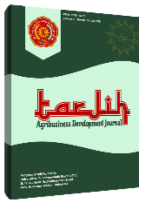
Tarjih: Agribusiness Development Journal. Volume 06 Number 01 (2026) Page: 64 - 74
DOI: https://doi.org/10.47030/tadj.v6i01.1130

e-ISSN: 2798 - 0782
Tarjih: Agribusiness Development Journal
Journal Homepage: https://jurnal-umsi.ac.id/index.php/agribisnis



Logistical Bottlenecks and Captured Value Chains: A Process Flow Analysis Of Small-Scale Salt Farmers In Jeneponto, Indonesia

Sitti Khadijah Yahya Hiola[1], Sitti Arwati[1], Amanda Patappari Firmansyah[2]
[1] Agribusiness Program, Faculty of Agriculture, Universitas Muhammadiyah Makassar, Indonesia
[2]Agrotechnology Program, Faculty of Agriculture, Universitas Muhammadiyah Makassar, Indonesia
khadijah@unismuh.ac.id

Received : May 07, 2026
Revised : June 04, 2026
Accepted: June 22, 2026
Corresponding Author: Sitti Khadijah Yahya Hiola, Universitas Muhammadiyah Makassar. Indonesia. Email: khadijah@unismuh.ac.id

ABSTRACT

Jeneponto Regency is a salt-producing area in South Sulawesi with great potential for growth in small-scale salt production. This study aims to trace the flow of small-scale salt products and reveal logistical barriers and relationships between actors in the supply chain. A qualitative approach was used through semi-structured interviews with 38 salt farmers, 3 traders, and 2 distributors. The results of the study show that the flow of small-scale salt from upstream to downstream is hampered by a long, fragmented, and unintegrated supply chain, which slows down distribution. The contribution of this study to critical logistics points is evident in the limited storage facilities and various logistical constraints that prevent the optimal implementation of post-harvest salt procedures, resulting in low-quality salt. The market structure also shows a pattern of a controlled value chain, where farmers are highly dependent on a single dominant actor, namely the collector trader, who controls the community's salt supply chain, forming a captured value chain pattern. This research makes scientific contributions by developing community salt logistics that improve salt quality, while also providing policy recommendations for the government by strengthening farmer institutions to reduce dependence on collectors and increase bargaining power in the value chain.

Keywords: *Small-scale salt farmers, Process Flow Analysis, Captured Value Chain, Logistics, Supply Chain, Governance*

INTRODUCTION

Indonesia is a country with a relatively large number of islands compared to other nations, boasting a coastline of 108,000 km and more than 17,500 islands (Deputy for Maritime Resources Coordination, 2023). Approximately 70% of Indonesia's territory consists of ocean, and in theory, this resource potential supports the nation's ability to meet its salt needs independently. However, in reality, Indonesia remains heavily dependent on imports, such as imported salt. According to data from the Central Statistics Agency (BPS), salt imports in 2024 totaled 2.8 million metric tons, with 73% originating from Australia, 26% from India, and the remainder from various other countries (Central Statistics Agency, 2025; Budi Widiarto et al., 2013), as shown in Table 1. This dependence on salt imports indicates that domestic salt production, particularly smallholder salt production, has not yet been able to meet national demand in terms of both the quantity and quality of salt products

Table 1. Salt Import Data by Major Country of Origin for 2024

Country	Net Weight (Ton)	%
Australia	2,016,748.1	73.421
India	723,946.3	26.356
Selandia Baru	2,494.6	0.0908

Country	Net Weight (Ton)	%
Tiongkok	1,842.8	0.0671
Denmark	198.1	0.0072
Jerman	194.6	0.0071
Thailand	250.0	0.0091
Others	1,163.7	0.0424
Total	**2,746,838.2**	

Source: https://www.bps.go.id

Salt is an important commodity in various sectors, including both industry and food, and is consumed by households. However, studies in various regions where salt is produced have identified challenges such as logistics, production quality, and inefficient marketing (Asgar et al., 2022; Nugroho et al., 2020). Research on artisanal salt production shows that most production centers, including East Java, South Sulawesi, and Nusa Tenggara, still rely on traditional production systems due to a lack of post-harvest modernization. (Akhmad et al., 2020; Brilianto & Waluyowati, 2024; Deliarnoor et al., 2018; Deputi Bidang Koordinasi Sumber Daya Maritim, 2023). In Eastern Indonesia, Jeneponto Regency serves as a center for salt production carried out by salt farmers, yielding a variety of products. Previous research has shown that salt farmers typically have less bargaining power than middlemen because the latter have access to a wider distribution network and receive price information more quickly (Intan Vidya Wati et al., 2024; Nugroho et al., 2020; Suherman et al., 2011).

