RICE FOOD SUPPLY CHAIN MANAGEMENT IN TOJO UNA-UNA DISTRICT

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#### Abstract

The aim of this research is to describe the rice supply chain model in Tojo Una-Una Regency and look at the price margin from the initial supply chain process to the consumer as the final supply chain in its management. The research was conducted for 3 months. The method used was qualitative descriptive using a survey approach. The research was conducted in Tojo Una-Una Regency. The collection method was carried out by in-depth interviews. Data analysis was conducted using qualitative descriptive analysis assisted by supply chain management analysis. The research results show that; The supply chain model in Tojo Una-Una Regency is quite long and involves at least nine supply chain models, the highest profit is for the miller with a total of Rp. 6,400-Rp. 6,600 and the majority of the rice food price margin is around Rp. 11,000 to IDR 15,000 per kilogram, with the price per 50 kg bag from the South Sulawesi area, IDR. 495,000 to Rp. 510,000. For food from the Parigi Moutong area the price is Rp. 600,000 per bag, while food from the Banggai area is Rp. 590,000 per bag. With a selling price to consumers of IDR 530,000 to IDR 550,000 per 50 kg sack for rice from the South Sulawesi region. Meanwhile, rice from the Parigi and Banggai areas are priced at IDR 620,000 to IDR 630,000.

***Keywords:*** *Supply Chain Management, Rice Food, Price Margin*

# INTRODUCTION

The availability of foodstuffs including food needs, especially staple food, namely rice, is one of the important things that must be fulfilled by society so that they can live healthily in their activities, especially in fulfilling nutrition and nutrients. The importance of food concerns the welfare of society and the country, without food, humans cannot live a decent life and the country cannot develop.

Food security is one of the priorities in Presidential Regulation of the Republic of Indonesia Number 125 of 2022 Article 1 Paragraph 8. Regulation of rice food stability in a region is also discussed in article 1 paragraph 13 which states that the reference price is the food price determined by the Head of the Agency by considering the structure reasonable costs include, among others, production costs, distribution costs, profits, and/or other costs.

Based on the analysis of the Indonesian Food Security and Vulnerability *Atlas (FSVA),* vulnerability to food insecurity is mainly caused by poverty rates which are still high, there is no access to electricity, cases of underweight among toddlers are still high, there is no road access for four- wheeled vehicles. , there is no clean water source, and the ratio of normative per capita consumption to cereal availability is still increasing. Overcoming the problem of agricultural commodity scarcity is the application of supply chain management *,* especially by integrating production-distribution- consumption aspects (Harjanto, 2017) Supply Chain Management is an approach used to achieve efficient integration of suppliers, manufacturers, distribution, retailers and customers. (Miru et al., 2019) .

*Supply chain management* is related to the complete cycle from raw materials from suppliers*,* to operational activities in the company, continuing through distribution to consumers. The important thing that is the rationale for this concept is the focus on reducing waste and optimizing value in the related supply chain (Hayati, 2014) . Research on supply chains includes (Suparman et al., 2018) those with a model divided into four stages consisting of farmers - collectors - large traders - agents - small



traders (kiosk) - community. However, especially in the Tojo Una-Una Regency area, there has been no research related to rice food supply chain management. Apart from that, the rice food distribution process in Tojo Una-Una Regency is known to have started from rice producing areas in Central Sulawesi and South Sulawesi.

Central Sulawesi Province is included in the priority category for handling food insecurity nationally. Based on districts/cities, the amount of rice production and consumption is as follows:

