Available online at: http://alive.lppm.unand.ac.id/

Andalasian Livestock

ISSN 3063-1912 (Online)

Research Article

# Dynamics of Livestock Market in Rural Indonesia: A Case Study of Traditional Cattle Trading at Solok District, West Sumatera

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Article history:
Received: 14-10-2024 | Revised: 21-11-2024 | Accepted: 28-12-2024 | Published: 24-01-2025

**ABSTRACT**

This study examined the dynamics of the traditional cattle trading in Solok Regency, West Sumatra, Indonesia, focusing on the Muaro Paneh livestock market. Livestock markets support rural economies by facilitating animal transactions, disseminating market information, preserving cultural practices, and maintaining social networks. Despite the significance of this market, there was a lack of research on micro-level rural livestock markets in Indonesia. This study aimed to fill the gap by investigating the structure, key actors, and transactional mechanisms of the traditional cattle trade in Solok District. Using a qualitative case study approach, the research exposed the underlying dynamics of rural livestock markets, evaluate their resilience, and provide empirical insights for inclusive and context-sensitive livestock development policies. The findings emphasize the importance of traditional livestock markets in rural transformation and sustainable livestock systems.

**Keywords**: animal, modern market, traditional market, West Sumatra

## INTRODUCTION

Livestock markets are crucial role in sustaining rural economies in many developing countries, including Indonesia. These markets serve as the leading platform in the livestock trading chain, performing the livestock trading functions of exchange, dissemination of market information, and preserving cultural practices, which are still maintained in traditional communities (Dalmoro & Nique, 2017; Saharuddin et al., 2022). This assertion is further supported by the findings of Pineda & Pérez (2023) regarding the Sonora market in Mexico.. Traditional cattle trading through livestock markets is a long-standing economic activity that continues to shape livelihoods in many parts of Indonesia, particularly in regions where agriculture and livestock remain the primary sources of income (Grünbühel & Williams, 2016).

The Solok District in West Sumatra provides a compelling case for examining traditional cattle marketing systems deeply embedded within local customs and indigenous knowledge frameworks. Weekly livestock markets in this region, such as the Muaro Paneh market, attracted diverse actors from surrounding areas, including buyers, sellers, and intermediaries. These interactions are shaped by a complex interplay of economic motivations and sociocultural norms, making the market a central component of the region's informal livestock economy. It is

DOI: 10.25077/alive.v2.n1.p62-70.2025

evident from various studies that livestock are not only an asset but also a cultural symbol (Bettencourt et al., 2013; Rancatore, 2015).

While existing literature on Indonesia's livestock sector tends to emphasize large-scale commercial supply chains, urban consumption patterns (Subandi et al., 2019; Hamzah & Ahmad, 2018; Afrianto et al., 2020), or top-down livestock development programs (Spoelstra & Elzen, 2010; Liang et al., 2023), there is a notable paucity of research focusing on micro-level rural livestock markets. The operation of a livestock market in developing countries is often the overlooked center of livestock trading, encompassing informal institutions, local knowledge, and local pricing mechanisms.

This research addressed these gaps by investigating the structure, key actors, and transactional mechanisms of the traditional livestock trade in Solok, with a focus on the Muaro Paneh livestock market. Using a qualitative case study approach, this research seeks to uncover the underlying dynamics of rural livestock markets and offer empirical insights that can inform more inclusive and sensitive livestock development policies.

The growing policy emphasis on rural transformation and the promotion of sustainable livestock systems underscores the relevance of this study. As Indonesia intensifies its efforts to enhance food security and improve rural livelihoods, a nuanced understanding of how traditional livestock markets operate is crucial. Insights derived from such research can contribute to the formulation of development strategies that are both effective and culturally grounded.

## MATERIAL AND METHOD

This research was conducted at the Muaro Paneh livestock market in Jorong Koto Kaciek Nagari Muaro Paneh, Solok Regency, West Sumatra Province. The Muaro Paneh livestock market was selected as the research site because it is the oldest livestock market in West Sumatra and the only one managed by the Minangkabau community organization. A case study method was employed, and information was collected through interviews with members of community organizations who manage the market. The data was analyzed descriptively to provide an overview of the management and institutions of the Muaro Paneh market in Solok Regency, West Sumatra, Indonesia. The variables for this research include the operationalization of the Muaro Paneh livestock market and the livestock buying and selling transactions that occur there.