Jeneponto is the regency with the largest salt production in South Sulawesi, but logistics remain a challenge due to dependence on weather and climate change (Leo et al., 2021; Sally et al., 2025). The conceptual framework of this study addresses knowledge gaps related to network mapping, product flows, and market governance in Jeneponto Regency, areas that have not been extensively studied to date. This study aims to comprehensively trace the flow of smallholder salt products through the supply chain from production and processing to trade flows, all the way to consumers. This includes both household and industrial end uses. By mapping the relationships within the supply chain and logistics, this study is expected to help small-scale salt farmers improve production efficiency and enhance transparency in the dynamics of small-scale salt marketing. Although there have been many studies (Athaillah & Nugroho, 2019; Badan Pusat Statistik, 2025; Deliarnoor et al., 2018; Hasril, 2023; Intan Vidya Wati et al., 2024; Juliana, 2021; Nugroho et al., 2020; Pranoto et al., 2020; Purbani, 2021) that examine the production, marketing, and institutional aspects of small-scale salt production, studies on the comprehensive flow of salt products from upstream to downstream remain limited. The Process Flow Analysis approach offers methodological advantages because it can map in detail every stage of production, post-harvest, and distribution, while also identifying constraints that are not visible through conventional analytical approaches, such as marketing analysis or institutional studies alone. Consequently, no one has yet integrated the Process Flow Analysis approach with Global Value Chain theory to identify critical points in logistics.

Jeneponto Regency was selected because it is one of the main centers of small-scale salt production in South Sulawesi, particularly in coastal areas such as Arungkeke District. Salt production in this region is still largely carried out by small-scale farmers. Therefore, Jeneponto is a relevant location for examining the flow of small-scale salt products. Consequently, this study not only describes the flow of artisanal salt but also examines in greater depth the logistical barriers and details the stages of the production process from post-harvest and processing through distribution to the end consumer. Additionally, it identifies critical points that cause inefficiencies in the supply chain.

RESEARCH METHODS

Research Design

This study employs a qualitative approach using Process Flow Analysis to obtain a comprehensive overview and information for mapping product flows and critical points in the stages of traditional salt production, as well as the coordination mechanisms among actors in the traditional salt supply chain in Arungkeke Subdistrict, Jeneponto Regency.

Research Location

This study was conducted in August 2025 for one month in Arungkeke Subdistrict, Jeneponto Regency. The location was chosen because it borders the sea, making it an area suitable for salt ponds. The study population consisted of 242 salt farmers in Arungkeke Subdistrict, Jeneponto Regency, spread across 10 villages.

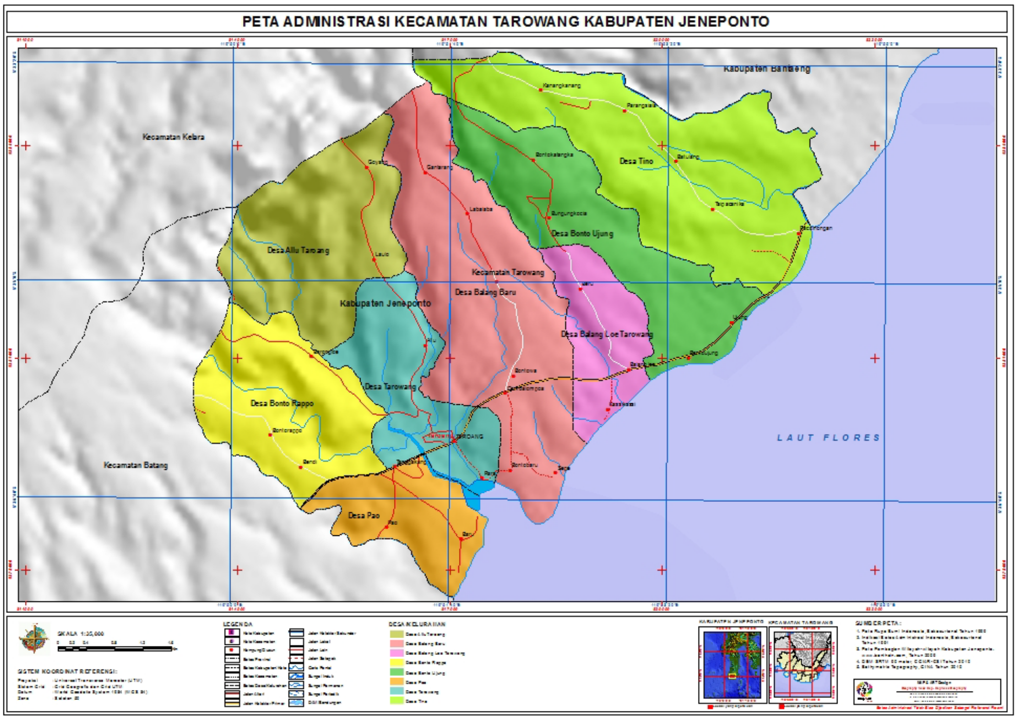


Figure 1. Research Map

Sampel Selection

The sample selection in this study is exploratory, not inferential, which helps researchers define the scope of the research data and facilitates the collection of information. The categories of actors in this study are: salt farmers and processors (38 people), traders (3 people), and distributors (2 people). Questionnaires were distributed to 40 salt farmers, as it was anticipated that some might be filled out incorrectly. The survey was conducted among salt farmers and other actors in the supply chain to collect data on the flow of products from upstream to downstream and the transactional relationships among supply chain actors.

Data Collection

Data collection was conducted through semi-structured interviews to explore the flow of small-scale salt production, the role of intermediaries, and logistical barriers. The questionnaire used in this study employed the Guttman scale, commonly known as a scalogram, which is a cumulative scale. The Guttman scale consists of several questions arranged hierarchically to assess a person's specific attitudes. Thus, the Guttman scale uses yes/no; true/false; positive/negative; ever/never; agree/disagree, and similar response options related to technical practices, post-harvest applications, or compliance with specific standards. The Guttman scale is used to identify clear patterns with definitive responses. (Bambang, 1995; Setiawan, 2024).

