Differences in Organization Structure and the Supply Chain of Private with State-Owned Palm Oil Mills in North Sumatra, Indonesia.

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Abstract. Indonesia is the world's largest palm oil producer. The Central Statistics Agency (BPS) noted that Indonesia will produce 45.58 million tons of palm oil in 2022. This number has increased by 1.02% compared to the previous year, which reached 45.12 million tons. The palm oil industry comprises on-farms producing fresh fruit bunches (FFB) and processing industries. The processing industry can be divided into two main divisions: factories that crush FFB into crude palm oil (CPO) and factories that process CPO into various refined palm oil products. There are three actors in Indonesia's palm oil processing business: the private sector, the government (BUMN), and small farmers. This study aims to find organizational and supply chain differences between state-owned palm oil mill companies (BUMN) and private palm oil mills. Data were obtained from documents, publications, agency research reports, or other supporting sources. This study uses a qualitative descriptive analysis method. The results showed differences in production capacity, organizational structure, and supply chain between state-owned and private palm oil mills. However, the two palm oil mills same produce CPO and palm kernels.

1 Introduction

Indonesia is the world's largest palm oil producer. Indonesian Palm Oil Association (GAPKI) noted that Indonesia would produce 46.72 million tons of palm oil in 2022. This amount decreased compared to the previous year, which reached 46.88 million tons. Most of Indonesia's palm oil production is exported abroad to generate foreign exchange for Indonesia [1]. China and India are the leading destinations for India's Crude Palm Oil (CPO) exports until 2021. Data from the Indonesian Central Statistics Agency (BPS) for 2021 recorded CPO exports to China reached 4.7 million tons, followed by India at 3.08 million tons. Indonesia exports 52.65% of the world's CPO needs [2]. CPO is a product of the palm oil industry. Apart from CPO, products from the palm oil industry include cooking oil, margarine, soap, and biodiesel [3].

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Since 2006, the Indonesian palm oil industry has grown significantly and has become a vital industry for Indonesia [4]. Oil palm plantations and industries are spread across over 200 districts [5]. Most of the oil palm plantations and industry are located on the islands of Sumatra and Kalimantan, which produce 95 percent of CPO production [4]. Products from the Palm Oil industry contribute to economic development at various organizational levels, including private-sector businesses, State-Owned Enterprises (BUMN), and smallholder groups [6]. The palm oil industry in Indonesia can be divided into three parts: upstream, midstream, and downstream. The downstream section is related to end products and brands. The upstream and midstream sections cover farming fresh fruit bunches (FFB) production and processing. The processing industry can be divided into two main divisions: Palm Oil Mill (POM), which crushes fresh fruit bunches (FFB) into crude palm oil (CPO), and POM, which processes CPO into various products called refined palm oil.

POM capacity in Indonesia has decreased [7]. Rifin's research [7] shows that only 17 of the 547 CPO-producing factories are efficient. Factories owned by private national companies have the highest average efficiency, followed by foreign and government-owned companies. Efficiency measurement uses the Data Envelopment Analysis (DEA) approach by using production value as output and two inputs, namely the number of workers and the value of raw materials. Therefore, increasing POM to maximize profits [7]. Efficiency is required to maximize POM profits. Efficiency shows the company's ability to produce and manage existing production factors. In addition to production factors, management factors are also thought to influence the efficiency of PKS, as in the study [7, 8, 9, 10].

Besides the four researchers who examined PKS managerial, several studies related to PKS managerial, such as POM Agribusiness Production Management PT. Cawang Dabuk Rejo Plantation Reeds, Lempuing District, Ogan Komering Ilir Regency [11], Management of Procurement of Raw Materials for Fresh Fruit Bunches (FFB) at Palm Oil Mills (Case Study at PT Katingan Indah Utama Kotawaringin Timur, Central Kalimantan)[12], Analysis of the Palm Oil Supply Chain Constraints to Increase in Cooking Oil Prices: Case Study PTPN II Batang Quiz Medan [13], Analysis of Supply Chain Risk of Palm Oil Mills Using the SCOR Method [14], Analysis of the supply chain Crude Palm Oil (CPO) in Kuantan Singingi District, Riau [15], and Supply Chain Analysis of Palm Oil Transportation Using Tankers at PT Bhaita Jaya Samudra [16].

