CHAPTER I INTRODUCTION

I.1 Research Object Overview

The agroindustry processes materials from plants or animals into agricultural products by transforming and preserving them through physical or chemical alteration, storage, packaging, and distribution (Austin, 1992). In a nutshell, agro-industries are the extension of agriculture across the entire system. The development of agroindustry will support more profitable and stable agriculture that triggers the emergence of employment opportunities which is in line with the size improvement. The wider agro-industrial will enable better infrastructures and the whole process that ends to the achievement of higher revenues and food security (Fadhil et al., 2017).

The contribution of agro-industries to economic growth is vital for the national summary. Agro-industry generates added value for agricultural products that provides greater opportunities for employment, production, marketing, financial, commercialization, and services. Those values can be vital foreign exchange in a global market in any level of agriculture products. Moreover, in the dimension of nutritional needs, the agro-industry could be the supplier and compliance with the needs for foods (Djamhari, 2004). Based on economic activity development, the importance of agro-industrial generates workforce absorption, creating small-medium entrepreneurs, attracting investors, and global market exchange which will contribute to either national or regional gross domestic product (GDP) (Fadhil et al., 2017).

Generally in Indonesia, the agro-industrial sector continues to make a significant contribution to the growth of the non-oil and gas processing industry and the national economy. In the second quarter of 2021, this sector contributed 8.77% to the national GDP or 50.59% to GDP growth in the non-oil and gas processing industry (Kemenperin, 2021). Indonesia's trade balance in the second quarter of 2021 recorded a surplus of 1,57 % better compared to the same period in 2020 which was only 0,44% (Kemenperin, 2023).

The plantation products are one part of the agro-industry which in the semester I - 2022 had the largest export performance reaching USD 14.21 billion or 56.6 percent of the total agro-industry exports which reached USD 25.12 billion. In some commodities, Indonesia has already been the main exporter and every country that depends on the production in Indonesia regarding demand fulfillment (Baheramsyah, 2022).

One of the commodities that have been the main supplier for foreign exchange is Gambier. Indonesia supplies 80% of gambier commodities on the world market. Demand for gambier from India as the main destination country for gambier exports also increases, reaching 13-14 thousand tons per year. Apart from India, Indonesia's gambier export markets include Japan, Pakistan, the Philippines, Bangladesh and Malaysia. For national production, West Sumatra gives the highest contribution which supplies 80 - 90% of the total national gambier production, and 90% of gambier production in West Sumatra comes from Lima Puluh Kota Regency (Kementrian Koordinator Bidang Perekonomian Republik Indonesia, 2021). The main areas for gambier fields in Lima Puluh Kota Regency are Kapur IX, Pangkalan , Bukik Barisan, Mungka and Harau (Distanhortbun Kabupaten Lima Puluh Kota, 2023).

The Gambier commodity is one of the leading commodities in West Sumatra because many farmers depend on this cultivation for their livelihood. The quantity and value of West Sumatran gambier exports tend to increase so West Sumatra is positioned as a national gambier barometer. With all the supporting potential from Gambier, it becomes a serious subject to be developed. As an effort to boost the performance of the agro-industry sector, the Ministry of Industry continues to encourage improvement and strengthening through the implementation of Industry 4.0 and optimizing the use of industrial technology, to utilize natural resources for industry, fostering green industry and strategic industry, as well as increasing the use of domestic products.

I.2 Research Background

Agro-industries in Indonesia have a major contribution to today's economy along with the development opportunities. As a leading sector, the agro-industry is significantly strengthened by the capabilities and skills of actors from various sub-systems in carrying out their respective roles, including a commitment to cooperatively developing all of the agro-industrial subsystems. All components of the agro-industrial sub-systems, including organizations, management, mechanisms, systems, and procedures originating from production systems, post-harvest handling, to marketing and distribution, should be able to carry out their mission, not only by partially performing the functions but also by harmonizing integral agro-industrial development (Maarif, 1998).

Factually, the institutional performance of agro-industries and agribusiness in Indonesia is not optimal because the growth of agro-industries mostly relies on external conditions that make the internal integration lacking and the process and alteration are not professionally well managed (Maarif, 1998). The development is delayed particularly by the institution and human resource capacity that need to be developed holistically (Fadhil et al., 2017). Skilled and knowledgeable human resources will play vital roles in guaranteeing the success of the organization. Eventually, individuals involved in a business may affect the growth (Indriati, 2015). Moreover, the institution as the organization that comes with a set of regulations, procedures, and individual behavior will bring an important contribution to agricultural development along with the regulation of parties' relationships (Magiri et al., 2022). In terms of organization, the institution gathers identifiable borders and relationships to achieve together goals (Vitola & Senfelde, 2015). For instance, institutions that regulate the exchange of goods and services on the market will bring mutual agreement for profit sharing and the usage of rights (Ikatrinasari et al., 2011).

Agro-industries mostly face some obstacles in development which are (Austin, 1992; Mardiharini & Jamal, 2016; Syahza, 2010):

1. The resources issues such as water, land, production, quantity, and quality of raw materials
2. The quality of human resources
3. Weak Institution performance and roles
4. Lack of technology adaptation
5. The shortage of supporting systems such as facilities, policies, investment, capital, market enhancement, and legal

Thus, as stated issues above, the revitalization needs to be conducted to enhance organizational growth through a holistic harmonization of the organization to achieve market focus, discover new streams of business, and enhance regulation to define development path and control (Apollonia et al., 2023; Maarif, 1998). The alignment of technology and organizational performance will truly help the transformation.