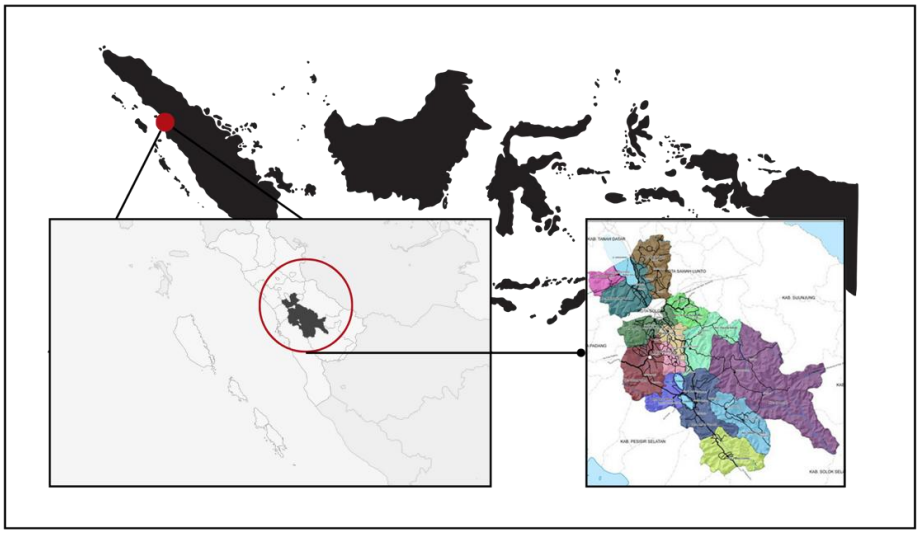


Figure 1. Solok Regency, Sumatera Barat Province

 DOI: 10.25077/alive.v2.n1.p62-70.2025

## RESULT AND DISCUSSION

### Organization of Muaro Paneh Livestock Market

Operationalization is defined as working, implementing, organizing, or managing as a whole in an organization or company. Market operationalization refers to the implementation and management of activities that support the market's technical, administrative, and logistics operations. Livestock market management is described as the managerial activity of all board members in the livestock market. Operational management in the Muaro Paneh livestock market with the general operational Operational management in the Muaro Paneh livestock market is conducted in accordance with the general operational guidelines of the livestock market:

1. Board of Trustees

Governance at the Muaro Paneh livestock market is uniquely characterized by the direct involvement of traditional leadership, wherein the Wali Nagari (village head) of Muaro Paneh serves as the de facto head of the market's Board of Trustees. As a local institutional authority, the Wali Nagari plays a pivotal role in overseeing and guiding market operations in accordance with customary norms and formal regulations established by the Kerapatan Adat Nagari (KAN). This institutional arrangement not only ensures regulatory compliance and effective dispute resolution but also fosters market development and social cohesion by maintaining a conducive environment for traders, livestock breeders, and consumers. Such governance structures, deeply rooted in local traditions and informal institutions, have enhanced the resilience and legitimacy of rural market systems—particularly in contexts where formal state mechanisms are limited or lack public trust. The integration of indigenous leadership into market management reflects a hybrid institutional model that effectively bridges customary authority and economic governance. This model is crucial for promoting inclusive and sustainable rural development in decentralized settings, while also mitigating the risk of inter-institutional conflicts (Ahmed, 2010; Novoa, 2021; Prasad & Ojha, 2024).

2. Manager

Institutional management within the Muaro Paneh livestock market is exemplified by a multi-layered governance structure that integrates formal leadership roles with customary authority. The market is overseen by a leadership team comprising the head of the market commission, the Kerapatan Adat Nagari (KAN) leader, and the chief market manager. Day-to-day operations are supervised by the commission head, ensuring adherence to procedural norms and maintaining order among stakeholders. In parallel, market rules and regulations are formulated and legitimized by the KAN leader through indigenous decision-making processes grounded in adat (customary law). Overall market functioning is coordinated and overseen by the chief market manager, ensuring that transactions are conducted efficiently, transparently, and in alignment with both statutory and customary frameworks. This institutional configuration is reflected in a hybrid governance system that effectively blends formal and informal institutions to manage local economic spaces. Such arrangements enhance governance resilience and foster collective action by embedding legitimacy within culturally relevant structures—a factor that is especially crucial for the effective functioning of rural markets in developing countries (Ahmed, 2010).