The Guttman Scale was chosen not for statistical analysis, but as a categorization tool to help explicitly identify consistency in behavior or procedures among actors. Each "yes" or "no" response was followed up with a semi-structured interview to explore the context, reasons, and conditions underlying the actors' practices, ensuring that the analysis remained grounded in qualitative interpretation. Subsequently, qualitative data from the semi-structured interviews were used to further explore these findings, particularly to explain why farmers did or did not engage in certain activities.

The accuracy of the flow map in this study was measured through source and method triangulation. Process flow data were obtained from semi-structured interviews with farmers/processors, traders, distributors, and relevant government officials at the Jeneponto Fisheries and Marine Affairs Office (KKP) (BPS Sulsel, 2022). Field observations were conducted at salt production sites, storage facilities, processing facilities, transportation facilities, and distribution points. In addition, information was cross-checked among stakeholders, and interviews were conducted with key informants to ensure that the sequence of processes, the stakeholders involved, and the direction of product flow were consistent with the actual conditions on the ground.

Data Analysis

The data analysis method used was flow mapping to map the flow of small-scale salt products from upstream to downstream and identify critical points in the salt production process. Using the Process Flow Analysis approach, we analyzed logistical bottlenecks and the relationships among market participants.

Table 2. Data Analysis Procedure Using Process Flow Analysis

PFA Phase	Phase Description	Outputs Produced
Identification of Processes and Actors in the Product Flow	Identify all stages of production, post-harvest handling, processing, storage, and distribution, as well as the actors involved (farmers, traders, and distributors).	A complete list of processes and actors in the traditional salt production chain.
Process Mapping	Organize the sequence of processes from upstream to downstream based on interviews and observations; map the relationships between stages in the form of a flowchart.	Process flowchart (flow map) and technical description of each stage.
Analysis of the Production Process Diagram	Identifying workflows, process durations, and inefficiencies in the small-scale salt production system.	Process flowchart for each stage of salt production
Critical Points Identification	Identify processes that cause inefficiencies based on the following criteria: long duration, weather dependence, inadequate facilities, lack of post-harvest standards, and risk of contamination.	Logistical/technical critical points and major impacts.

Source: (Ali et al., 2022; Gereffi G, 2005; Nchanji et al., 2021)

RESULT AND DISCUSSION

Characteristics of salt farmers in Arungkeke Subdistrict, Jeneponto Regency, indicate that they are in the productive age range of 30–50 years, in accordance with the guidelines of the WHO (World Health Organization), as well as (Kementerian Kesehatan Republik Indonesia, 2022)..

Table 3. Characteristics of Salt Farmers in Jeneponto Regency

Characteristic	Categori	Total (People)	Persentase (%)
Age	30–39 year	9	23,68
	40–49 year	17	44,73
	50–59 year	12	32,43
Education	Not in school	8	21,62
	Dropped out of school	2	5,26
	SD	12	32,43
	SMP	6	16,22
	SMA	10	27,03
Land status	Active	37	100,00
Land area	< 5.000 m²	10	27,03
	5.000–9.999 m²	13	34,21
	10.000–14.999 m²	7	18,92
	≥ 15.000 m²	8	21,62

Source: Primary Data Processed, 2025

Table 3 shows that salt farmers in Jeneponto Regency are active, meaning they still rely on these salt ponds as their primary source of livelihood to meet their daily needs. The size of the salt pond plots varies considerably, with the largest ranging from 5,000 to 10,000 m². Furthermore, salt farmers are predominantly male, with educational levels ranging from elementary school (SD) to high school (SMA). Although there are still some who never attended school or dropped out, this situation indicates that the educational level of salt farmers remains low, which may affect their knowledge and skills in managing salt ponds.

Identifying Processes and Actors in the Product Flow

The flow of locally produced salt goes through several stages of processing involving various actors. The results of this study identify the processes and actors in the value chain of locally produced salt in Arungkeke Subdistrict, Jeneponto Regency, as follows:

Table 4. Identification of Processes and Actors in the Small-Scale Salt Production Chain

Product Flow Process	Value Chain Actors
Production	Farmers
Post-harvest	Farmers
Processing	Farmers
Storage	Farmers and Collectors
Marketing	Collectors, wholesalers, and distributors

Source: Primary Data Processed, 2025

Table 4 shows that the identification of processes and actors confirms that most of the early stages in the salt product flow are controlled by farmers. In contrast, the downstream stages directly related to the market and value addition are dominated by traders. This situation contributes to farmers' low incomes and limited incentives to improve the quality of locally produced salt. Therefore, strengthening farmers' capacity in the post-harvest, processing, and marketing stages is key to creating a more productive and efficient product flow. Although farmers control most of the physical stages of production, economic value is concentrated among downstream actors. This indicates a separation between value creation and value capture, where farmers' contributions of labor and time are not directly proportional to the value they receive.