From all managerial research on POM in Indonesia, no study compares the organizational structure and the supply chain of private and state-owned palm oil mills (BUMN). However, there is one study comparing state-owned companies (SOCs) and private-owned companies (POCs) conducted [17] entitled Corporate social performance of Indonesian State-owned and private companies. The results of this study indicate no significant difference in corporate social performance between SOCs and POCs. Further, no association between corporate social performance (CSP) and financial performance in SOCs and POCs was detected.

This research determined the organizational structure and supply chain differences between SM POM PTPN3 and GM POM PT. PP London Sumatra Indonesia Tbk are located in North Sumatra Province. The Sei Mangkei palm oil mill is a palm oil mill owned by the government and GM POM PT. PP London Sumatra Indonesia Tbk is privately owned.

Based on the results of previous research [17], the research hypothesis is that there is no significant difference between private and state-owned (BUMN) palm oil mills in Indonesia. The research results are important for the Indonesian government to make policies for Palm oil mills that aim to maximize palm oil production amid decreasing POM capacity [17]. It is hoped that this research is expected to contribute ideas, information, and input for other researchers. In addition, this research can fill a research gap or lack of literature related
to managerial research on palm oil mills in Indonesia.

2 Materials and methods

The authors use analytical and qualitative research methods to analyze the differences between state and private palm oil mills. Determining the palm oil mills being compared was carried out purposively; the method of determining research subjects was carried out deliberately. The factory, which is located in North Sumatra, was also consciously chosen. The basis for the selection was the availability of relatively complete secondary data from the two palm oil mills. A comparison of the organization of the palm oil mill and the structure of the supply chain was conducted based on secondary data on oil palm plantation laws, government policies, comments, and other available articles on this topic. The comparative analysis in this study is descriptive because it describes the supply chain of each palm oil mill.

3 Results and discussion

3.1 Sei Mangkei POM, PT Perkebunan Nusantara III Persero

POM Sei Mangkei is a factory owned by PT Perkebunan Nusantara III Persero (PTPN3). PTPN3 is one of State-Owned Enterprises (BUMN) in the Republic of Indonesia's agriculture, forestry, and fishery sectors engaged in agribusiness and agro-industry. PTPN3 is located at Jl. Sei Batanghari No. 2 Medan, North Sumatra. PTPN3’s business activities cover the cultivation and processing of oil palm and rubber plants. PTPN3’s main products are Crude Palm Oil (CPO), Palm Kernel Oil (PKO). Apart from CPO and PKO, PTPN3 produces rubber, sugarcane, coffee, and cocoa.

PTPN3 was established on March 11, 1996, with the legal basis of establishment referring to the Government Regulation of the Republic of Indonesia No. 8 of 1996, dated February 14, 1996. PTPN3 is the result of the merger of PT.Perkebunan (PTP) III, IV and V. The merger of the three PTPs resulted from the restructuring of the State Plantation Company (PPN). At the same time, this PPN results from the takeover (nationalization) of the company -a plantation company owned by the Netherlands by the Government of Indonesia in 1958 (PTPN III, 2019).

PTPN3 manages the Sei Mangkei Special Economic Zone (KEK Sei Mangkei) in Simalungun, North Sumatra. The Government of Indonesia determines this management through Regulation No. 29 of 2012, which refers to Law No. 39 of 2009 concerning Special Economic Zones. Currently, the production capacity of POM Sei Mangkei is 75 tons of FFB/hour.

POM Sei Mangkei is located in block 113 Afdeling 2 Kebun Dusun Hulu, Nagori Sei Mangkei, Bosar Maligas District, Simalungun Regency, North Sumatra Province. POM is located approximately 165 Km southeast of Medan City, the capital of North Sumatra Province.

As part of PTPN3, PMO Sei Mangkei has a goal to support and contribute to the vision and mission set by PTPN 3, namely the vision: to become a world-class agribusiness company with excellent performance and implement the best business governance. The five missions are 1. To develop a sustainable plantation-based downstream industry; 2. Producing quality products for customers; 3. Treating employees as strategic assets and developing them optimally; 4. Striving to be the chosen company that provides the best returns for investors; 5. Become the most attractive company to partner with;6. Motivating employees to participate in community development actively; 7. Carry out all environmentally sound
company activities.

