

VALUE CHAIN ANALYSIS AND MARKETING STAKEHOLDERS OF BALI CATTLE IN KUPANG REGENCY AND CITY

Profil Rantai Nilai Dan Pelaku Pemasaran Sapi Bali Di Kabupaten Dan Kota Kupang

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How to cite: Ninu A, Jacob JM, Bele A, Vertygo S. 2025. Value chain analysis and marketing stakeholders of bali cattle in Kupang regency and city. *Bul. Vet. Udayana*. 17(6): 2078-2089. DOI: <https://doi.org/10.24843/bulvet.2025.v17.i06.p29>

Abstract

Bali cattle are one of the primary commodities of Timor Island, Indonesia, and they contribute substantially to the community's income. This is demonstrated by the substantial increase in the cattle population over the past three years, as well as the heightened demand for beef both within Timor Island and beyond NTT. This study aimed to analyze the marketing value chain of Bali cattle for each stakeholder within Kupang City and District and identify the specific function of each participant in this value chain. This research methodology is descriptive, specifically employing a case study approach that encompasses interviews with all participants involved in the marketing of Bali cattle, along with stakeholder analysis derived from the interview findings. The analysis revealed six key business actors contributing to the value-added process of cattle sales: suppliers, producers, collectors, traders, processors, and retailers. Additionally, five influential entities—government agencies, financial institutions, non-governmental organizations (NGOs), institutions of higher education, and animal insurance providers—were identified as participants in this value chain. Influencers possess distinct duties and responsibilities that collectively enhance the Bali cattle value chain within Kupang City and the District. However, government authorities at both the national and local levels are one of the principal stakeholders exerting significant influence over the value chain. Based on the outcomes of the stakeholder/business actor analysis, the most important role in enhancing beef sales value was at the processing stage (44%), followed by suppliers (19%), retailers (17%) and producers (14%). Conclusion: Six business actors within the livestock sector each fulfil distinct duties and contribute value at every stage of the Bali cattle sales value chain, influencing fluctuations in the selling prices of Bali cattle and their products in Kupang City and District. Recommendation: Future research should integrate several critical and

interrelated factors within a comprehensive value chain analysis, with a specific emphasis on constructing a value chain database for the Kupang city and district.

Keywords: Bali cattle, Marketing, Stakeholders, Value chain

Abstrak

Sapi Bali merupakan salah satu komoditi andalan pulau Timor yang berperan penting dalam penerimaan pendapatan masyarakat. Hal ini terlihat dari tingginya populasi ternak sapi yang dipelihara tiga tahun terakhir serta tingginya permintaan daging sapi baik di Pulau Timor maupun diluar NTT. Penelitian ini bertujuan untuk melihat proses rantai nilai pemasaran ternak sapi Bali pada setiap pelaku usaha rantai nilai di Kota dan Kabupaten Kupang serta untuk mengetahui bagaimana peran tiap pelaku usaha terhadap rantai nilai tersebut. Metode Penelitian ini dilakukan secara deskriptif yaitu studi kasus dengan melakukan wawancara terhadap tiap pelaku dalam pemasaran ternak sapi Bali dan analisis pemangku kepentingan mengacu kepada hasil wawancara yang telah dilakukan. Berdasarkan hasil analisis terdapat 6 tahapan pelaku usaha yang berperan penting dalam pertambahan nilai ternak sapi yang dijual yaitu *supplier*, *producer*, *collector*, *trader*, *processor*, dan *retailer* serta 5 *influencer* (pemerintah, bank, *Non Government Organisation* (NGO), lembaga pendidikan tinggi dan asuransi hewan) yang turut mengambil bagian dalam rantai nilai ini. *Influencer* mempunyai peran dan tugasnya masing – masing yang turut berkontribusi dalam rantai nilai sapi Bali di kota dan kabupaten Kupang, namun pemerintah baik pemerintah pusat dan daerah adalah salah satu *influencer* yang dominan dalam rantai nilai ini. Berdasarkan hasil analisis *stakeholder* / pelaku usaha yang paling berperan penting dalam pertambahan nilai penjualan daging sapi adalah pada tahapan processing (44%), diikuti dengan supplier (19 %) retailing (17%) dan producing (14%). Simpulan: 6 pelaku usaha di bidang peternakan menjalankan perannya masing – masing dan memberikan nilai tambah pada setiap tahapan rantai nilai penjualan sapi bali yang berdampak pada perubahan harga jual sapi bali dan produknya di kota dan kabupaten Kupang. Saran: penelitian selanjutnya diharapkan menambahkan beberapa faktor penting yang saling terintegrasi dalam analisis rantai nilai secara detail terutama dalam membangun basis data rantai nilai di kota dan kabupaten Kupang.