3. Finance

The financial management practices at the Muaro Paneh livestock market are characterized by limited administrative capacity and a narrow operational scope. The finance department primarily handles the collection of market retribution fees, which are subsequently remitted to the district government. Additionally, it is responsible for disbursing wages to retribution post officers, cleaning staff, security personnel, and parking attendants. However, the department does not maintain systematic records of livestock inflows and outflows or document overall market turnover, as such practices are not deemed essential within the current governance framework. Financial reporting is informal, typically conveyed verbally to the head of the market commission. This minimalistic approach to financial oversight reflects broader challenges in rural market governance, including weak institutional accountability, limited human resource capacity, and an overreliance on informal reporting systems (Andrews, Pritchett, & Woolcock, 2017; Deininger & Mpuga, 2005). The lack of formal financial documentation can hinder transparency, reduce market efficiency, and impede the development of data-driven policies for livestock market improvement, particularly in decentralized settings where local governments are expected to play a greater role in economic management (Novoa, 2021).

4. General

The absence of a dedicated general affairs section in the management structure of the Muaro Paneh livestock market illustrates a form of functional consolidation, whereby administrative responsibilities are redistributed among existing leadership roles. Specifically, tasks typically associated with a general section, such as coordination, facility maintenance, and policy implementation, are assumed by the head of the commission, the head of the Kerapatan Adat Nagari (KAN), and the chief market manager. The commission head supervises overall market operations, ensuring regulatory adherence and stakeholder engagement, while the chief manager oversees daily logistical functions and enforces established market policies. This streamlined governance model reflects adaptive institutional arrangements common in resource-constrained rural contexts, where multifunctional leadership can enhance operational efficiency but may also increase the burden on key individuals and reduce role specialization. Although such arrangements may function effectively within tight-knit, customary-based systems, they can pose risks to accountability and scalability without formalized structures and clear delineation of responsibilities (Ningrum & Nurasik, 2024).

5. Livestock Handling and Health Unit

Livestock health management in the Muaro Paneh livestock market is under the jurisdiction of the Animal Health and Veterinary Public Health Division of the Solok District Agriculture Office, specifically through the Animal Health Center (Puskeswan) and Artificial Insemination (IB) Division in the Muaro Paneh area. This unit conducts routine health checks and issues animal health certificates, mainly for animals imported from outside the Solok District. These activities are critical to ensuring animal health and biosecurity and maintaining public confidence and compliance with regional and national animal health regulations.

6. Promotion Unit and Market Information Services

According to an interview with Mr. Nazar, a member of the Kerapatan Adat Nagari (KAN), the provision of market information services at the Muaro Paneh livestock market is a shared responsibility between KAN representatives and administrative personnel stationed at the

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market office. These services are designed to ensure the availability of relevant information for a broad spectrum of stakeholders, including visiting researchers, university students participating in community engagement programs (Kuliah Kerja Nyata), local farmers, livestock traders, and prospective buyers. By maintaining a consistent presence within the market office, KAN and administrative officers facilitate transparency, build trust, and contribute to the flow of information that underpins efficient market operations. Access to timely and accurate market information is essential for supporting decision-making processes among rural actors, reducing information asymmetry, and strengthening market participation—principles widely recognized in the literature on rural market governance and participatory development (de Paula et al., 2024).

7. Cleaning and Waste Management Unit

In the organizational structure of the Muaro Paneh livestock market, the cleaning and waste management unit is consolidated with the security unit, with one officer representing each function. This integrated structure allows for coordinated efforts in maintaining environmental hygiene, managing waste, and ensuring public safety during market operations. The officers jointly oversee the cleanliness of market premises, the removal of organic and non-organic debris, and the enforcement of order, particularly during peak trading hours. Such integrated service delivery reflects a pragmatic approach to resource constraints in rural market systems and contributes to a healthier and more secure market environment. Clean and orderly market conditions support public health and animal welfare and enhance market efficiency and user satisfaction—elements underscored in international studies on rural market infrastructure and health security (Sulistyowati et al., 2024).

8. Livestock Fodder Procurement and Consulting Services Unit

The procurement of livestock forage at the Muaro Paneh livestock market is facilitated by independent forage traders who operate within the market premises, offering fresh-cut forage at approximately IDR 25,000 per sack. This decentralized fodder provision model results from a deliberate policy decision by the *Kerapatan Adat Nagari* (KAN), which opted not to institutionalize forage supply through the market's internal organizational mechanisms. Instead, the sale of forage is entrusted to local community members to promote rural livelihood diversification and equitable economic participation. This approach aligns with broader development strategies emphasizing local empowerment and community-based value chains in agricultural systems. By enabling residents to participate directly in the forage economy, the system strengthens household incomes, enhances market inclusivity, and supports sustainable resource utilization—principles widely advocated in global literature on rural development and community-led (Ahmad & Talib, 2011).