POM Sei Mangkei has a corporate value of "PETIR," namely: 1. Proactivity. Always be active with full initiative in every matter, including evaluating things that might happen.

2. Excellent. Always show enthusiasm and excellence and try and work hard to get maximum results by the company's competencies.

3. Teamwork. Always prioritizing teamwork in order to be able to produce optimal income for the company.

4. Innovation. Always value creativity and produce innovation in the form of new methods and new products.

5. Responsibility. Always be responsible for the consequences of a decision taken from an action taken.

The organizational structure of POM Sei Mangkei describes the framework of the relationship between leaders and employees. Organizational structure is needed to know each section's position, authority, and responsibility. The unit's organizational structure usually includes a chart showing the leader's functions to each team member's position. Stability and communication can still be carried out with an organizational structure. Figure 1 is an organizational structure of POM Sei Mangkei.

The duties and responsibilities of each team member based on their position in the Sei Mangkei POM organizational structure are as follows:

3.1.1 Factory Head (Manager).

The factory head or Manager is responsible to the Director of Production or directly to the Main Director of PTPN3 regarding production activities. The Head of the Factory can utilize all the resources in the Sei Mangkei PKS. Can make decisive decisions for the benefit of the company provided that they do not conflict with regulations and laws.

![Organizational Structure of Sei Mangkei POM PT. PTPN3](Source: [20])
3.1.2 Chief Machinist (Maskep).

Maskep is responsible for processing palm oil and installing and operating mills and production. In carrying out its duties, Maskep is assisted by a Technical Assistant, Processing Assistant and is directly responsible for the processing machine and installation drive at POM Sei Mangkei.

3.1.3 Technical Assistant.

The Technical Assistant is responsible for operating production process machines, power plants, and installation propulsion machines. The goal is that palm oil processing activities continue to run well.

3.1.4 Processing Assistant.

The processing assistant operates POM Sei Mangkei production equipment to produce palm oil and palm kernel oil. The Processing Assistant must carry out processing according to schedule, including controlling PKS waste to achieve optimal results.

3.1.5 Laboratory Assistant.

Laboratory Assistant is responsible for analyzing laboratory test results required by the factory. The results of tests carried out related to the processing of FFB, palm kernel, boiler water and waste water according to standards.

3.1.6 Personnel and General Assistant (ATU).

ATU is responsible for compiling employee payroll and controlling all reports from each department on time. ATU has the authority to plan and direct activities in the administrative field to achieve the Company's Work Plan and Budget (RKAP) targets.

3.1.7 Chief Security (KAPAM).

The head of security is responsible for maintaining security and corporate governance including physical security of company assets. The head of the security guard has the authority to give directions to each member of the security guard.

3.1.8 Technical Foreman.

Assigned to assist technical assistant responsibilities and supervise technical workers.

3.1.9 Technical krani.

The technical krani assists the technical assistant in making administration, receiving and recording reports from the Technical foreman.

3.1.10 Laboratory Foreman.

Assigned to assist laboratory assistant responsibilities and supervise laboratory workers.
3.1.11 Laboratory krani.

The laboratory krani assists the laboratory assistant in making administration, receiving and recording reports from the Laboratory foreman.

3.1.12 Processing Foreman.

Assigned to assist Processing assistant responsibilities and supervise Processing workers.

3.1.13 Processing krani.

The Processing krani assists the Processing assistant in making administration, receiving and recording reports from the Processing foreman.

3.1.14 Personnel krani.

Personnel krani is tasked with assisting the Personnel and General Assistants in carrying out administration, receiving and recording personnel reports.

3.1.15 Finance krani.

The Finance krani assists the Processing assistant in making administration, receiving and recording finance report.

3.1.16 Worker.

Workers are people tasked with carrying out orders from each foreman on duty at that time.

The organizational structure is useful for ensuring the supply chain flow of palm oil products. Supply chain management coordinates activities within and between vertically linked firms to profitably serve end customers [18]. Figure 2 illustrates supply chain management at POM Sei Mangkei.

