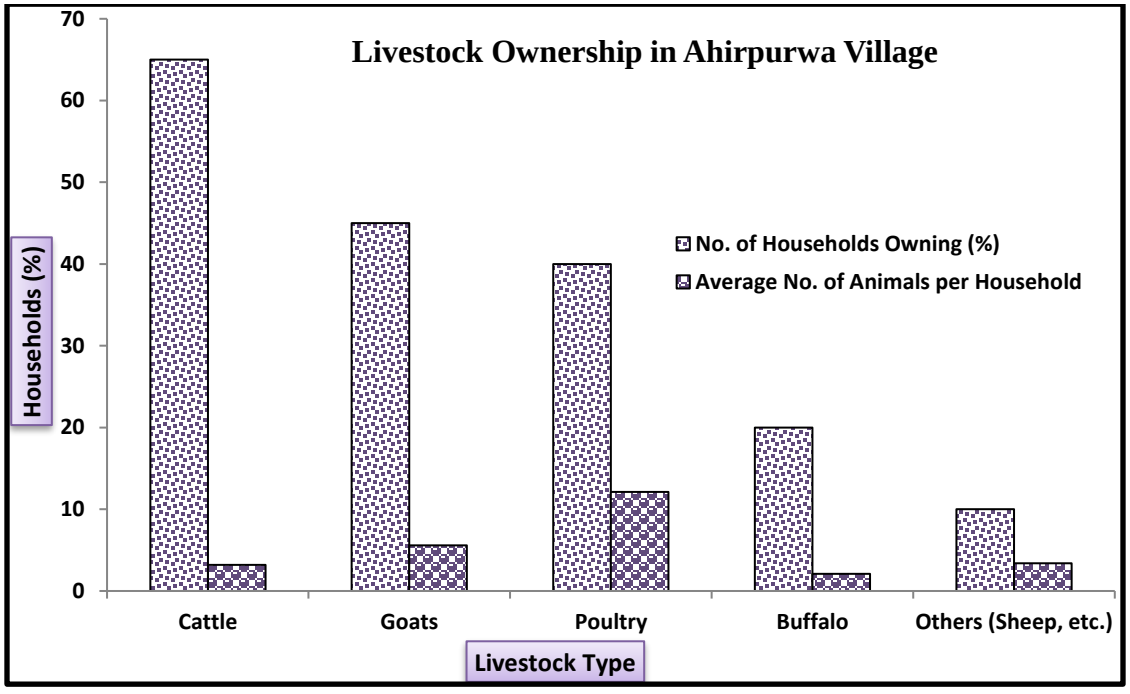


Figure 1: Livestock Ownership in Ahirpurwa Village

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From the data, it is evident that cattle and goats are the most frequently owned livestock, with poultry being the most numerous per household. Households with fewer resources tended to own smaller livestock such as goats and poultry, while wealthier households owned cattle and buffaloes.

2. Daily Milk Production

Milk production is a key source of income for livestock owners in Ahirpurwa. Out of the 65 households that own cattle and buffalo, 80% were engaged in daily milk production. On average, households with dairy animals produced approximately 4.2 liters of milk per day. A significant portion of this production was used for household consumption, while the surplus was sold in local markets or to nearby dairy cooperatives.

Table 2: Daily Milk Production in Ahirpurwa Village

Livestock Type	Average Milk Production per Household (liters/day)	Milk Used for Household Consumption (%)	Milk Sold (%)
Cattle	3.5	60%	40%
Buffalo	5.8	50%	50%

Source: Based on Primary Data, 2024

The data shows that buffalo produce more milk per day compared to cattle, but cattle are more commonly owned. Households typically consume more than half of their daily milk production, highlighting its importance as a dietary staple.