9. Savings and Loan Unit

The Muaro Paneh livestock market deliberately excludes the operation of a savings and loan unit within its organizational structure to prevent financial dependency and avoid conflicts that may arise from credit-related transactions. This decision reflects a strategic governance approach aimed at protecting the social cohesion and mutual trust between farmers and traders, which are critical to the functionality of informal rural markets. Credit facilities in informal livestock markets have often been associated with rising transaction costs, repayment defaults, and disruptions in buyer–seller relationships. By prioritizing cash-based transactions, the Muaro

Paneh market reinforces financial transparency, transactional efficiency, and socio-economic balance among market participants. Such practices align with broader rural development principles that emphasize voluntary market participation, minimized debt exposure, and the protection of local institutions from the volatility of informal credit systems.

**Livestock Transaction at Muaro Paneh Livestock Market**

Livestock buying and selling transactions are part of the livestock trading activities, such as cattle, goats/sheep, and buffalo, between sellers and buyers with an agreed price (Table 1).

Table 1. Livestock prices during August 2024

| Dates | Cattle Breeds | Livestock Prices (Rp/Head) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Male | Female | Young male | Heifer | Male Calf | Female Calf |
| 5/8/2024 | Simmental | 29,000,000 | 19,000,000 | 18,000,000 | 13,000,000 | 8,000,000 | 7,000,000 |
| | Limousin | 28,500,000 | 18,500,000 | 17,000,000 | 12,500,000 | 8,500,000 | 7,000,000 |
| | Brahman | 29,500,000 | 19,500,000 | 19,500,000 | 14,000,000 | 10,000,000 | 8.500.000 |
| | Pesisir | 24,000,000 | 15,000,000 | 14,500,000 | 9,000,000 | 6,000,000 | 5,000,000 |
| | Bali | 26,500,000 | 16,500,000 | 16,000,000 | 10,000,000 | 7,000,000 | 6,000,000 |
| 12/8/2024 | Simmental | 29,000,000 | 19,000,000 | 18,500,000 | 13,500,000 | 8.500.000 | 7,000,000 |
| | Limousin | 29,000,000 | 19,000,000 | 17,500,000 | 15,000,000 | 9.500.000 | 7,500,000 |
| | Brahman | 30,000,000 | 19,500,000 | 19,500,000 | 16,000,000 | 9.500.000 | 8.500.000 |
| | Pesisir | 25,000,000 | 16,000,000 | 13,000,000 | 11,000,000 | 5.500.000 | 4,000,000 |
| | Bali | 27,500,000 | 17,500,000 | 15,000,000 | 12,500,000 | 7,000,000 | 6.500.000 |
| 19/8/2024 | Simmental | 29,500,000 | 19,500,000 | 18,000,000 | 15,000,000 | 8,000,000 | 7,000,000 |
| | Limousin | 28,000,000 | 19,000,000 | 18,500,000 | 15,000,000 | 8.500.000 | 7,000,000 |
| | Brahman | 31,000,000 | 20,500,000 | 20,000,000 | 17,500,000 | 9.500.000 | 8.500.000 |
| | Pesisir | 21,500,000 | 16,000,000 | 14,000,000 | 10,000,000 | 6,000,000 | 5,000,000 |
| | Bali | 23,000,000 | 17,500,000 | 15,500,000 | 12,000,000 | 7,000,000 | 6,000,000 |
| 26/8/2024 | Simmental | 28,500,000 | 18,000,000 | 19,550,000 | 15,500,000 | 8.500.000 | 7,500,000 |
| | Limousin | 28,000,000 | 18,500,000 | 18,500,000 | 15,500,000 | 9,000,000 | 7,500,000 |
| | Brahman | 30,000,000 | 19,500,000 | 21,500,000 | 17,500,000 | 10,000,000 | 8.500.000 |
| | Pesisir | 22,000,000 | 15,500,000 | 15,000,000 | 10.500.000 | 5.500.000 | 4,000,000 |
| | Bali | 25,000,000 | 16,500,000 | 16,500,000 | 13.000.000 | 7,000,000 | 6,000,000 |

Market fluctuations at the Muaro Paneh livestock market are primarily driven by shifts in beef demand, which are closely aligned with the availability of slaughter cattle at the local slaughterhouse (Rumah Potong Hewan, RPH) and seasonal activities tied to significant religious festivals. These temporal variations in livestock inflows and outflows influence price-setting mechanisms for farmers and traders, reflecting dynamic supply–demand interactions characteristic of informal rural livestock markets. Price volatility subsequently governs trading intensity, as market participants strategically time their transactions to maximize returns based on anticipated market conditions. Such behavioral adaptations align with findings in livestock marketing literature, emphasizing the responsiveness of smallholder producers and traders to price signals within culturally and economically sensitive market contexts. The following data presents the number of incoming and outgoing livestock recorded during August 2024 at the Muaro Paneh livestock market in Table 2.