The upstream process begins with the provision of agricultural inputs consisting of fertilizers, seeds and agricultural inputs. Furthermore, the supplier (plantation owner) brings the FFB of palm oil to be transported to POM Sei Mangkei. POM Sei Mangkei obtains FFB from owned and private plantations. FFB is then processed through six stations. POM Sei Mangkei produces products in the form of CPO and PK KERNEL. The majority of these two products are distributed to PT Unilever and PT Industri Nabati Lestari.
3.2 Gunung Melayu POM, PT. PP London Sumatra Indonesia Tbk

Gunung Melayu (GM) POM is a palm oil processing factory owned by PT. PP London Sumatra Indonesia (PT PP Lonsum) Tbk. PT PP Lonsum was founded by Harrison and Crossfield (H&C) Group from England. PT. The H&C Group established PT PP Lonsum by deed of notary Raden Kadiman domiciled in Jakarta on December 18, 1962. Initially,

PT PP Lonsum owned plantations in Pematang Siantar and Tebing Tinggi, North Sumatra Province. Currently PT. PP Lonsum Indonesia has seven oil palm and rubber plantations in South Sumatra, one rubber plantation in South Sulawesi, one oil palm plantation in East Kalimantan, and two cocoa, coffee, and tea plantations in Java. In carrying out its business, PT. PP Lonsum established several processing plants in North Sumatra, South Sumatra, West Java, East Java, South Sulawesi, and East Kalimantan.

One of PT PP Lonsum's Palm Oil processing factories in North Sumatra is GM Palm Oil Mills, which has a 30 tonnes FFB /hour capacity. GM POM has its full address at Gunung Malayu Village, Rahuning District, Asahan Regency, North Sumatra Province.

As part of PT. PP Lonsum, GM POM, aims to support and contribute to the vision and mission of PT.PP Lonsum Indonesia. Its vision is to add value to stakeholders in agribusiness, and its mission is to be a leading 3C (Crops, Costs, and Conditions) and
research-driven sustainable agribusiness.

Every company needs a company organizational structure to organize and carry out all company activities in order to achieve the company's vision and mission, as well as the Gunung Malayu Palm Oil Mill PT. PP Lonsum. The GM POM structure is described in Figure 3

Fig. 3. Organizational Structure of Gunung Malayu POM PT. PP London Sumatra Indonesia. (Source : [21])

Organizational structure focuses on the division of labour of organization members into several distinct tasks. The structure helps to coordinate all the tasks to accomplish the mission and goals of that organization in a unified way [19]. The duties and responsibilities of each team member based on their position in the Gunung Malayu POM structure are as follows:

3.2.1 Mill Manager

The Mill Manager manages and ensures that the factory's operational activities run efficiently and effectively. Mill Manager is responsible for analyzing the preparation of the annual budget and financial documents and creating and controlling technology and components as needed. Sign material requests according to the work program plan. Evaluated each plan and make a report to superiors every month. Ensuring the quality of the system runs well. Ensuring work is following the work procedures at the factory.

3.2.2 Maintenance Engineer (ME)

The maintenance engineer is responsible for planning, implementing, and evaluating the smooth running of the production process and reporting it to the Mill Manager. In addition, ME is responsible for maintaining production equipment machines so that the smooth production process is guaranteed. If there is damage, ME is responsible for taking corrective actions, overseeing the operation of production machine tools, supervising production according to procedures to achieve quality and quantity standards, suppressing production losses, and ensuring material stock availability.
3.2.3 Shift Coordinator

The Shift Coordinator coordinates factory activities, starting from the laboratory, security, and daily activities. Make improvements to activities that the leadership has evaluated. Carry out individual work plans. Carry out individual development in coordination with the leadership. Assist managers in carrying out their duties.

3.2.4 Shift Engineer

The Shift Engineer has the task of supervising the smooth implementation of the production process directly, ensuring the achievement of quality and quantity of production. Supervise the implementation of the sortation. They are controlling the running of Standard Operation Procedures. Provide direction to the operator of the production process.

3.2.5 Kasie

Kasie manages and coordinates accounting and administrative record-keeping procedures by company policies. Carry out verification of all accounting transactions and validation. Kasie is responsible for preparing and sending management reports and using the budgeted costs.