Kata kunci: Pemasaran, Pelaku usaha, Rantai Nilai, Sapi bali

INTRODUCTION

Bali cattle are a type of livestock commodity that can increase the income of communities in East Nusa Tenggara (NTT). This is because NTT, especially the island of Timor, is known as a supplier of Bali cattle to Java, Kalimantan, Sumatra, and the surrounding regions. Based on data from the NTT Central Statistics Agency (BPS, 2024), the population of Bali cattle in the Kupang district increased in the 2023-2024 period, where in 2023, the cattle population was 101,373 heads and reached 103,226 heads in 2024. In 2022, beef production data in NTT was approximately 636,989.75 kg, whereas beef production data in 2023 increased by 35,480.76 kg to 675,470.51 kg (BPS NTT, 2023). This change in figures shows that the increase in population is in line with the increasing demand for beef in NTT and also contributes to the increase in the income of the people in NTT.

The increase in the cattle population and sales on Timor Island cannot be separated from the role of several business actors in the livestock sector. These actors include cattle farmers, local collectors, local traders, slaughterers, retailers, supermarkets, meat outlet sellers, and consumers (divided into low-, middle-, and high-income consumers) (Kadju, 2020; Lole et al., 2021). The sale of cattle and their processed products begins with the farmer and reaches the consumer through a gradual process involving actors in the livestock sector up to the buyer or

consumer (Kadju, 2020). The involvement of business actors in the cattle supply chain ultimately affects the cattle marketing value chain in Kupang City and the Regency. Kadju (2020) stated that the length of the supply chain can affect the costs incurred and profits of business actors.

Various studies on the cattle supply chain in NTT have been conducted in the past few years. Research on the simple supply chain in NTT conducted by Hadi (2013) shows the business actors involved in the supply chain in NTT and the marketing costs borne by each actor in the supply chain. In addition, Seventi et al. (2018) have conducted research on the economic feasibility and trade of cattle in NTT. Research conducted by Kadju (2020) found three patterns of beef supply chains in Kupang, all of which affect the production costs of beef. However, no specific research has been conducted on the value chain and cattle marketing actors in Kupang City and the Regency.

The value added in cattle marketing can be demonstrated in a value chain process. Sarma et al. (2017) stated that the value chain approach provides an overview of cattle farming, which ultimately presents the value-added process in the marketing of Balinese cattle. Meanwhile, the chain analysis helps to understand the relationship between each actor in the chain and the trading process (Sarma et al., 2017; Sirajuddin et al., 2015). stated that the value chain approach provides an overview of cattle farming, which ultimately presents the value-added process in the marketing of Balinese cattle. Meanwhile, the chain analysis helps to understand the relationship between each actor in the chain and the trading process (Sarma et al., 2017; Sirajuddin et al., 2015). Value chain mapping is a process that develops a visual description of the basic structure of the value chain. It also provides an overview of the product flow from raw materials to consumers and presents the functions of each business actor in the value chain (Sarma et al., 2017). Furthermore, Durgaprasad & Jadeja, (2024) Durgaprasad and Jadeja (2024) state that the value chain includes suppliers/inputs, producers, processors, and buyers, supported by various technical, business, and financial service providers. Therefore, the value chain is designed to capture value for all actors by conducting activities to meet consumer demand. The factors that influence farmers' purchasing behavior and their relative significance must be determined to formulate a meaningful marketing strategy for cattle feed products.

Referring to the previous description, the main issues examined in this study are how to analyze the value chain of Bali cattle marketing in Kupang City and Regency and how the role of livestock business actors influences the value chain. Based on this issue, this study aims to describe the value-added process at each stage or business actor involved in the marketing of Bali cattle in Kupang City and Regency and how each business actor contributes to the value chain.

RESEARCH METHODOLOGY

Animal testing ethics

This study did not use animal testing and, therefore, did not require an ethical review.