Table 1. Availability of Rice in Central Sulawesi in 2022

|  |  |
| --- | --- |
| **Regency GKG rice****/City production****(tons)** | **Population Consumption****Rice (tons) rice January- Surplus consumption December /(deficit)****capita (kg)** |
| Banggai Islands | 1,315 | 621 | 118.00 | 14,640 | -14,020 |
| Banggai | 151,750 | 88,618 | 118.00 | 44,146 | 44,471 |
| Banggai Laut | - | - | 118.00 | 8,583 | -8,583 |
| Marowali | 39,507 | 23,071 | 118.00 | 19,708 | 3,363 |
| North Morowali | 28,143 | 16,435 | 118.00 | 14,719 | 1,716 |
| Poso | 83,220 | 48,598 | 118.00 | 29,840 | 18,758 |
| Donggala | 56,721 | 33,123 | 118.00 | 36,611 | -3,487 |
| ToliToli | 57,474 | 33,563 | 118.00 | 27,437 | 6.126 |
| Boo | 17,181 | 10,033 | 118.00 | 17,700 | -7,667 |
| Paris Moutong | 249,993 | 145,989 | 118.00 | 53,620 | 92,369 |
| Tojo Una Una | 5,441 | 3,177 | 118.00 | 19,964 | -16,787 |
| Hammer | 826 | 482 | 118.00 | 45,480 | -44,998 |
| Sigi | 80,204 | 46,837 | 118.00 | 31,389 | 15,448 |

Data Source: (Tegah Sulawesi Provincial Food Service, 2022)

(BPS Tojo Una-Una Regency, 2020) the population of Tojo Una-Una Regency is 153,991 people with a standard rice requirement of 111.4 kg/person per year, so the total need for rice food exceeds the amount of rice food availability for Tojo Una-Una Regency. In overcoming rice food shortages, the Tojo Una-Una Regency government supplies rice shortages from surrounding districts, namely Banggai Regency, Poso Regency, Parigi Moutong Regency, and from South Sulawesi Province.

The total area of Tojo Una-Una Regency is 5,721.51 km 2 . The rice fields are only around 1,744 ha, including 643 ha of unplanted rice fields, most of which are islands with 12 sub-districts, 6 sub- districts are in the islands and the other 6 are on the mainland. The six sub-districts in the mainland area are Ampana Kota, Ampana Tete, Ratulindo, Tojo and West Tojo. Meanwhile, the areas in the archipelago are Unauna, Togean, Batudaka, Walea Islands, Talatako and Walea Besar. (Tojo Una-Una Regency in Figures, 2020) Lowland rice production in Tojo Una-Una Regency itself comes from three sub-districts, namely Ampana Tete District, Tojo District, and West Tojo District with total production of 12,988 tons and converted into rice to 6, 754 Tons (Department of Agriculture and Food Security, 2020) .

Therefore, research is needed related to an efficient *supply chain* that is considered to be able to provide a good distribution channel in Tojo Una-Una Regency. For this reason, the author was encouraged to conduct research entitled Rice Food Supply Chain Management in Tojo Una-Una Regency, where in this research he will look at the margins and management model of the rice food supply chain in Tojo Una-Una Regency.

Daerah Pemasok Pangan Beras Ke Kabupaten Tojo Una-Una

Rantai Pasok Pangan Beras Ke Kabupaten Tojo Una-Una

|  |  |  |
| --- | --- | --- |
| Analisis Margin Pangan Beras (S*hare* Biaya) |  | Model Rantai Pasok Pangan Beras di Kabupaten Tojo Una- Una |
|  |  |  |

Figure 1. Theoretical Framework

Terpenuhinya Pangan Beras di Kabupaten Tojo Una-Una

# RESEARCH METHODS

This research was conducted in Tojo Una-Una Regency, Central Sulawesi Province. Subjects in this research were taken using purposive sampling technique. The purposive sampling technique is the selection of informants who will be selected based on certain criteria created by the researcher based on the research objectives. The determination of informants in this research was based on several criteria, namely the agricultural department as the department that controls food conditions, rice distributors who distribute rice to the community, warehouse owners, the community and traders who directly carry out buying and selling transactions with the community. There were 6 (six) informants used in this research, namely the Department of Agriculture, Village Assistants in the Agricultural Sector, Distributors, rice transport track drivers, Warehouse Owners, Rice Retailers in Subdistricts, Consumers buying rice in Tojo Una-Una Regency.

Data analysis in this research uses interactive analysis methods (Sutopo, 2002) namely as follows:

1. Data processing

Data processing is the process of changing data into informative form or carrying out data conversion using a predetermined sequence of operations, either manually or automatically. In this



research, information obtained from interviews with informants was processed using NVivo 12 Plus software.

1. Data reduction

Data reduction is a key element in the data analysis process, including the process of selecting, focusing, simplifying, and combining data from field notes. During data collection, data reduction occurs through summarization of data records collected in the field.