3.2.6 Workshop Foreman

The Workshop Foreman is responsible for reporting to the maintenance engineer in carrying out the task. Carry out repairs and maintenance of production machines and preventive programs. Responsible for the smooth production process. Assisting maintenance engineer tasks and coordinating with the shift foreman.

3.2.7 Chief Security (Danru)

Danru is responsible for maintaining security and corporate governance, including the physical security of the assets company. Danru has the authority to give directions to each member of the security guard.

3.2.8 Head Laboratory

The duties and responsibilities of the Head Laboratory are to report to the Shift Coordinator and supervise: the laboratory analyst, dispatch operator, WTP analyst, and sample product.

3.2.9 Shift Foreman

The shift foreman's job is to report to the shift coordinator. Responsible for the smooth production process. Participate in the implementation of corrective and preventive programs. Assist and coordinate with the Foreman Workshop. Control all production process equipment. Shift Foreman supervises Workers.

3.2.10 Head Clerk

The duties and responsibilities of the Head Clerk are to work on Monthly Reports,
Annual Reports, Manpower planning, and assist in daily administration and correspondence. The organizational structure is useful for ensuring the supply chain flow of palm oil products. Figure 4 describes supply chain management at POM Gunung Melayu.

Fig. 4 Supply Chains POM Gunung Melayu.

The upstream process begins with the provision of agricultural inputs consisting of fertilizers, seeds and agricultural inputs. Furthermore, the supplier (plantation owner) brings the FFB of palm oil to be transported to POM Sungai Melayu. POM Sungai Melayu obtains FFB only from owned plantations. FFB is then processed through eight stations. POM Sungai Melayu produces products in the form of CPO and PK KERNEL. The majority of these two products are distributed to PT Salim Ivomas Pratama (SIMP), PT Indoagri, PT Indofood, PT Unilever and PT Industri Nabati Lestari. Some are also exported.

3.3 Discussion: Differences between POM Sei Mangkei (SM) and POM Gunung Melayu (GM)

The production capacity of POM Gunung Melayu is 30 tonnes of FBB/hour, while POM SM has a production capacity of 75 tons of FFB/hour. The capacity of POM SM is bigger than POM GM.

From the organizational structure of POM, GM has a more streamlined organization with 10 positions, namely mill manager, maintenance engineer, shift coordinator, shift engineer, section chief, workshop foreman, chief security, head laboratory, shift foreman and head clerk. Meanwhile, POM SM has 16 organizational positions: factory head, chief machinist, technical assistant and processing assistant, laboratory assistant, personnel and
general assistant, chief security, technical foreman, technical clerk, laboratory foreman, laboratory clerk, processing foreman, processing clerk, personnel clerk, finance officer and worker.

The supply chain at POM SM and GM is also different. FFB POM GM suppliers come from owned plantations, while POM SM comes from their owned and private plantations. Both POMs produce CPO and Palm Kernels. POM SM has six processing stations to produce CPO and Palm Kernels, while POM GM has eight stations. SM's POM products are sold to PT Unilever and PT Industri Nabati Lestari manufacturing companies. Meanwhile, POM GM distributes its products to three manufacturing companies, PT Salim Ivomas Pratama (SIMP), PT Indoagri and PT Indofood. Some products from POM GM are also exported.

4 Conclusion

The analysis shows significant differences in production capacity, organizational structure, and supply chain between POM Sei Mangkei (SM) and POM Gunung Melayu (GM). The results of this study are not the same as the research [17], which states that there is no significant difference between social performance and financial performance between private and state-owned (BUMN) companies. Production capacity, organizational structure and supply chain affect the company's financial performance. The research results are important for the Indonesian government not to equate the approach to make policies for private and state-owned (BUMN) POM that aim to maximize palm oil production amid decreasing POM capacity, especially in North Sumatra Province.

References

5. F. Nurafriani, G. K. Sari, W. Saputra, H. Komarudin, Land, 11(9), 1452 (2022)
11. G. Muslih, H. Iswarini, Jurnal Societa, XI, no. 01, pp. 50–59 (2022)