Research Subjects

The subjects of this study were cattle farmers, local cattle sellers, and inter-island cattle sellers. The research methods used were surveys and interviews with cattle farmers and traders. Interviews were conducted with 25 respondents, consisting of individual farmers, livestock groups, and Bali cattle entrepreneurs.

Research Variables

The independent variables in this study were the roles and activities of business actors/influencers in the value chain, and the dependent variable is the amount of value added at each stage of Bali cattle marketing. The control variables were livestock type, location, time, and uniform data collection techniques.

Data collection methods

In-depth interviews, observations, and stakeholder analysis were conducted using a descriptive case study approach. Interviews and surveys were conducted over a full month in November 2020 using questionnaires consisting of several reference questions for each business actor. The research location was the animal market in Lili, located at coordinates -10.045658, 123.902125, Camplong Village, Fatuleu District, Kupang Regency, East Nusa Tenggara (NTT) Indonesia. Cattle farmers and entrepreneurs reside in Kupang City and the Regency. The sampling technique for value chain analysis was conducted using purposive sampling through an expertise judgment approach (Shabrina et al., 2015). The criteria for respondents in this study were that they were still actively engaged in cattle trading in the last three years. The data obtained from interviews with the value chain actors were analyzed qualitatively to determine the priorities for value chain development.

Stakeholder Analysis

Stakeholders are defined as individuals or groups that can be affected by or influence the objectives of an organization, such that the success of the organization depends on them (Fontaine et al., 2006). The stakeholders in this study are every individual or group that can influence the Bali cattle marketing value chain in Kupang, namely, farmers, local traders, workers, suppliers, retailers, distributors, and consumers. Stakeholder analysis is a system for collecting information from individuals or groups of people who are influential in making decisions, grouping information, and assessing the possibility of conflicts that may arise between interest groups in areas where negotiations for decision-making will take place (Fontaine et al., 2006). The details of the analysis of each stakeholder in this study are discussed in the discussion section.

RESULTS AND DISCUSSION

The cattle farming system in NTT consists of intensive, extensive, and combined systems of cattle farming. However, most farmers on the island of Timor use a combined intensive and extensive systems. This livestock management pattern is a system in which Balinese cattle are released into pastures from morning to evening and are kept in pens at night until morning before being released into pastures again (Volkandari et al., 2020). The purpose of releasing the animals on pasture from morning to evening is to allow them to feed on wild grass and leaves directly from nature (Prasetya, 2011; Volkandari et al., 2020).

The semi-intensive maintenance pattern applied by cattle farmers in NTT, according to Wirdahayati (2010) and Priyanto (2016), is influenced by the geographical and climatic conditions in NTT. Geographically, the vast expanse of grasslands allows livestock to roam freely in nature, which is not proportional to the number of livestock being grazed, so that the availability of feed for livestock is still considered sufficient when compared with other regions in Indonesia (Priyanto, 2016). In addition, the climate in NTT plays an important role in the availability of livestock feed, which ultimately affects the selling weight (Volkandari et al., 2020) and cattle value chain in NTT.

Overview of the Bali Cattle Sales Value Chain in Kupang Regency and City

The basic structure of the Bali cattle marketing value chain in Kupang City and Regency is shown in Figure 1. In this figure, the Bali cattle value chain consists of three columns: Function, Actors, and Influencers. The first column in this chain is “functions,” which refers to the functions of each actor or business actor in the value chain. Business actors play their respective roles in producing, selling, and processing cattle for sale to consumers. The last column is “influencers,” which are parties that contribute to adding value to cattle marketing in Kupang City and the Regency.

Based on Figure 1, there are six actors in the Bali cattle value chain. The value chain begins with suppliers and ends with the retailers. Suppliers are the initial actors who play an important role in providing seeds, medicines, chemicals, and farming equipment to the farmers. At the same level, feeder cattle or seeds are also provided. Breeding cattle can be purchased from farmers or from the Lili Livestock Market. However, in its development, farmers raise breeding stock to produce seeds naturally, but some also provide livestock seeds by performing artificial insemination (AI). Referring to the results of interviews with farmer-livestock groups, efforts to provide feeder cattle by means of AI have begun because the price of feeder cattle sold at the Lili livestock market has started to increase from the previous price. In addition, AI services and prices are cheaper than those of feeder cattle from the livestock market.

