



Animal Husbandry in the Thar Desert: Constraints and Sustainable Interventions

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Abstract

Animal husbandry represents a pivotal livelihood strategy for communities in the Thar Desert, particularly in Rajasthan, India. This investigation elucidates traditional and modern livestock management practices, delineates environmental and socio-economic constraints, and advocates sustainable interventions. Utilizing authoritative data from governmental and research institutions, this study emphasizes integrated strategies—encompassing genetic conservation, water resource optimization, and value-added enterprises—to enhance resilience and economic sustainability in arid ecosystems.

1. Introduction

The Thar Desert, also known as the Great Indian Desert, spans approximately 200,000 square kilometers, primarily in western Rajasthan. With 55% of Rajasthan's landscape classified as arid (Government of India, 2019), it is marked by scarce rainfall (100–500 mm annually), extreme temperatures, and sparse vegetation. In such conditions, animal husbandry serves as a vital livelihood for millions, offering both income and nutritional security.

Over 50% of household income in arid Rajasthan comes from livestock (Rajasthan Department of Animal Husbandry, 2020), compared to 22–25% in other regions. Rajasthan accounts for 10–11% of India's livestock population and leads in the number of goats, camels, and donkeys. Communities such as the Raikas, Bishnois, and Jats traditionally raise camels, sheep, goats, cattle, and buffalo, relying on indigenous knowledge systems passed down through generations.

Indigenous breeds have adapted to the desert climate, showing drought tolerance and disease resistance. Despite lower yields compared to exotic breeds, they remain essential for resilience. However, the sector is now facing compounded challenges from climate change, shrinking resources, and socio-economic shifts like youth migration. This paper explores existing practices, key constraints, and sustainable solutions to support livestock livelihoods in Rajasthan's arid zones.

2. Traditional Practices and Livestock Diversity

2.1 Camels

- Rajasthan holds 80% of India's camel population (NRCC, 2023).
- The ICAR-National Research Centre on Camel (NRCC) in Bikaner promotes camel milk, tourism, and genetic conservation.

2.2 Sheep and Goats

- Rajasthan contributes 30–35% of India's wool production (CSWRI, 2022).
- Prominent breeds include Chokla, Marwari, and Jaisalmeri.
- CSWRI supports breed development, wool value chains, and health interventions like selective deworming.

2.3 Cattle and Buffalo

- Indigenous cattle such as Rathi, Tharparkar, and Kankrej are known for heat and drought tolerance.
- 93% of milk production in Rajasthan comes from indigenous breeds (Rajasthan Department of Animal Husbandry, 2020).

3. Constraints

3.1 Water Scarcity

- Average rainfall: 100–500 mm/year.
- Heavy reliance on groundwater and temporary ponds.
- Droughts and irregular monsoons intensify livestock stress (CAZRI, 2021).

3.2 Fodder Availability and Overgrazing

- Grazing land has not increased in proportion to livestock growth.
- Overgrazing accelerates land degradation (CAZRI, 2021).

3.3 Animal Health and Veterinary Services

- Lack of veterinary clinics and mobile services in remote areas.
- Poor disease surveillance increases livestock mortality (Rajasthan Department of Animal Husbandry, 2020).

3.4 Socio-economic Barriers

- Small landholdings (2–5 ha) limit fodder cultivation.
- Women bear the brunt of livestock-related labor.
- Youth migration leads to a decline in traditional pastoral knowledge (Government of India, 2019).

4. Sustainable Interventions

4.1 Institutional Support

- CAZRI focuses on rangeland management, water harvesting, and renewable energy for livestock.
- NRCC promotes camel-based livelihoods (milk, tourism).
- CSWRI works on genetic improvement and wool processing (CAZRI, 2021; NRCC, 2023; CSWRI, 2022).

4.2 Policy and Community Initiatives

- Livestock population in Rajasthan: 56.8 million (Government of India, 2019).
- Schemes like **Bhamashah Livestock Insurance** help mitigate risks for small farmers.

4.3 Water and Fodder Innovations

- Use of **taankas** (rainwater harvesting tanks) to store water for livestock.
- **Silvopastoral systems** combining fodder trees like Acacia with grasses.
- **Hydroponic fodder production** as a low-water alternative.

4.4 Breed Improvement and Value Addition

- Artificial insemination programs for genetic improvement.
- Camel milk products, wool crafts, and eco-tourism support diversification.
- Handicraft cooperatives offer additional income to women in livestock-rearing families (NRCC, 2023).

5. Case Study: Camel Reuse Initiative

In 2024, the **Border Security Force (BSF)** donated 59 retired camels to rural communities near Jaisalmer. These camels were repurposed for:

- Eco-tourism
- Local transportation
- Camel milk production

With veterinary and welfare support in place, this initiative has opened new revenue channels and highlights the importance of reusing livestock assets sustainably (BSF, 2024).

6. Conclusion

Animal husbandry in the Thar Desert is deeply intertwined with both culture and climate. While traditional practices have ensured survival, contemporary constraints necessitate multi-dimensional interventions. A blend of modern science and community-based knowledge is essential for sustainability.

Key Challenges (Point-wise):

1. **Water scarcity and irregular rainfall**
2. **Overgrazing and land degradation**

3. **Lack of veterinary services and disease control**
4. **Limited fodder cultivation on small landholdings**
5. **Market access limitations for value-added products**
6. **Migration of youth and erosion of traditional knowledge**

Recommended Solutions (Point-wise):

1. **Improve veterinary infrastructure**
 - Mobile clinics, disease surveillance, and telemedicine.
2. **Expand water conservation systems**
 - Promote taankas, check dams, and drip-fed hydroponic fodder.
3. **Promote silvopastoral systems**
 - Integrate trees and grasses to combat desertification and feed shortages.
4. **Support cooperatives and women's SHGs**
 - Encourage camel milk, wool handicrafts, and tourism as value-added income sources.
5. **Scale up genetic improvement programs**
 - Focus on indigenous breed conservation with better yields and climate adaptability.
6. **Community-centric education and policy**
 - Involve local people in extension programs and recognize women's contribution through training and credit access.

Through integrated, community-led, and policy-supported strategies, the future of animal husbandry in Rajasthan's arid zones can be secured and made more resilient to both climatic and economic challenges.

References

- Government of India. (2019). *20th Livestock Census*. Department of Animal Husbandry and Dairying.
- Rajasthan Department of Animal Husbandry. (2020). *Livestock Economics and Production Statistics*.
- Central Arid Zone Research Institute. (2021). *Annual Report on Arid Zone Livestock Management*.
- National Research Centre on Camel. (2023). *Advances in Camel Research and Livelihoods*.
- Central Sheep and Wool Research Institute. (2022). *Sheep Breed Improvement and Wool Production*.
- Border Security Force. (2024). *Camel Reuse Initiative Report*.
- ICAR-CSWRI. (2022). *Genetic Improvement Programs and Wool Innovation in Arid Zones*.
- ICAR-CAZRI. (2021). *Dryland Farming and Livestock Systems in Rajasthan*.