Process Mapping

The results of the study show that the flow of locally produced salt in Arungkeke Subdistrict, Jeneponto Regency, moves through a long and fragmented supply chain as follows:

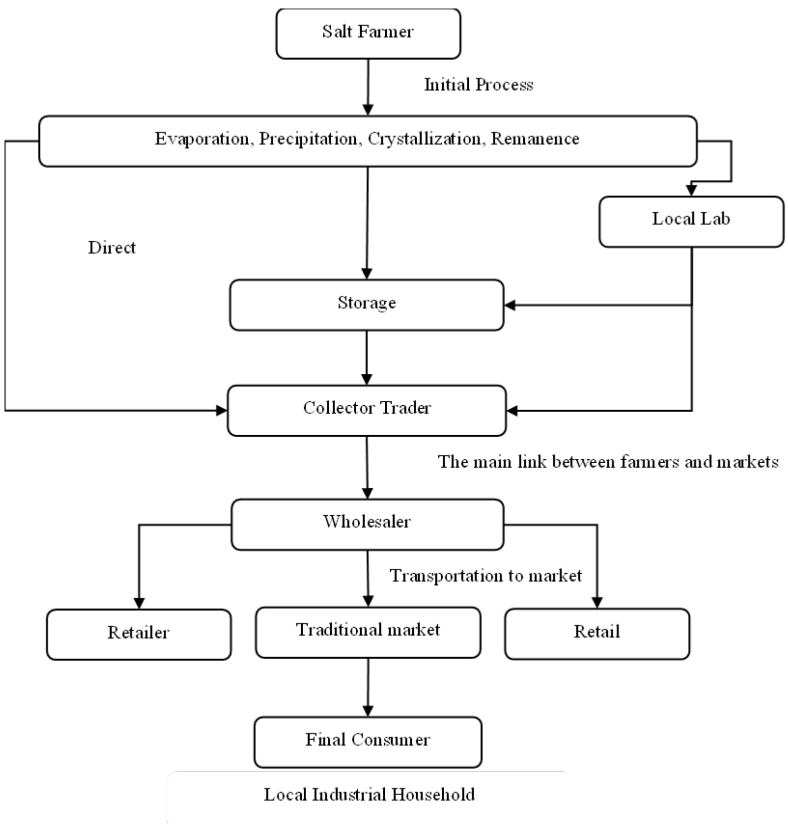


Figure 2. Flow Mapping of People's Salt Flow

Tarjih: Agribusiness Development Journal. Volume 06 Number 01 (2026) Page: 64 - 74
DOI: https://doi.org/10.47030/tadj.v6i01.1130

Figure 2 shows that the upstream stage of the salt production process in Arungkeke Subdistrict, Jeneponto Regency, involves salt production through evaporation. Initially, seawater is channeled into storage ponds to avoid the effects of tidal fluctuations, after which the water is allowed to settle. With the help of sunlight, the seawater gradually evaporates, increasing its salinity. Crystallization occurs once the solution reaches saturation, at which point the seawater forms salt crystals that settle at the bottom of the pond. Once the salt layer is thick enough, it is carefully cut to harvest the salt. The traditional salt processing stages in Jeneponto Regency do not yet include proper post-harvest processing, as producers do not wash the salt in concentrated seawater to remove impurities and increase the NaCl content of the salt produced after harvest. Other studies have shown that the post-harvest process is crucial in determining the quality of the salt produced, since the brine a byproduct of crystallization, contains magnesium that should be removed (Pranoto et al., 2020; Purbani, 2021).

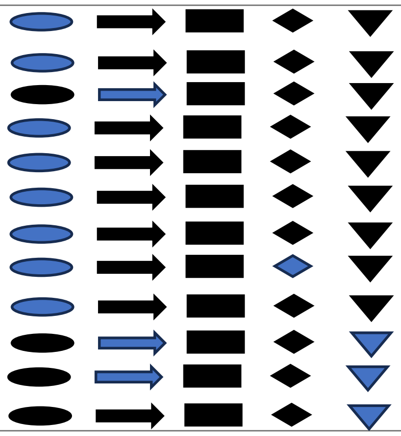
The salt is ready to be packaged in 60-kg bags. This packaging is done in accordance with consumer demand, as the salt is typically sold on-site without any added economic value. This aligns with the findings of other studies, which reveal that success stories among salt farmers are almost unheard of even in Jeneponto Regency, the largest salt-producing center not only in South Sulawesi but also in Eastern Indonesia because the salt produced by local farmers has lacked the added value that could improve both the quality of the salt and the farmers' incomes (Asgar et al., 2022; Juliana, 2021; Leo et al., 2021).

Flow mapping reveals a disparity between farmers' contributions to the production process and the value they receive. Although farmers control nearly all upstream stages from production to initial storage, economic value is concentrated among downstream actors, particularly collectors and wholesalers. This situation indicates that farmers have weak bargaining power, as limited access to markets and price information leaves them with no alternative marketing channels.

Production Process Diagram

A diagram of the traditional salt production process that illustrates the sequence of activities, the time required for each stage, and the types of activities carried out throughout the entire salt production process in Arungkeke Subdistrict, Jeneponto Regency. This diagram was developed using a Process Flow Analysis approach to identify workflows, process durations, and potential inefficiencies in the traditional salt production system.