The calves obtained by farmers are then raised either individually or in groups through farmer-livestock groups in the village using extensive or semi-intensive methods. Within 6 months to 1.5 years, when the cattle reach market weight (250-350 kg/head), they are sold. Currently, Balinese cattle farmers use two types of sales systems: sales to collectors for sale at the Lili livestock market and direct sales to inter-island traders. The sale of breeding stock or feeder cattle from farmers to local collectors is Rp. 30,000/kg.

Collectors are collectors or traveling traders located in villages and sub-districts (Hadi, 2013). Collectors also play an important role in determining farmers' income, as they interact directly with both farmers and other collectors (Lole et al., 2021). The sale of cattle to collectors is carried out by farmers who are generally located quite far away and are difficult for buyers to access (far from the Lili market). This is because the cattle purchased generally come from the interior of Kupang Regency, South Central Timor (TTS) Regency, and North Central Timor Regency (TTU) (Hadi, 2013; Priyanto, 2016). The cattle collected by collectors from various places are then taken directly to the Lili Livestock Market for sale. In addition, local collectors also sell the cattle they have collected to other local collectors, who are local traders and inter-island traders, at a price range of Rp. 33,000/kg. However, if farmers already have a network with inter-island traders, they sell their cattle directly to them. The results of this study show that inter-island traders usually buy livestock from animal markets or directly from cattle farmers, both individual farmers and those who are members of livestock farmer groups, and then sell them outside the island of Timor (Lampung, Kalimantan, and DKI Jakarta) (Hadi, 2013; Lole et al., 2021; Priyanto, 2016).

Located in the Lili market, cattle sold by collectors are purchased by local traders. This study shows that the number of local traders involved in cattle sales can reach 4-5 levels before the cattle are finally purchased by the final local trader and taken to the slaughterhouse. The difference in selling prices at each level can reach \pm Rp. 5,000 per head of cattle, so the selling price ranges from Rp. 35,000 to 50,000 per head. After the cattle are slaughtered at the slaughterhouse, the meat or carcasses are purchased and sold in several traditional markets in the city of Kupang, such as the Oeba, Naikoten, and Oebobo markets (purchased by low-income consumers). In addition, the meat is also distributed to several supermarkets and meat

outlets, food stalls, restaurants, supermarkets, and hotels in the city and district of Kupang (purchased by middle- and high-income consumers). However, price changes in the Lili market do not significantly affect the incomes of farmers, collectors, and local traders (Bay et al., 2024). The selling price of meat from the slaughterhouse to meat sellers in the market ranges from Rp. 75,000 per kg. These results show that the selling price varies due to several factors, namely, weather, climate, new student enrollment, and certain conditions such as disease outbreaks. In general, the price of meat at the slaughterhouse will spike to around Rp. 90,000 per kg during the rainy season. However, during the dry season and when new students are admitted, the selling price of beef tends to fall to Rp. 75,000/kg. The selling price at the slaughterhouse ultimately affects the selling price of meat in several local markets in Kupang City, such as the Oebobo, Naikoten, and Oeba markets. Meanwhile, the selling prices of beef in supermarkets and meat retailers tend to be stable.

Description of Value Added by Each Actor in the Value Chain

Value added is generally necessary in the business world or for investors so that business actors obtain attractive profits or added value, that is, exceeding the level of income from safe investments (Kadju, 2020). Based on the description of the value chain flow (Figure 1), it can be seen that there are four major parts of value added in the Bali cattle marketing chain among the four actors in the value chain (Figure 2). The business actor that receives the largest proportion of value added in this chain is the processor, with a percentage of 44%. The business actors who play an important role in this stage are the final stage local traders/retailers who sell meat in traditional markets as well as supermarkets or meat outlets in the city of Kupang. This was followed by input supply by suppliers and retailers, with percentages of 19% and 17%, respectively. Meanwhile, farmers as producers are only in fourth place, with an added value of 14%.

The significant added value in processing causes high beef prices in the market. This can be influenced by several factors, including the purchase cost from livestock traders in the Lili market, transportation costs, RPH facility usage costs, additional feed and drinking water costs during transportation and rest periods at the RPH, and fuel prices (Kadju, 2020; Shabrina et al., 2015). Another factor that affects the value added at the retailer stage is the addition of packaging costs, sorting products according to consumer needs (separating meat from bones and meat types), distribution costs, and delivery services (Shabrina et al., 2015). Meanwhile, at the supplier stage, value-added is influenced by production and distribution costs. Therefore, at this stage, it is clear that the value added at each stage of the value chain is influenced by the actions taken by each business actor towards cattle or purchased products. The more treatments and the higher the quality of the actions taken by each business actor, the greater the value added at that stage (Sirajuddin et al., 2015).