Table 2 shows buffalo sales in August 2024 reached only three heads, significantly lower than sales of cattle and goats. This low figure is primarily due to the limited number of buffalo

 DOI: 10.25077/alive.v2.n1.p62-70.2025

farmers in West Sumatra, resulting in a reduced market supply. Unlike cattle and goats, buffalo are less commonly raised by the local community.

Table 2. The number of livestock entering/leaving during August 2024

| Month | Cattles (Ekor) | | Goats (Ekor) | | Buffalo (Ekor) | |
|---|---|---|---|---|---|---|
| | In | Out | In | Out | In | Out |
| Augustus | 250 | 36 | 18 | 3 | 4 | 1 |
| | 220 | 33 | 22 | 5 | 5 | 1 |
| | 240 | 41 | 19 | 8 | 2 | 0 |
| | 200 | 30 | 27 | 4 | 6 | 1 |
| Total | 910 | 140 | 86 | 20 | 17 | 3 |

Consumer preferences also play a key role. Based on an interview with Mr. John Chandra, buffalo meat is generally less favored due to its tougher texture and stronger flavor than beef. This aligns with Ilahi (2019), who noted that buffalo meat is characterized by a darker color (due to higher myoglobin content), coarse muscle fibers, white fat, and a distinctive odor that persists after handling. These characteristics contribute to lower consumer demand and consistently low sales at the livestock market.

**Informal Trading Organization**

Informal market institutions play an important role in regulating the social and economic dynamics within the livestock market. The following informal institutions exist in the Muaro Paneh livestock market :

1. Farmers

Farmers are important in optimizing livestock weight gain and maintaining animal health to increase marketability and attract buyers. In the Muaro Paneh livestock market, most farmers, especially those from Nagari Muaro Paneh, sell directly to traders or end consumers who benefit from reduced transportation time and costs due to the close geographical distance. However, collectors and wholesalers still control the beef cattle marketing system, reflecting farmers' structural constraints, such as limited access to consumers, lack of capital, lack of marketing knowledge, and the need to conduct cost- and time-efficient transactions. In addition, farmers located outside the Solok district often overcome logistical barriers by coordinating livestock sales over long distances through telephone communication with traders, underscoring the important role of social networks in rural livestock marketing dynamics.

2. Collectors

Collectors function as key intermediaries within the livestock marketing chain, purchasing small quantities of animals directly from farmers and aggregating them for subsequent resale to wholesalers or larger market outlets. In the Muaro Paneh livestock market, collectors employ a dual procurement strategy by visiting farms or purchasing animals directly within the market premises. After accumulating sufficient stock, these collectors facilitate the movement of livestock to wholesalers or alternate markets, thereby bridging the operational and scale gap between smallholder farmers and bulk buyers. This intermediary role is critical in enhancing market efficiency, reducing transaction costs, and mitigating information asymmetries in rural livestock value chains, as documented in similar contexts globally.

3. Wholesalers

Wholesalers operate as pivotal actors in the livestock value chain by purchasing large volumes of animals from collectors or directly from farmers at the market and redistributing them to slaughterhouses, meat processing facilities, or external markets beyond Solok Regency. At the Muaro Paneh livestock market, wholesalers often engage local intermediaries to facilitate transactions with farmers and collectors, leveraging indigenous negotiation practices such as the Marosok to finalize deals. Concurrently, external wholesalers—particularly from urban centers including Payakumbuh, Pekanbaru, and Jambi—typically position themselves at designated market stalls to await transaction completions. This multi-layered wholesaler system underscores the complex socio-economic and cultural dynamics shaping livestock trade in rural Indonesian markets. It mirrors similar informal market practices observed in other developing contexts.

## CONCLUSION

In conclusion, the Muaro Paneh livestock market is influenced by multifaceted interactions between consumer preferences, informal trade organizations, and structural constraints in the rural marketing system. Informal institutions, such as farmers, collectors, and wholesalers, play a key role in facilitating trade and ensuring market efficiency. The complex negotiation practices of wholesalers reflect the intricate socio-economic and cultural structure of livestock marketing in rural Indonesia. Understanding these dynamics is crucial for developing strategies that improve market access, optimize transaction efficiency, and support the livelihoods of small farmers and traders in the livestock value chain. This research highlights the need for targeted interventions to address the challenges faced by rural livestock producers and promote sustainable market development.

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