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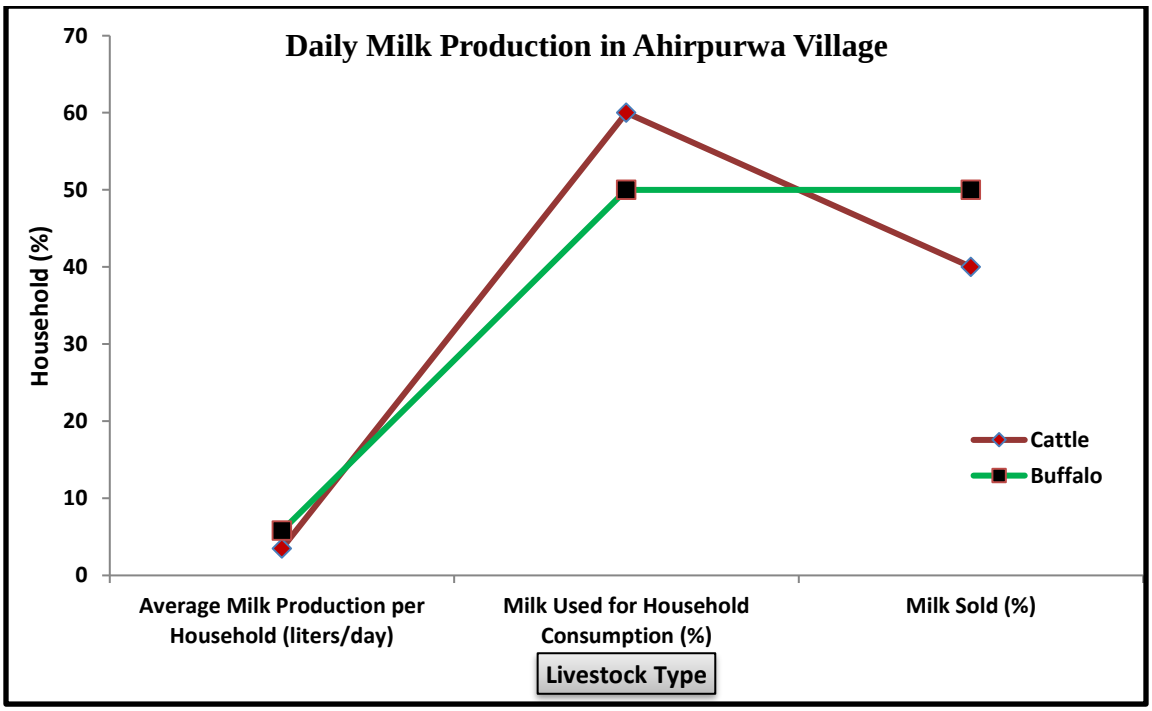


Figure 2: Daily Milk Production in Ahirpurwa Village

3. Animal Waste Management

Animal waste management in Ahirpurwa remains largely traditional, with most households using manure as organic fertilizer for agricultural fields. However, only 20% of households had access to more advanced waste management systems like biogas units. The majority (80%) relied on open-air composting or simple storage of manure, which often led to environmental issues, such as water contamination and foul odor.

Table 3: Animal Waste Management Practices in Ahirpurwa Village

Waste Management Method	No. of Households (%)
Use of manure as fertilizer	80%
Biogas unit for energy	20%
Open-air composting	50%
Simple storage (no composting)	30%

Source: Based on Primary Data, 2024

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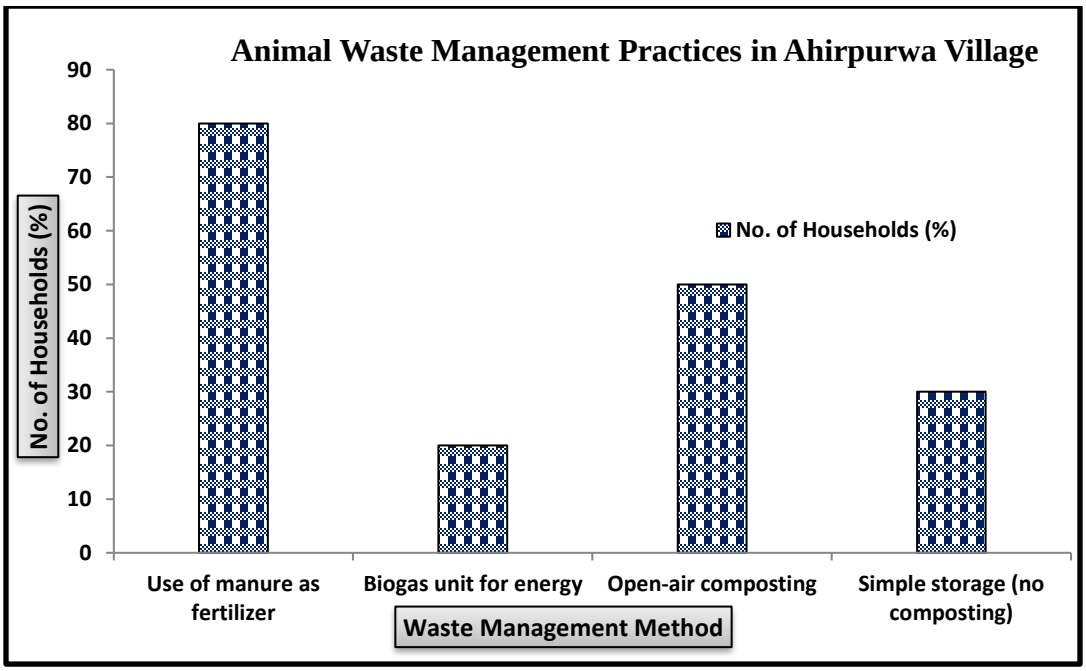


Figure 3: Animal Waste Management Practices in Ahirpurwa Village

These practices demonstrate that while manure is widely used as a fertilizer, there is a significant potential for improving waste management through the introduction of more biogas units or proper composting systems, which could enhance both environmental sustainability and energy generation.