Stakeholder Analysis

Referring to Figure 1, regarding the Bali cattle value chain in Kupang City and Regency, there are five influencers in this value chain. The influencers closely related to the cattle marketing value chain in the city and regency of Kupang are the government (central and regional), banks, non-governmental organizations (NGOs), universities (several public and private universities), and animal insurance companies. A detailed analysis of the functions and roles of these influencers is presented in the stakeholder analysis section in Table 1. This table outlines the roles or authorities of each actor in the value chain and the risks or obstacles faced by them.

Based on Table 1, each stakeholder in the Bali cattle marketing chain has different roles, interests, and influences. The roles of each business actor are interrelated, even though they have different authorities in each function of the value chain. These roles can be performed

well because of the coordination and communication between each business actor in the value chain. Generally, communication and coordination can occur both formally and informally, or verbally and in writing (Shabrina et al., 2015). Formal communication and agreements usually occur at the influencer level, such as the central government when issuing regulations and policies related to beef cattle farming, as well as in the provision of training or workshops for farmers, competitions, or counseling related to livestock management and health issues.

Local governments also play an important role in providing veterinarians and veterinary paramedics responsible for preventing and treating sick livestock. Local governments also provide training and assistance programs for agricultural and livestock-related extension workers. Local regulations and policies are also a form of authority exercised by the government to control the flow of cattle sales and purchases in the city and district of Kupang. Both the central and local governments have high authority in this value chain, where the government can act as a regulator, controller, and policy maker, which is very influential in the development of the beef cattle industry, especially Balinese cattle in NTT (Priyanto, 2016).

In addition to the government, banks, as providers of capital for farmers, also enter into formal agreements and contracts through capital credit contracts. The form of communication and formal agreements carried out by insurance companies, universities, polytechnics, and NGOs is through the signing of memoranda of understanding and cooperation contracts; however, in practice, unwritten communication and agreements are also sometimes carried out. Therefore, the value chain overview (Figure 1) and value chain growth diagram, as well as the policy maker analysis table, show that there is a close relationship between each business actor, influencer, and activity that occurs in the value chain, which ultimately can affect the value growth that occurs in the Bali cattle marketing chain in Kupang City and Regency. Table 1 presents the risks and obstacles faced by each stakeholder. This shows that every challenge in the Bali cattle industry can be overcome if there is good, clear, and comprehensive coordination among all business actors, especially farmers, so that productivity will improve, which will ultimately affect the value addition in the marketing of Bali cattle (Sarma et al., 2017).

CONCLUSION AND RECOMMENDATIONS

Conclusion

The conclusion that can be drawn is that there are six business actors who play an important role in adding value to cattle sold: suppliers, producers, collectors, traders, processors, and retailers. In addition, five influencers (government, banks, NGOs, higher education institutions, and animal insurance companies) also play a part in the Bali cattle marketing value chain in the city and district of Kupang. Furthermore, influencers have their respective roles and duties that contribute to the Bali cattle value chain in the city and district of Kupang, but the central and local governments are among the most dominant influencers in this value chain. Based on the stakeholder analysis results, the stage in the business that plays the most important role in increasing the value of beef sales is the processing stage (44%), followed by suppliers (19%), retailing (17%), and production (14%).

Recommendations

Further research needs to add several things related to expanding the area and types of commodities studied, using quantitative analysis to measure efficiency and distribution of added value. In addition, it is necessary to integrate social, environmental, and technological aspects, involving the active participation of value chain actors. Furthermore, further research is needed to assess the effectiveness of government policies and develop predictive models or simulations to support data-based planning.

