Pangasinan Salt Supply Chain Analysis

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ABSTRACT

The Pangasinan salt supply chain is examined in this article, with an emphasis on its stages and challenges for enhancing sustainability. Using a qualitative descriptive approach, the study looks at the current value chain, which has five stages: consumers, traders, market vendors, small and medium-sized enterprises, and salt producers. Among the primary issues are the lack of proper equipment and local support for salt production, as well as the ASIN Law (Republic Act No. 8172), which mandates iodization and has caused a decline in local salt supply. Dealers therefore prefer imported salt to those made in the country. Furthermore, the environmental impacts of salt farming, specifically, the soil's salinity have an effect on the region's agricultural output. The study proposes an anthroposophical salt value chain that emphasizes a holistic approach focused on the welfare of people, the environment, and the economy to address these concerns and promote a more sustainable and just salt manufacturing system in Pangasinan.

Keyword: *customers, market vendors, salt, traders, value chain*

1. INTRODUCTION

In the study of Lat, et al (2024), despite the abundance of goods and distinctive resources that define South Africa, as well as remarkable advancements in manufacturing and assembly, it continues to rank among the agricultural nations. Different salt varieties have unique production, processing, and packaging elements that determine their retail price. Salt that has been packed, shaped into pellets, or compressed into blocks is unquestionably more extravagant than salt that is offered in bulk. Due to the increased energy costs associated with handling and purging the product, vacuum container salt is the most expensive in South Africa (Zhang and Zhang, 2024). More salt is bought in South Africa than is supplied for the entire nation. It is used in specific industries including horticulture and the food industry and is caused by the lower quality of salt produced in the country, which is thought to contain less than 95% sodium chloride. 17 metric tons of salt were produced between 1974 and 2006, with production from Walvis Bay and beachfront containers being checked. In addition to one acceptable activity with more than forty limited scope maker personnel, South Africa has eighteen operational salt groups of varying sizes (Bartolome, et al., 2022). According to the Department of Mineral Resources, less than half of the salt used in the country is produced domestically. Only 12 percent of the salt produced is used in the food industry; the majority is used in contemporary areas for things like petroleum refining, petro research, animal feed, the production of cooling saline solutions, and other uses. Excellent salt is needed for the compound company, and it is imported from another nation. People in South Africa then use imported salt for the synthetic industry and consume their own salt-made. However, it is estimated that approximately 290 metric tons regularly pass through the port of Durban, and imports from Botswana enter the nation by land transportation. According to the overall trend, the South African synthetic industry is the largest customer, accounting for around 54% of all South African depletion. Mechanical and agricultural sectors follow at 15% each, followed by human use (12%) and other uses (4%) (Purnanto, et al., 2020).

China has become the world's leading producer of salt on the other side of the continent (Utami, et al., 2021). This figure displays the amount of salt shipped to China between 2008 and 2018. China produced over 58.36 million tons of salt in 2017. Even though it has the second-largest economy in the world and is home to many people, China continues to be known as an agricultural country. Even though China's economy is the most powerful in the world, second only to the United States, it continues to face many of the major issues that define a developing nation. For instance, widespread energy poverty, the 400 million people who lack access to a clean cooking area,

significant air pollution, and reliance on rising energy consumption to support future economic expansion. It was recognized as a middle-income developing nation due to its modest per capita income. Evaluating China's level of progress is more than just a scholarly endeavor.

The important commodity sustaining the wealth of nations was salt. Although it aided in the creation of territories, it ultimately became the cause of wars and revolutions. In any case, the public authority closed the most established syndication in the world after 2,600 years of elite domination over the exchange. Since sovereigns attempted to protect the salt transaction in the seventh century BCE, China has operated under an oppressive commercial model. In some of the realms established following the fall of the Han Empire, salt accounted for 80–90% of state revenues by the third or fifth century. The realms became wealthy and formed a pack. Salt has been used in many Chinese customs for a very long time as a major source of government revenue. According to Kissock, et al (2024), salt only receives a little amount of official funding these days, but the nation's dominant business model continues to provide 10 yuan in needless benefits annually. Since iodine deficiency is a common problem among populations that are not well-nourished, the state link was justified for health reasons many years ago. To ascertain this problem, the public authority had to ensure that every resident was burning through salt with iodine because salt might be either iodized or non-iodized. However, this is no longer the case for the Chinese people, and in fact, China is experiences the opposite problem as the rest of the developed world, with people burning through a lot of iodine, which also causes unforeseen problems. Since there is no private market, Chinese consumers currently purchase salt that contains iodine. The dominant table salt business model in China, with sub-businesses covering production, packaging, and distribution, is expanding. On top of that, it is illegal in China to sell salt across municipal limits or by individual citizens selling salt that they have created themselves. The expulsion of all salt postings from Taobao's commercial hub was caused by this law. One negative effect of the oppressive business model is shown in the food industry, where manufacturers of products like soy sauce and various flavors have been found to use mechanical salt instead of table salt in their products to reduce assembly costs.