Table 5. Flowchart of the Artisanal Salt Production Process in Arungkeke Subdistrict, Jeneponto Regency

Time (Hours)	Symbols used	Production stages
168		Soil compaction by tamping
120		Drying the pond soil
6		Filling the pond with seawater
120		Drying with the help of sunlight
72		Evaporation of seawater until the concentration increases
72		Settling of seawater
48		Crystallization
48		Thickening of the salt crystal layer
8		Cutting the thickened salt
8		Transporting salt from the pond to the pond's edge
8		Transporting salt to the storage area
8		Storing salt in a warehouse
686		**Total**

$$value\ added\ time = \frac{waktu\ operasi}{waktu\ total}\ x\ 100\%$$
$$value\ added\ time = \frac{656}{686}\ x\ 100\%$$
$$value\ added\ time = 95\ \%$$

DOI: https://doi.org/10.47030/tadj.v6i01.1130

Based on Table 5, overall, the total time required for a single salt production cycle is 686 hours, indicating that small-scale salt production is a lengthy process heavily influenced by natural factors, particularly weather and sunlight intensity. Furthermore, based on the Process Flow Analysis, Table 5 shows that the majority of production time is spent on waiting and processing stages that are highly dependent on natural factors. In practice, 95% of the production process is carried out by salt farmers, but post-harvest activities are very limited; some farmers do not even perform post-harvest processing, instead storing the salt directly in warehouses or selling it immediately to collectors. In other words, this 686-hour duration needs to be maximized to improve salt quality, which naturally requires proper storage facilities to prevent quality degradation. This process diagram reveals that the inefficiencies in small-scale salt production in Arungkeke Subdistrict are primarily due to the lengthy pond preparation and drying stages, high dependence on weather conditions, and a process that involves relatively few value-added activities, particularly during the post-harvest and storage stages.

Critical Points

Critical points in the traditional salt production process, as identified through Process Flow Analysis, reveal the process stages most vulnerable to technical and environmental disruptions, which have a significant impact on the overall performance of the traditional salt production system.

Tabel 6. Critical Points in the Salt Production Process in Arungkeke Subdistrict, Jeneponto Regency

Phase	Critical Point	Key Impact	Technical Recommendations
Pool Preparation	Compaction and drying take a long time, which can affect salt production.	Wasted time and potential losses	The use of mechanical compactors can speed up the compaction of pond bottoms and pond liners to reduce leakage
Settling	Filtering is not optimal, as many farmers still do not wash the salt during the post-harvest stage.	Dirty, low-quality salt	Washing the salt to saturation can reduce impurities and magnesium content in the salt
Evaporation	Depending on the weather, salt production cannot continue at all during the rainy season.	Unstable production due to highly variable annual climate conditions, making it impossible to predict annual salt production volumes	The use of UV-resistant tarps can reduce dependence on weather conditions
Cutting	The process is done manually, which takes a longer time.	Low productivity	The use of semi-mechanical harvesting tools can speed up the harvesting process, and training in efficient harvesting techniques can reduce crop losses.

According to salt farmers, "if salt is stored for a long time in sacks, it will lose weight, so they usually just stockpile salt in wooden storage warehouses located near the salt pans to avoid transportation costs." Limited facilities and storage conditions cause the salt to mix with soil because it is simply piled in open areas; the NaCl content decreases due to uncontrolled humidity, so the salt does not meet industrial specifications. According to several studies, salt quality standards require a NaCl content of 97% with a moisture content below 0.05%, and a distinction must be made between salt for household consumption and salt for industrial use. (Juliana, 2021; Rahbiah et al., 2024). However, the results of this study show that Jeneponto salt farmers do not differentiate between salt for household consumption and industrial use; consequently, the value added by the farmers is very small, while a larger share is captured by collectors and wholesalers. Retailers, for their part, often repackage the salt in more attractive, smaller sizes, thereby generating added value. According to local processors, "they often reprocess the salt purchased from farmers to improve its whiteness, as it is not as white due to poor storage conditions." The lack of post-harvest facilities is one of the biggest obstacles to improving the quality of locally produced salt throughout Indonesia (Akhmad et al., 2020; Sally et al., 2025).

The results of this study (Table 5) show that salt production in Jeneponto Regency involves a relatively long process of pond compaction and drying, which is very time-consuming and prone to leaks; similarly, evaporation is highly dependent on weather conditions because farmers still rely on sunlight. During the rainy season, salt farmers lose potential production because they lack salt sheds and UV-resistant tarps. This is consistent with previous research, which revealed that weather changes can cause supply uncertainty and slow down the supply chain for locally produced salt (Syariful Jamil & Tinaprilla, 2015). The precipitation process does not use a base layer as a crystallization surface, so the salt produced becomes mixed with impurities, resulting in reduced quality. Meanwhile, the process of cutting the salt before harvest is still done manually and is time-consuming, which can lead to low productivity. This is consistent with other studies that reveal that small-scale salt production is still largely carried out using rudimentary methods, resulting in a decline in productivity (Juliana, 2021; Leo et al., 2021).

Collectors play a central role in the sale of smallholder salt in Arungkeke Subdistrict, Jeneponto Regency, as they serve as the primary buyers of salt farmers' produce, providers of price information, and intermediaries for wholesalers. This situation is particularly prevalent among salt farmers in Arungkeke Subdistrict, Jeneponto Regency, due to their limited capacity and marketing networks. Meanwhile, wholesalers act as distributors who transport salt to the city for household consumption; however, the majority of this small-scale salt is utilized by local industries, such as for making salted fish. The relationship between them is more transactional in nature rather than a formal partnership, as wholesalers only demand a consistent supply but do not provide quality guidance to small-scale salt farmers. Consequently, these relationships are short-term and dependent on market prices. Given the large scale of the small-scale salt industry in Jeneponto Regency, it is somewhat difficult to meet national salt quality standards, as the salt is not consistently salty, and the majority of producers do not perform proper post-harvest processing. This aligns with previous research on global value chains, which indicates that dominant actors significantly influence the value added of production-based products. (Buckley & Hashai, 2026; Chawla & Kumar, 2023; Yang & Xue, 2026).