ACKNOWLEDGEMENTS

The author would like to express his gratitude for the financial support provided by the Kupang State Agricultural Polytechnic (Politani Kupang) through DIPA 2020 and the Orange Knowledge Programme (OKP)/Nuffic from the data collection stage to the publication of this article. The same gratitude is extended to the three facilitators in the Tailor Made Training (TMT) activity “Towards Successful PPP Partnerships on Climate Adaptation for Food Security in East Nusa Tenggara” Batch II, namely Albertien Kijne and Prof. Euridice Leyequién from Van Hall Larenstein University of Applied Science, Netherlands, and Steven Starmans from Kim Delta, for their knowledge and skills in value chain analysis and climate-adaptive public-private partnerships for sustainable agricultural development. Finally, this study would not have been possible without the support and cooperation of all respondents in providing research data. The authors express their gratitude for the time, effort, and data shared by the participants.

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Figure

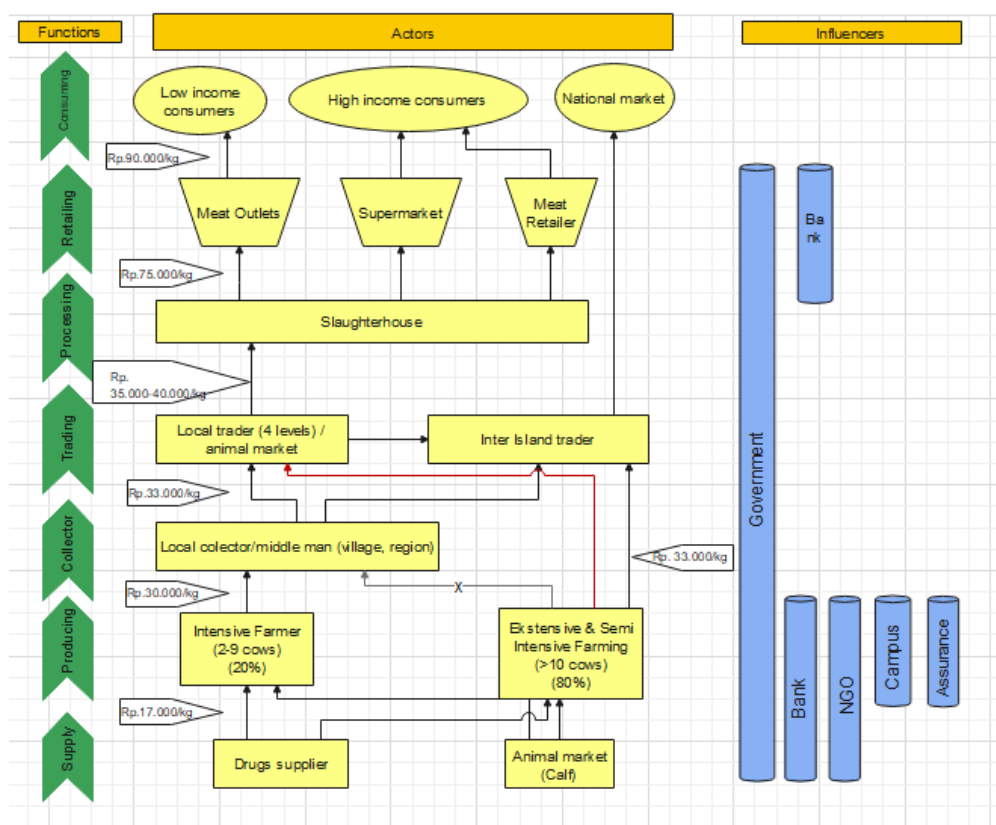


Figure 1. Bali Cattle Value Chain in Kupang City and Regency.