Whereas the Philippines used to produce enough salt on its own. The nation's salt industry capitalizes on its physical location as an archipelagic region with many coastal areas to its advantage by channeling seawater to salt beds and exposing it to solar evaporation to create table salt. Salt has been produced in many of the nation's coastal areas. Pangasinan is known for its high-quality salt products in the Ilocos Regions. Pangasinan, which is translated to "a place for salt making," is how it got its provincial name. The sale and distribution of nonionized salt became illegal under Republic Act No. 8172 (An Act for Salt Iodization Nationwide [ASIN Law]), which influenced the Pangasinan salt business. Large-scale operators were compelled to reduce their operations, while small-scale salt producers were immediately impacted. The law’s implementation led to a decrease in salt production across the nation, which forced the government to import salt to meet the nation's demand for salt for industrial and domestic usage. The Pangasinan salt industry was further burdened by economic factors including labor and raw material costs. Pangasinan's traditional method of producing salt is in danger of going extinct. One of Pangasinan's cultural traditions is the traditional method of manufacturing salt, which ought to be preserved. Although there are national and local efforts to revive the province's salt production, there is currently no designated government organization to handle issues pertaining to the salt business. A significant portion of the world's population has experienced robust economic growth because of the growing integration of the global economy. The economic development brought about by the cooperation of different corporate sectors served as a springboard for the advancement of numerous nations worldwide, both developed and emerging. Accordingly, globalization is the expression of advancement in a nation where innovation can transition from conventional to modern. It is a progressive system designed to improve the lives of all people. Since everyone wants to improve their well-being and envision oneself in a positive state in the future, this uncontrollable situation of change is known for its inherent nature as inevitable. In regard with this, the industry with the most capital and the most potential to boost other businesses is the agriculture sector.

Due to the success of agricultural development, it was predicted that before 2050, all 9.7 billion people on the planet will have an equal chance of experiencing happiness and flourishing (Conejo, et al., 2020). The agricultural sector is twice to four times more effective than other industries at leaving a good impression and providing the poorest people with a source of income. Research on the change of the food processing industry in developing but not yet highly developed nations has shown that it begins with the participation of macro and microbusinesses, which affect the supply demand that farmers must satisfy. As a result, farmers were now the primary target for the transportation of raw materials needed to create various products. In a sense, it facilitates the production of goods that are marketed both domestically and internationally. Prior to the manufacturing of final goods, businesses engaged in the logistics of raw materials adopted this fundamental food processing step as the foundation for goods efficiency. According to Sosic (2023), the North American Free Trade Area (NAFTA) created a philosophy of exportation that starts in developing nations by implementing the diverse dynamic of food production in these nations and the many opportunities for empowering small and medium-sized businesses. This

was done in response to the urgent need for reform in the food industry. Therefore, globalization in the food and agriculture sector involves both the production of more refined food products worldwide as well as the global sourcing of agricultural raw materials. Developed nations can boost their earnings greatly through globalization, but it also puts more pressure on them to maintain their competitiveness with suppliers around the world. Individual players and the agri-food industry will perish if they are unable to compete. Considering this, competitiveness is associated with profitability and demands a high level of overall productivity. To prevent income polarization among international providers of agri-food products, developing nations must continue to be active participants in the modern global economy and, as a result, fierce competitors. For the agri-food chain to be successful, all of its participants, from suppliers of agricultural raw materials to processors and distributors, must work together. A solid policy environment and institutional support are also necessary for a sector to flourish. One-fifth of the Philippines' GDP comes from agriculture, which has been demonstrated to support rural development, create jobs, and boost food production, all of which have a significant impact on the economies and health of locals. Except in areas or provinces with significant agricultural resources and goods, residents have not always profited from these resources and products.