The results of this study reveal that most of the inefficiencies in small-scale salt production stem from a combination of technical and environmental factors. Time-consuming stages that are highly dependent on natural conditions are the main causes of the lengthy production cycle and low product quality. Furthermore, logistical constraints and relationships among actors result in a supply chain pattern in which the most dominant actor is the collector-trader. This is consistent with research by Gereffi, which describes a "captured value chain" pattern in which small producers are dependent on a single dominant actor (Buckley & Hashai, 2026; Chawla & Kumar, 2023; Gereffi G, 2005; Purwiyono et al., 2022; Yang & Xue, 2026).

The strengths of the findings of this study compared to previous research (Brilianto & Waluyowati, 2024; Intan Vidya Wati et al., 2024; Nugroho et al., 2020; Suherman et al., 2011; Syariful Jamil & Tinaprilla, 2015) lies in its ability to explain the imbalance in salt farmers' bargaining power not only as a result of limited market access or institutional weaknesses, but as the outcome of the interaction between technical inefficiencies, logistical barriers, and a "captured" value chain governance system. Unlike previous studies, which tended to analyze production, marketing, or institutional aspects separately, this study integrates Process Flow Analysis with a global value chain governance framework, thereby revealing how structural failures in upgrading at the upstream level reinforce the dominance of downstream actors and value distribution inequalities.

Integration of Empirical Findings

The integration of empirical findings reveals several important contributions. First, it expands the analysis of the "captured value chain" in the flow of smallholder salt products, showing that it is driven not only by inequalities in market access but also by logistical inefficiencies and technical weaknesses at the production level. Second, it confirms that post-harvest barriers are part of the governance mechanisms that determine value distribution within the supply chain, rather than merely technical issues. Third, it reveals an explicit relationship between logistical barriers and farmers' failure to upgrade their operations, thereby clarifying how technical processes upstream reinforce structural dependence on dominant actors namely, traders. The research findings also show that the greatest value loss occurs during the post-harvest stage, as illustrated in Figure 3, a flowchart depicting value loss and value captured.

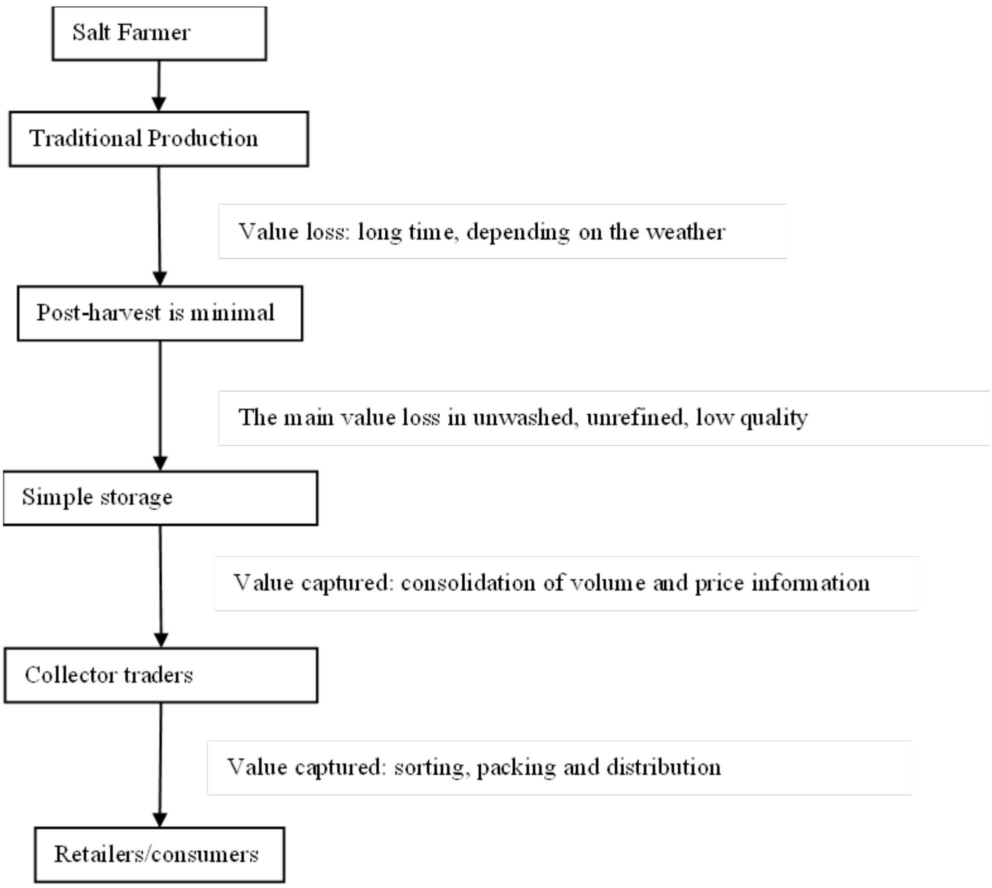


Figure 3. Flowchart Value Loss

Thus, this study not only describes the flow patterns of locally produced salt but also provides a broader interpretation of how value chain governance and logistical conditions interact to shape the bargaining power of small-scale producers. This approach is important as a basis for formulating policy strategies that can reduce farmers' dependence on middlemen and improve efficiency in the locally produced salt value chain in Jeneponto.