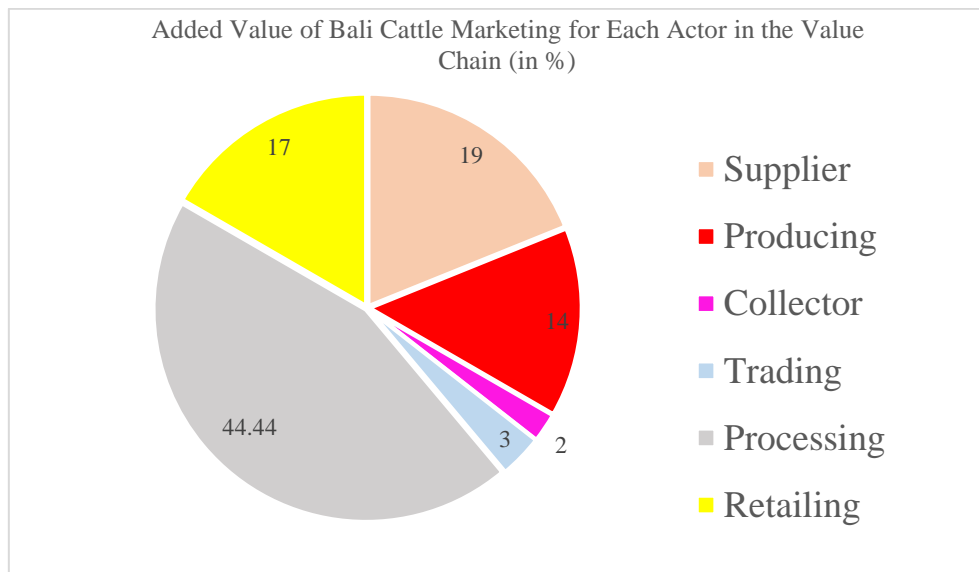


Figure 2. Diagram of Added Value of Bali Cattle Marketing for Each Actor in the Value Chain (%).

Table

Table 1. Stakeholder Analysis

No	Stakeholder	Role / Authority	Risks and Constraints Faced by Each Actor
1	Consumers		
a.	Low-income consumers	Purchase and consumption of meat from traditional markets.	Low income limits purchasing power, leading to substitution of beef with alternative protein sources such as eggs, fish, and chicken meat.
b.	High-Income consumers	Purchase and consumption of meat from supermarkets or specialized meat outlets.	Availability of high-quality and safe meat.
2	Retailing		
a	Meat outlets & traditional markets	Providing meat for consumption and sale to low-income groups.	No preservatives are used in the meat sold.
b	Supermarkets	Providing meat for consumption and sale to high-income groups.	Hazard Analysis and Critical Control Points (HACCP) Meat products.
c	Meat retailers	Providing meat for consumption and sale to high-income groups.	HACCP Meat products.
3	Processing		
a	Slaughterhouses (RPH)	Cutting and processing meat into portions ready for sale in markets, supermarkets, and meat outlets.	Risk of livestock dying before slaughter, accidents involving livestock.

No	Stakeholder	Role / Authority	Risks and Constraints Faced by Each Actor
4	Trading / Sellers		
a	Local traders (four levels)	Buying and collecting cattle from local farmers or other local traders.	The large number of local sellers causes high selling prices.
b	Inter-island traders	Buying cattle from farmers or local traders at livestock markets and then trading the animals between islands/nationally.	Seasonal, climate, and weather risks cause delays in distribution and availability of meat outside NTT/the national market.
5	Farmers		
a	Intensive farming system	Intensive and semi-intensive livestock farming, paying attention to animal husbandry and health management, and planting HMT for livestock.	Shortages of feed and drinking water for livestock, suboptimal animal husbandry and health management, lack of financial support from relevant institutions, high prices of cattle, and lack of information on regulations and policies related to the sale and purchase of livestock.
b	Semi-intensive farming system		
6	Influencers		
a	Government	Training programs, workshops, HMT supply units, livestock health services, regulations, policies related to the purchase and sale of cattle.	Regulations, training, workshops, and policies in the field of animal husbandry are often time-limited and it is difficult to obtain information related to animal husbandry policies and regulations.
b	Banks	Provision of funds for livestock business capital and the sale of meat and meat products.	There is no guarantee of funding and legal regulations regarding financial support for farmers. Financial support for farmers.
c	Higher education institutions (Universities & Polytechnics)	Assistance for farmers through community service, farm design, and waste management through sustainable farming programs.	Education, training, workshops, and assistance for farmers.
d	Non-governmental organizations (NGOs)	Assistance for livestock farming and farmer development, provision of financial assistance and programs in the field of livestock farming.	Limited capital and time for livestock assistance.
e	Insurance providers	Provision of animal insurance services for cattle.	Limited knowledge among livestock farmers, meaning that

No	Stakeholder	Role / Authority	Risks and Constraints Faced by Each Actor
			not all livestock farmers are able to take out livestock insurance.
7	Input suppliers		
a	Cattle breeding stock suppliers	Provision of cattle breeding stock.	The high selling price of seeds makes it difficult for farmers to purchase seeds.
b	Veterinary drugs and chemical suppliers	Provision of chemicals and veterinary medicines.	Access to veterinary drugs and chemicals.