1. Data Presentation

Data presentation is the construction of information organization which is explained in narrative form to enable research conclusions to be drawn. The presentation consists of a series of sentences arranged logically and systematically, so that they are easy to be understood.

1. Drawing Conclusions

Diversification of conclusions is needed to ensure their strength and veracity can be justified. Therefore, activities can be repeated to strengthen understanding, with the possibility of extracting data more quickly. Perhaps as a second view that arises in the researcher's mind when presenting the data, with brief reference to field notes.

# RESULTS

Data coding with *Nvivo 12*



Figure 4.1

Word Cloud of Informant Interview Results Source: Primary data, processed (2023)

Based on keywords found by researchers from informants in the field, which will become a reference for discussion of the problem formulation. From these steps, sub-themes were then formed to harmonize the results of this research. Rice, Traders, Consumers, Supply Chain, Farmers, Retailers, Prices, Marketing, *Management*, Stock, and Quality. From the results of research conducted by researchers in Tojo Una-Una Regency. Using the Nvivo 12 *software tool* as discussed above, to determine sub-themes, researchers analyzed theory (Chen, IJ, Paulraj, 2004) . Suppliers include rice farmers and suppliers to other manufacturing companies such as fertilizers and pharmaceuticals. Apart from that, the big box includes grain and rice traders from village to inter-island level, even rice exporters and importers, including BULOG and its staff. Consumers are the end users of the rice supply chain, including households, restaurants and food stalls. The results of the research conducted by researchers obtained 9 pathway models or rice food supply chain patterns in Tojo Una-Una Regency.

# DISCUSSION

## Supply Chain Model in Tojo Una-Una Regency

Basically the entire supply chain in Tojo Una-Una Regency is described from the initial process *(input)* starting from the initial supplier process (Farmers), the process (purchasing, production and distribution), and the process *(Output)* namely to the consumer as the final position in the supply chain management process. These results are supported by previous research, namely (Sepang et al., 2017) where the results of this research show that rice supply chain management in South Kotamobagu District starts with farmers in the form of grain and then distributed by farmers to rice mills. Drying, milling and packaging activities are carried out by rice mills, then sold to wholesalers and retailers as well as directly to final consumers in the form of rice. The activity process in implementing supply chain management is divided into 3 main streams that are well managed, namely the flow of goods/products, financial flow and information flow so that rice production in each member of the supply chain is always available.

In general, the rice supply chain model in Tojo Una-Una Regency is long and involves many trading institutions starting from farmers as rice/grain producers to the community as final consumers. The length of the trading chain creates trade dynamics that require government policies to stabilize stocks and prices. Distribution also requires good governance so that at least central areas do not lack one of these strategic staples and nationally the needs of the community can be met. Based on the results of studies in the field, the rice *supply chain pattern* in Tojo Una-Una Regency can be explained in the picture below.

* 1. Producer Farmers – millers – distributors – Retailers – Final Consumers
	2. Producer farmers – millers – Distributors as well as Retailers – retailers – final consumers
	3. Rice Producing Areas – Land distributors as well as retailers – retailers – final consumers
	4. Rice Producing Areas – Land distributors and retailers – Distributors and retailers in the Greater Walea Islands – final consumers
	5. Rice Producing Areas – Land distributors and retailers – Distributors and retailers in the Greater Walea Islands – retailers – final consumers



* 1. Rice Producing Areas – Land distributors who send rice via sea highways – regional distributors as well as retailers – final consumers
	2. Rice Producing Areas – Land distributors who send rice via sea highways – regional distributors as well as retailers – final consumers.
	3. Farmers in Ampana Tete - Mill-farmers sell rice to final consumers
	4. Farmers in the district. Tojo and Tojo West-milling-distributor-end consumer.