CONCLUSION

This study shows that the flow of smallholder salt products in Arungkeke Subdistrict is affected by logistical barriers and a "captured value chain" governance structure, which reduces efficiency, quality, and farmers' bargaining power. Through Process Flow Analysis, this study identifies critical production points that contribute to time inefficiencies and low salt quality. The scientific contribution of this study lies in the integration of product flow analysis with the governance dimension of the value chain an aspect that has not been extensively explored in research on artisanal salt in Eastern Indonesia. These findings underscore the need for logistical interventions to reduce dependence on middlemen who dominate the value chain. A policy implication that the government can implement is to build storage facilities that meet salt warehousing standards, which can be collectively used by groups of salt farmers to break their dependence on middlemen. A limitation of this study is that it covers only a single subdistrict; therefore, further research is urgently needed in a broader area to develop quantitative evaluations of the supply chain and to test the impact of post-harvest technologies on the quality and value-added of salt.

REFERENCES

Akhmad, S., Arendra, A., Mu'Alim, & Hidayat, R. (2020). The communal salt farmer ventures grouping strategy in Sumenep District using the P-Median method to minimize transport distance in food supply chain network. Journal of Physics: Conference Series, 1477(5). https://doi.org/10.1088/1742-6596/1477/5/052063

Ali, I., Arslan, A., Chowdhury, M., Khan, Z., & Tarba, S. Y. (2022). Reimagining global food value chains through effective resilience to COVID-19 shocks and similar future events: A dynamic capability perspective. Journal of Business Research, 141, 1–12. https://doi.org/https://doi.org/10.1016/j.jbusres.2021.12.006

Asgar, M. A., Ramis, I., Ummung, A., & Massiseng, A. N. A. (2022). Business Model Canvas for local salt business in Bangkala District, Jeneponto Regency (Case Study of Bangkala Ramah Local Salt Business Group). Akuatikisle: Jurnal Akuakultur, Pesisir Dan Pulau-Pulau Kecil, 6(2), 109–117. https://doi.org/10.29239/J.AKUATIKISLE.6.2.109-117

Athaillah, T., & Nugroho, Y. (2019). Analisis Rantai Pasok (Supply Chain) Garam Rakyat di Kabupaten Pidie, Aceh. Jurnal Agribisnis Sumatera Utara, 12(2). https://doi.org/10.31289/agrica.v12i2.2830.g2229

Badan Pusat Statistik. (2025). Impor Garam Menurut Negara Asal Utama . https://www.bps.go.id/id/statistics-table/1/MjAxMyMx/impor-garam-menurut-negara-asal-utama--2017-2024.html

Bambang, S. (1995). Pengantar Statistika Edisi 3 Ronald E. Walpole. In PT. Gramedia Pustaka Utama (3rd ed.).

BPS Sulsel, K. 6103005. 73. (2022). Statistik Industri Manufaktur Provinsi Sulawesi Selatan 2022. In Badan Pusat Statistik, Provinsi Sulawesi Selatan Vol 4, 2024. https://sulsel.bps.go.id/id/publication/2024/12/12/4d27f51033587c84b7e520b8/statistik-industri-manufaktur-provinsi-sulawesi-selatan-2022.html

Brilianto, R., & Waluyowati, N. P. (2024). Analisis Proses Produksi Dengan Value Stream Mapping Pada Industri Manufaktur. Jurnal Kewirausahaan Dan Inovasi, 3(4), 1095–1103. https://doi.org/10.21776/jki.2024.03.4.14

Buckley, P. J., & Hashai, N. (2026). The impact of inward foreign direct investment bans on the configuration of global value chains. International Business Review, 35(2), 102562. https://doi.org/10.1016/J.IBUSREV.2026.102562

Budi Widiarto, S., Hubeis, M., & Komar Sumantadinata, dan. (2013). Efektivitas Program Pemberdayaan Usaha Garam Rakyat di Desa Losarang, Indramayu. Jurnal Manajemen Pengembangan Industri Kecil Menengah, 8(2), 144–154. http://journal.ipb.ac.id/index.php/jurnalmpi/

Chawla, I., & Kumar, N. (2023). FDI, international trade and global value chains (GVCs): India’s GVC participation, position and value capture. Asia and the Global Economy, 3(2), 100071. https://doi.org/10.1016/J.AGLOBE.2023.100071

Deliarnoor, N. A., Buchari, R. A., Liiklai, D., Felfina, K., & Ahmad Buchari, R. (2018). Efektivitas Program Pemberdayaan Usaha Garam Rakyat di Desa Losarang, Indramayu. Evaluasi Program Pemberdayaan Usaha Garam Rakyat Di Kecamatan Pangenan, Kabupaten Cirebon, Jawa Barat.