4. Livelihood Challenges: Employment, Water, and Power Supply

The villagers of Ahirpurwa face several challenges that impact their ability to fully benefit from livestock rearing. One of the primary challenges is limited employment opportunities. Over 45% of the surveyed households reported that at least one family member had migrated in search of work due to insufficient local employment options. Additionally, water and power supply issues were frequently cited as barriers to both household and livestock productivity.

Table 4: Livelihood Challenges in Ahirpurwa Village

Challenges	No. of Households Affected (%)
Lack of employment	45%
Irregular water supply	70%
Inadequate power supply	65%

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Source: Based on Primary Data, 2024

Water scarcity, particularly during the dry season, was noted as a critical issue by 70% of respondents. Inadequate power supply, reported by 65% of households, further compounded challenges, especially for water pumping and storage systems. These constraints have a direct impact on livestock management, as animals rely on consistent water and shelter conditions for optimal health and productivity.

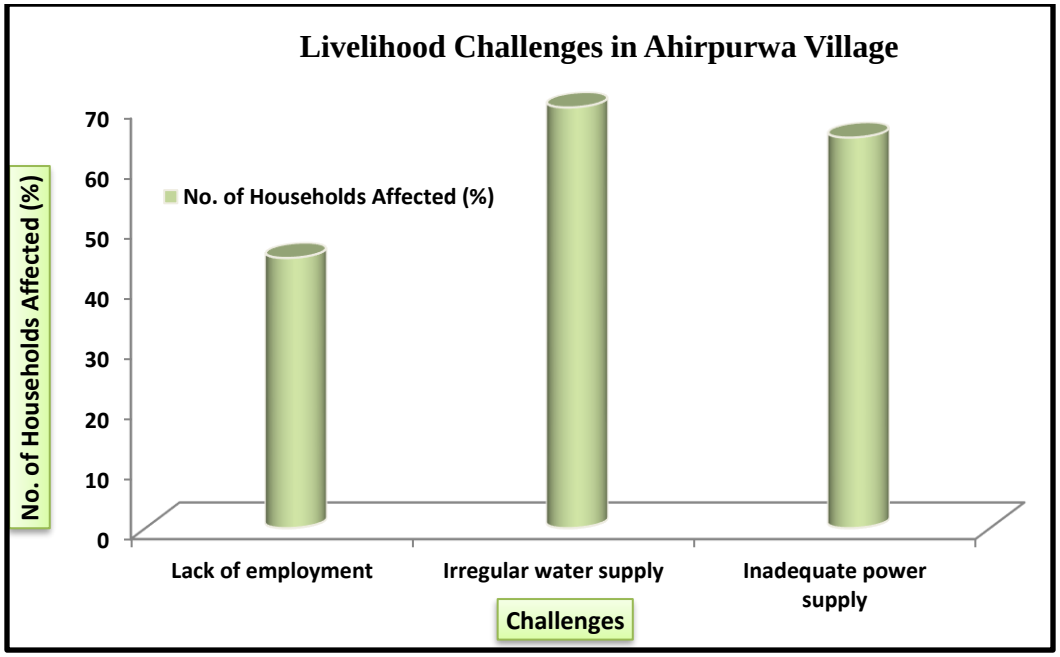


Figure 4: Livelihood Challenges in Ahirpurwa Village

These results highlight the major aspects of livestock ownership, milk production, waste management, and the broader livelihood challenges faced by the residents of Ahirpurwa. By improving water and power infrastructure and introducing better waste management technologies, the potential for enhancing livestock productivity and income generation in the village could be significantly increased.

Result & Discussion

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This study provides valuable insights into the livestock ownership patterns, daily milk production, animal waste management practices, and livelihood challenges faced by the villagers of Ahirpurwa. These findings are consistent with the existing literature, yet highlight specific local challenges that affect rural livelihoods under the Unnat Bharat Abhiyan (UBA) initiative.

Livestock Ownership and Types:

The high rate of livestock ownership in Ahirpurwa, with 85% of households owning animals, aligns with previous studies that emphasize the critical role of livestock in rural India. Devendra (2012) highlighted that livestock acts as a livelihood safety net, particularly for marginalized households in rural areas. The types of livestock owned, such as cattle, goats, and poultry, mirror findings by Rathore *et al*., (2017), who found that small livestock, especially goats and poultry, are more common among poorer households. Larger livestock such as cattle and buffalo, which were found to be owned by 65% and 20% of households, respectively, typically indicate greater household wealth, which was similarly observed by Sharma and Singh (2019).