There are several, frequently context-based, reasons for the discrepancy between expected benefits and accessible capital. Understanding the underlying causes will be aided by the issues with the actors and activities that connect farms and other food producers to the final consumer, also referred to as the agri-food value chain. Recognizing supply chain problems may help stakeholders like farmers, food processors, merchants, and consumers address problems. Value chains are made possible by the fact that each link in the chain adds value to goods and services by doing tasks for which they are most suited and enabling others to do the same. It also becomes evident that every person along the value chain may learn the real reasons for conducting business in a way that respects one another and is morally right for the economy, ecology, climate, and human race. For instance, farmers grow crops and sell them to eateries, who then cook food for patrons. Thus, the restaurant maximizes its worth by leveraging its culinary knowledge, and the farmers maximize their value by employing the most cutting-edge agricultural techniques, hence, through their transactions, the end user realizes the value. The odds of success for the different players are increased by cooperation, shared interests, and an understanding of the different perspectives of the upstream and downstream value chain partners.

Muhandhis, et al (2021) claimed that the value chain of the agriculture sector is unique and different from other value chains because of the perishable nature of agricultural products, which significantly affects the logistics or methodology of each stage included in the value chain system. By examining current issues from a value chain perspective, it is possible to identify possibilities to enhance performance on agriculture value chains by comprehending the reasons for uncertainty in consumer demand, inventories, and unforeseen natural disasters. A comprehensive grasp of all concerns in every part of the value chain is required to address the current problems in the agricultural sector. This can be achieved by examining the working and decision-making environment of investors or shareholders and by determining the difficulties and barriers they encounter from their own perspective regarding food distribution, food demand, and food access. Given that low production results in low sales, farmers' main worries with climate change are financial management, setting priorities, and crop seed characterization. Given that agricultural production occupies 44% of Pangasinan's 536,819 hectares of land, this article attempts to define the province's present salt value chain to increase member understanding of the procedure. In the study of Mongomery, et al (2020), the production process uses 2,500 hectares and may yield an average of 150,000 metric tons of salt annually. Therefore, this study can assist value chain actors in increasing their production efficiency while simultaneously increasing their understanding of how to be a more moral and ethical actor in the chain. As of 2019, the province of Pangasinan had 439 registered agriculture firms, increasing 41.61 percent from 310 in 2017, according to DTI Pangasinan (Conejo, et al., 2020). The problem is how this agribusiness companies can create value in the chain with this % increase. This article attempts to define the existing salt value chain in Pangasinan to increase members' understanding of the operation, given that the province has a land area of 536,819 hectares and that agricultural output makes up 44% of the total land area.

2. METHODOLOGY

This study employs a qualitative descriptive research approach to be able to address the research problems. Descriptive approach is preferred for studies that seek to understand a process or describe a situation or a given situation in terms of specified aspects or factors. The study was conducted in Pangasinan particularly in the cities and municipalities which produce salt. The participants of the study were the actors in the value chain and members of the Department of Agriculture, Department of Trade and Industry, and other organizations involved. It is a study that explained current trends in the salt value chain, as well as how a group acts and functions within the chain; it

also provided some compare. The Delphi technique was used to compile a list of existing value chain problems in the business sector. The guarantee of anonymity, which prevents concerns of prejudice or manipulation that might arise during focus groups or discussion situations, was reinforced for reliability by eliciting the opinions of several experts, allowing each expert to review the opinions of other participants, and ensuring that each expert can review the opinions of other participants.

3. RESULTS

3.1 The Current Supply Chain of Salt in Pangasinan

The purpose of this study was to identify the value chain of salt in Pangasinan by conducting interviews with key informants. By soliciting the opinions of several experts, letting each expert evaluate the opinions of other participants, and maintaining anonymity to prevent concerns of bias or coercion that might arise during focus group discussion scenarios, reliability was strengthened. The Pangasinan local salt producers are the respondents for the first round of data collection. Individual viewpoints on the main topics were offered by the group members. Following that, these concepts are shared with the other group members to review them collectively and reach an agreement. Additionally, the researchers gave each respondent an equal chance to contribute and time to think. Making a preliminary list of the operations that take place along Pangasinan's salt value chain is the first step. The phases of the salt value chain were identified using a variety of sources for this preliminary list. According to the answers, the value chain has just five (5) steps, which are as follows: 1. manufacturers of salt; 2. small to medium-sized business, or 3. intermediaries, traders, and sellers; 4. Five are the customers/buyers, while the other five are market merchants or bagoong/dried fish vendors. Following the preliminary draft of the salt value chain, each link was metaphorically submitted to the group of experts for evaluation and addition in order to strengthen the value chain's face validity.