Deputi Bidang Koordinasi Sumber Daya Maritim. (2023). Menuju Puncak Pengintegrasian Rencana Tata Ruang Darat dan Laut. In Kementerian Koordinator Bidang Kemaritiman dan Investasi. https://www.maritim.go.id/detail_magazine/menuju-puncak-pengintegrasian-rencana-tata-ruang-darat-dan-laut

Gereffi G, J. H. & T. S. (2005). The Governance of Global Value Chains. Review of International Political Economy . https://doi.org/10.1080/09692290500049805

Hasril, T. S. (2023). Evaluasi Program Pemberdayaan Usaha Garam Takyat (PUGAR) Di Kecamatan Arungkeke Kabupaten Jeneponto [Hasanuddin University]. https://repository.unhas.ac.id/id/eprint/27989/

Intan Vidya Wati, Pipiet Niken Aurelia, & Henrikus Herdi. (2024). Analisis Strategi Pemasaran Usaha Garam terhadap Tingkat Pendapatan Petani Garam. Trending: Jurnal Manajemen Dan Ekonomi, 2(4), 437–455. https://doi.org/10.30640/trending.v2i4.3224

Juliana, S. (2021). Pemurnian Garam Rakyat Kabupaten Jeneponto Dengan Menggunakan Media Filter Limbah Sumber Daya Alam (Jerami Padi, Tongkol Jagung, dan Kulit Kacang Tanah) [Universitas hasanuddin]. https://repository.unhas.ac.id/id/eprint/16760/2/H31116017_skripsi_bab%201-2.pdf

Kementerian Kesehatan Republik Indonesia. (2022). Laporan Akuntabilitas Kinerja Tahun 2022 Direktorat Kesehatan Usia Produktif dan Lanjut Usia. https://keslan.kemkes.go.id/lakip_files/direktorat_pelayanan_kesehatan_rujukan_lakip_2022.pdf

Leo, B. A., Adhwati, S., & Asnawi, A. (2021). Analysis of Productivity and Income of Salt Farmers in Jeneponto Regency, South Sulawesi Province. Agrovital : Jurnal Ilmu Pertanian, 6(1). http://www.bbc.com/indonesia/indonesia-40792179.

Nchanji, E. B., Lutomia, C. K., Chirwa, R., Templer, N., Rubyogo, J. C., & Onyango, P. (2021). Immediate impacts of COVID-19 pandemic on bean value chain in selected countries in sub-Saharan Africa. Agricultural Systems, 188, 103034. https://doi.org/https://doi.org/10.1016/j.agsy.2020.103034

Nugroho, P., Susandini, A., & Islam, D. (2020). Mengkaji Sistem Pemasaran Garam Di Madura. Media Trend, 15(1), 111–122. https://doi.org/10.21107/mediatrend.v15i1.6176

Pranoto, A. K., Djari, A. A., Sewiko, R., Hapsari, L. P., Haryanto, H., & Anwar, C. (2020). Percepatan Pembuatan Garam Dengan Metode Sprinkle Bertingkat. PELAGICUS, 1(3), 107.

https://doi.org/10.15578/plgc.v1i3.8882

Purbani, D. (2021). Proses Pembentukan Kristalisasi Garam. Badan Riset Kelautan Dan Perikanan. https://www.academia.edu/37833143

Purwiyono, B., Prihatminingtyas, B., & Pudjiastuti, A. Q. (2022). Empowerment of Farmer's Salt Smallholder and their Welfare. SOCA: Jurnal Sosial, Ekonomi Pertanian, 16(2), 201. https://doi.org/10.24843/soca.2022.v16.i02.p07

Rahbiah, S., Maslia, A., Adam, T., Ashari, M. N., Fattah, M. H., Fiqih, M., & Hattah, O. (2024). Analysis Of Factors Affecting Production And Risks Of Salt Farming In Jeneponto District (Case Study Of Arungkeke Village, Arungkeke District). In Journal of Indonesian Tropical Fisheries (JOINT-FISH (Vol. 7, Number 1).

Sally, M., Sangkala, , Nara, N., & Ibrahim, Muh. A. (2025). Governance Dynamics in Indonesia's Salt Industry: Evidence from Jeneponto. KnE Social Sciences, 10(18), 369–381. https://doi.org/10.18502/kss.v10i18.19471

Setiawan, A. (2024). Statistika Untuk Penelitian. Pusat Penerbit STIE Ganesha, Tangerang Selatan.

Sugiyono. (2013). Metode Penelitian Kuantitatif, Kualitatif dan R & D. In Alfabeta.

Suherman, T., Fauziyah, E., & Hasan, F. (2011). Analisis Pemasaran Garam Rakyat (Studi Kasus Desa Kertasada, Kecamatan Kalianget Kabupaten Sumenep). Embryo, Trunojoyo Madura, 8(Desember).

Syariful Jamil, A., & Tinaprilla, N. (2015). Pemasaran Garam Rakyat (Studi Kasus Desa Lembung, Kecamatan Galis, Kabupaten Pamekasan, Jawa Timur). Departemen Agribisnis, Institut Pertanian Bogor. http://finance.detik.com/read/2012/01/09/180613/1810831/1036/harga-garam-di-konsumen-rp-6000-kg-petani-cuma-

Yang, Y., & Xue, G. (2026). How does environmental regulation reshape global value chain resilience? Cleaner Environmental Systems, 20, 100395. https://doi.org/10.1016/J.CESYS.2026.100395