The dynamics of the rice supply chain above explains that the distribution pattern is so long that it can significantly reduce the profits received by farmers as producers. This is supported by previous research conducted by (Saragih et al., 2017) who explains that there are 10 marketing channels for rice products from Cibeber, Cianjur. In general, the technical efficiency values of all channels are quite good. This can be due to good information sharing between supply chain members. Based on trading system theory, the longer the trading system for a commodity, the smaller the share of profits received by farmers *(farmers share).*

In the initial pattern, farmers milled in a rice mill *( Rice Milling Unit* ). Then they sell it to distributors from the milling company by implementing cooperation in sharing the results of the harvest in rice producing areas in Tojo Una-Una Regency. From the mill and distributor, the rice is then purchased by retailers who are then sold to final consumers. In the next chain, the pattern is actually the same, but the existence of island areas in the Tojo Una-Una Regency area adds to the existing supply chain management flow. Furthermore, there is also a supply chain model that goes directly from the Banggai Regency area to the archipelago area in Tojo Una-Una Regency because the distance between Walea Besar Island is closer to the Pagimana area of Banggai Regency compared to having to go to the capital of Tojo Una-Una Regency where buying and selling transactions are carried out. . Based on the overall supply chain pattern described above, the supply chain model in Tojo Una-Una Regency is as follows:

Out-of-District Suppliers In-District Suppliers supplier

milling

Distributor

Island distributor and retailer Land and island retailers Consumers

Figure 1 Rice Food Supply Chain Management Model in Tojo Una-Una Regency Source: Primary data, processed (2023)

## Price Margin

The trading margin calculation is carried out to determine the difference in profits received by each institution so that it can be determined which trading institution makes the biggest profit. In the first chain pattern, farmers sell wet grain for Rp. 4,800/kg to the mill for the South Sulawesi Province area and Rp. 5,400/kg for the Central Sulawesi Province area according to Central Sulawesi Province BPS data as of April 2023.

The mill processes it into rice and then sells it to distributors at a price of Rp. 495,0000-Rp. 510,000 for the South Sulawesi Province area, Rp. 590,000/50 kg for the Banggai Regency area Rp. 600,000/50 kg. In the chain from farmer to distributor, farmers sell wet grain at a price of Rp. 5,800 based on information from the informant (S) to millers for the South Sulawesi Province area at a price of Rp. 9,900-Rp. 10,200/kg rice or Rp. 495,000-Rp. 510,000 per 50 kg sack, the mill makes a profit of Rp. 4,000/kg, for the Parigi Moutong Regency area with a wet grain price of 5,400/kg and a factory

selling price of Rp. 12,000/kg of rice. The mill makes a profit of Rp. ,5,400/kg. Furthermore, the mill in the Banggai Regency area with a wet grain price of Rp. 5,400/kg and sales of Rp. 11,800/kg. So the mill made a profit of Rp. 5,400.

Tojo Una-Una Regency, especially Ampana Tete District, Tojo District and West Tojo District, millers make a profit of IDR 5,600/kg with a grain purchase price of IDR 5,400 and a rice selling price of IDR 11,000/kg for Ampana Tete District, then for Tojo District and West Tojo District, the miller made a profit of Rp. 6400-Rp. 6600 with a selling price of Rp. 11,800-Rp. 12,000/kg of rice.

According to the informant (W) as a distributor and informant (S) as a track driver, the price of toili is around Rp. 590,000 per 50 kg bag. The next process is distribution from the rice food supply area to Tojo Una-Una Regency, in this process the price set by the track driver reaches the destination, especially in the South Sulawesi supply area, namely IDR 20,000 per bag. So it can be calculated that from South Sulawesi to Ampana City the price range is IDR 515,000 to IDR 530,000 per bag.

The selling price in the Tojo Una-Una Regency area, especially in the Ampana area and surrounding areas, for food from the South Sulawesi area is IDR 540,000 to IDR 550,000 for certain types. However, when taking large quantities, distributors sell at a price of IDR 535,000/50kg for rice from South Sulawesi Province and IDR 630,000 for rice from Parigi Moutong Regency and Banggai Regency with the price composition per sack valid in February 2023. From the results of interviews with informant (W) as distributor, informants (NA), and (ID) regarding the sales price margin for rice from the Parigi Moutong area are around IDR 640,000 per bag with the price composition for May 2023 according to the type of rice purchased. So they can make a profit based on the difference between the purchase price from the mill and the distributor's selling price in Tojo Una-Una Regency, amounting to Rp. 600-Rp. 1,000/kg.