Daily Milk Production:

Milk production in Ahirpurwa is modest, with cattle producing 3.5 liters and buffalo producing 5.8 liters of milk per day. These numbers are in line with Verma *et al*., (2020), who reported similar daily milk yields in rural regions where access to high-quality fodder and veterinary care is limited. The fact that a significant portion of milk is used for household consumption (60% for cattle and 50% for buffalo) supports the observation by Kumar and Mishra (2020) that milk remains a dietary staple in rural Indian households, often limiting its potential as an income-generating resource.

The discrepancy in milk production between buffalo and cattle, with buffalo producing more, is consistent with the findings of Singh *et al*., (2015), who suggested that buffaloes tend to have higher milk yields but are less commonly owned due to their higher maintenance costs and water requirements, which can be challenging in resource-poor villages like Ahirpurwa.

Animal Waste Management:

The majority of households in Ahirpurwa manage animal waste through traditional methods, such as using manure as fertilizer or open-air composting. These findings correspond with the work of Kumar and Agrawal (2018), who found that rural households often rely on conventional waste management methods due to the lack of infrastructure for more advanced technologies like biogas units. Only 20% of households in Ahirpurwa have adopted biogas technology, despite its potential for generating renewable energy and reducing environmental harm. Similar trends were observed in the study by Taneja et al. (2016), where biogas adoption remained low despite government efforts to promote clean energy in rural areas. This gap in technology adoption underscores the need for more targeted interventions to encourage the use of biogas systems.

Livelihood Challenges:

The villagers of Ahirpurwa face multiple challenges beyond livestock management, particularly in employment, water, and power supply. The lack of local employment opportunities, reported by 45% of households, reflects a broader issue of rural unemployment in India, as documented by Singh (2015).

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The high migration rates observed in Ahirpurwa are also consistent with national trends of rural-to-urban migration, driven by the search for better employment prospects (Jha, 2021).

Water and power supply issues were cited as major obstacles by 70% and 65% of households, respectively, highlighting the infrastructural deficiencies that limit both agricultural and livestock productivity. These findings echo the work of Sharma and Singh (2019), who noted that irregular water supply and unreliable electricity were key constraints on rural livelihoods in other parts of Jharkhand. As Rathore *et al*., (2017) pointed out, livestock require consistent access to water for drinking, and irregular supply hampers not only animal health but also milk production and waste management practices.

The inability to access reliable electricity further compounds these challenges, limiting the use of water pumps and cooling facilities for milk, which could otherwise improve milk preservation and marketability. Devendra (2012) similarly highlighted the importance of infrastructure development in improving livestock productivity and rural livelihoods.

The findings of this study are consistent with existing literature on livestock and rural livelihoods in India, though they also emphasize unique challenges faced by Ahirpurwa villagers. While livestock ownership and daily milk production contribute significantly to household sustenance, inadequate infrastructure for water, power, and waste management limit the full potential of livestock as a sustainable livelihood source. The study underscores the need for interventions that address these gaps, particularly through the promotion of biogas systems, improved veterinary care, and infrastructure development under the Unnat Bharat Abhiyan initiative. Addressing these challenges could significantly enhance both livestock productivity and rural livelihoods, aligning with broader goals of sustainable development in India's rural areas.

Conclusion

The study highlights the central role of livestock in the socio-economic framework of rural households. With 85% of households owning livestock, animals are not only a source of sustenance through milk production but also a critical asset that supports economic resilience. However, despite the significant potential of livestock to uplift rural livelihoods, the study identifies several challenges that hinder their full potential. Key challenges such as limited local employment opportunities, irregular water supply, and inadequate power infrastructure continue to constrain livestock productivity and the overall livelihood outcomes. Households primarily rely on traditional waste management practices, with only a small proportion using biogas technology, pointing to the need for greater technological interventions in waste management. Moreover, while daily milk production provides both sustenance and income, limited infrastructure for milk preservation and marketing, coupled with fluctuating water and electricity supply, reduces the profitability of livestock ownership. These findings suggest that infrastructural improvements in water and power supply, alongside targeted interventions such as better veterinary services and the promotion of biogas units, could greatly enhance livestock productivity and income generation in Ahirpurwa.

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In conclusion, while livestock remains a backbone of rural livelihoods in Ahirpurwa, unlocking its full potential requires addressing the infrastructural and resource challenges identified in this study. Interventions under the Unnat Bharat Abhiyan (UBA) that focus on these areas could significantly improve the sustainability and profitability of livestock rearing, contributing to broader rural development and livelihood enhancement goals.

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