The towns of Bolinao, Dasol, Anda, Infanta, and western Pangasinan are the main producers of salt, while San Fabian, Linagyen, and Mangaldan are the smaller producers. Additionally, the Barboza family expanded it to North-Central Pangasinan, and the de Vera family in Mangaldan finally adopted it. "Barara" is the raw material used to make salt. According to Garcia-Navarro, et al (2024), the salt must be processed for at least nine (9) hours to produce the smoothest and finest salt that is possible. In an effort to produce a whiter and cleaner refined salt, barara is refined by cooking it in biomass stoves using rice hull as fuel, which adds to the cost for salt producers. It is added by Tan, et al (2022) that the growing demand for rice hulls has led to a sharp increase in costs and a shortage of supply. Even though it is a waste product of rice milling facilities, its market value has grown to the point where it is now a costly commodity in Nueva Ecija since it is now used as a raw material by the province's cement producers.

Another expense that salt manufacturers must pay, according to Montojo, et al (2024), is labor to assist in the production of salt. By giving able-bodied people, particularly those who are unable to find work in the formal sector, a source of income, Pangasinan salt producers assist combat poverty and lower the unemployment rate. Producers of salt either work with their own family members or turn salt production into a family enterprise. Three types of salt are distinguished: Class A is the finest and whitest table salt; Class B is utilized as a raw material for bagoong and the preservation of fish and other meals; and Class C is industrial salt used in mining and other industrial processes. Those involved in the production of bagoong, dried fish (daing), tinapa, or direct purchases of salt from the farm are referred to as small or medium enterprises in the salt value chain. The logistics costs of transporting salt from producers to their producing region, which included labor, fuel, and trucking, were part of their business expenses. The second stage's salt clients were from the Bicol Region, La Union, Neva Ecija, Nueva Vizcaya, Tarlac, Baguio-Benguet, Bulacan, Isabela, Cagayan, and other parts of Luzon.

Additionally, there are chance buyers who happen to observe or pass by the salt makers, such as tourists, travelers, or visitors in the area. Salt producers use their own vehicles to move the produced salt from the farm to business. Nevertheless, most producers do not have trucks, therefore they sell salt at the farm gate or by pick-up. Industrial businesses that employ salt in their mining operations are classified as medium-sized or large enterprises. Transporting salt from salt farms will be one of their operating expenses. In stage three (3) of the chain, traders or sellers are individuals who travel about selling salt in various provinces. To transport, distribute, and sell salt, traders and sellers must pay for logistics, fuel, and labor. The merchants or dealers who sell salt in the marketplace are the ones who give it to the market vendors. Repackaging salt into smaller volumes for sale to households and small-scale consumption may be part of their commercial activities, which may involve labor and material costs. In the market, highlighted by Saulong, et al (2023), practically everyone is seen as a buyer or consumer of salt, making the consumers the final step. Salt is purchased and used for several purposes. Given that the respondents might have

overlooked some crucial steps in the chain, the second phase involves presenting the salt value chain to them for feedback, recommendations, and enhancement through interviews and focus group discussions.

4. CONCLUSIONS

In accordance with the analysis, Pangasinan's value chain has five stages. Producers of salt come in first, followed by small and medium-sized businesses, merchants, sellers, and middlemen, market vendors, or bagoong or dried fish vendors, and finally, purchasers and consumers. The results indicate that the Department of Agriculture should help the Pangasinan salt value chain by providing seminars or training on effective and efficient salt production, as well as maybe financial support to the local salt producers. Additionally, new players can be added to the Pangasinan salt value chain to manufacture salt for commercial opportunities. Furthermore, if there is sufficient harvest and production, Pangasinan's salt value chain can grow in exportation. This allows for the transnational manufacture of salt.

5. REFERENCES

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