In the part of the islands that buy rice from distributors in the capital city of Tojo Una-Una Regency, Ampana at a price of Rp. 535,000 for the sentana rice type and resold at a price of Rp. 540,000- Rp. 550,000 per 50 kg sack. So the profit obtained by the island distributor is IDR 1,300-IDR 2,300/kg. The next margin calculation process is at the island retailer stage where the retailer buys rice at a price of Rp. 540,00-Rp. 550,000 per 50 kg bag or at a selling price on the big island of Rp. 12,000-13,000/kg and the retailer resells it at a price of Rp. 14,000 -Rp. 15,000/kg. Based on the purchasing process, the price from the distributor, the retailer, makes a profit of IDR 2000/kg. Furthermore, land retailers buy rice food at a price of IDR 540,000 - IDR 550,000 per 50 kg bag with a price per kilo of IDR 10,800 - IDR 11,000/kg. From the retail trader's purchase price to the distributor, the onshore retailer makes a profit of IDR 1200-IDR 1000/kg.

### The price margin unit is not much different from the price process in the mainland area of Tojo Una-Una Regency. The rice food prices that distributors in the islands provide are in accordance with the stability and prices set by the mainland even though they add accommodation of Rp. 5,000 per bag for transportation services to the islands using veri boats according to information from informants (F), Informants (HA) and informants (R) which is in the Togean Islands, then retailers sell it for IDR 14,000 to IDR 15,000 per kg. Based on the overall margin explanation explained above, the rice food margin in Tojo Una-Una Regency is as follows :



Pemasok dalam Kabupaten Pemasok Dari Luar Kabupaten Pemasok

Penggilingan Distributor Darat

Distributor pulau sekaligus pengecer Pedagang pengecer pulau

Pedagang pengecer darat Konsumen

Harga Gabah basah Petani Keuntungan

Figure 2 Food price margin for rice in Tojo Una-Una Regency

Source: Data, processed (2023)

The price margin in Figure 4.15 above is a combination of the entire chain of rice food purchasing processes from upstream to downstream or from farmers to final consumers. Based on the entire series of processes, the highest margin or highest profit is on the milling side with a profit amount of IDR 4,000 – IDR 6,600/kg . This is supported by research (Hidayat, 2020) , where institutions that get high profits are processes that directly make purchases with farmers. The second place with the highest profit is distributors in the islands with a profit of Rp. land with a profit of IDR 1,200/kg. Furthermore, in the last place with the lowest profit is the distributor who buys from the mill with a profit of Rp. 200-Rp. 1,000/kg .

# CONCLUSION \_

The rice supply chain in Tojo Una-Una Regency involves trading institutions with at least nine supply chain models. The trading institutions that make the biggest profits are the mills because they buy wet grain from farmers at fairly low prices and at high resale prices to distributors. The majority of rice food price margins range from IDR 11,000 to IDR 15,000 per kilogram, with the price for a 50 kg bag from the South Sulawesi area, IDR. 495,000 to Rp. 510,000, for food from the Parigi Mouton area the price is Rp. 600,000 per bag, while food from the Banggai area is Rp. 590,000 per bag. With a selling price to consumers of IDR 530,000 to IDR 550,000 per 50 kg sack for rice from the South Sulawesi region. Meanwhile, rice from the Parigi and Banggai areas is priced at IDR 620,000 to IDR 630,000.

#### SUGGESTION

Based on the conclusions that have been described, the researcher suggests the following suggestions:

1. Improve coordination and collaboration between all stakeholders in the rice food supply chain, including farmers, producers, distributors and traders, to ensure the sustainability and effectiveness of the rice food supply chain in Tojo Una-Una Regency, especially in the island areas.
2. Develop and implement high production standards to ensure the quality and safety of rice produced and distributed in Tojo Una-Una Regency.
3. Paying attention to different consumer needs and preferences in terms of price, quality and environmental sustainability, as well as promoting consumer awareness of the benefits of quality and sustainable rice for health in Tojo Una-Una Regency.
4. Develop policies and regulations that support a sustainable and fair rice food supply chain for farmers and consumers, as well as encourage the application of technology and innovation that can increase the efficiency and sustainability of rice production in Tojo Una-Una Regency.

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