Indonesia as the main supplier of gambier commodities for the world market shows great potential to be developed and give high contribution to agroindustry. In Indonesia, gambling is not widely known as a plantation commodity. Gambier is the original commodity from Indonesia and there is no gambier in another country in the world.

Uncaria Gambier Roxb (Gambier) is classified to the Rubiaceace family and contains a pharmacological compound that is commonly used in the chemical industry for drugs, paints, beauty, etc. The main compound is called catechin The pharmaceutical and cosmetic industry based on pharmacopeial requirements requires catechins with a purity level greater than 90%. Gambier is generally cultivated on land with an altitude of 650 to 800 m a.s.l. and a flat to topographical hillside. Planting gambier is semi-intensive, less fertilizer, and only demands cleaning and pruning. The longevity of gambier plants is long because some plants are 50 years of age and still productive. Figure I.1 is what gambier plants look like.

Figure I. 1 Gambier Plants

The production process starts with boiling the gambier leaf, then pressing it manually or with the machine, the water will evaporate resulting in a half-dry product, and let it drain before printing to the form of small cubes and tubes.

Figure I. 2. Gambier Production Process

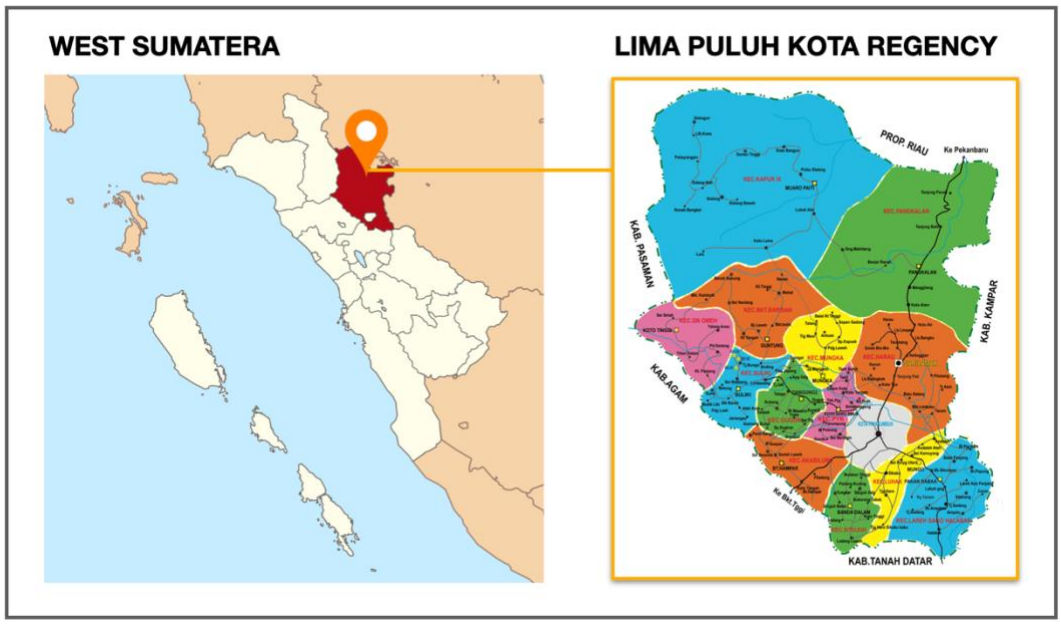

Figure I. 3 Location of Lima Puluh Kota Regency

Lima Puluh Kota regency is located in the eastern part of the province of West Sumatra or 124 km from Padang City, the provincial capital that is traversed directly by the Equator, the capital of this regency is located in Nagari Sarilamak with 13 subdistricts. This district has an area of 3,354.30 km^2 (Ensiklopedia Dunia, 2021). The main economic activity of this regency is in the agroindustry sector with the highest contribution to economic growth (Trilusianthy et al., 2021). From the perspective of sectoral, the section that gives the highest contribution to the Regional Gross Domestic Product (RGDP) is the agricultural as much as 5.153.821,68 in Million Rupiah (PERDA, 2020).

The government needs to be more serious and focused on developing the agricultural sector of Lima Puluh Kota Regency by improving agricultural infrastructure, facilities, and infrastructure down to agricultural distribution channels. Bearing in mind that the agricultural sector is productive and has a positive influence on the economy of Lima Puluh Kota Regency, policies need to be made that are more pro-farmers or the community so that they continue to work in the agricultural sector and develop the agricultural sector into a leading sector (Suryani & Adevia, 2023).

The government in Lima Puluh Kota Regency tried to develop and improve the agroindustry in this regency through some strategies for industry development that loaded on Lima Puluh Kota regional regulation No. 3 of 2022 concerning industrial development plans for Lima Puluh Kota Regencys for 2022-2042 (PERDA, 2020) Lima Puluh Kota Regency will put the highest intention for developing the commodities along with the awareness of the potential business. One of the main missions of the Regional Medium-Term Development Plan (RPMJD) Lima Puluh Kota Regency period 2021-2026 is to achieve increasing growth and development of the economic sector through the increasing of small and medium enterprise (SME) contribution along with the development of skilled, high-competent and productive human resources. Based on (PERDA, 2020) some of the strategies developed to enhance the Industrial Development in Lima Puluh Kota regency are as follows :

1. Effective and efficient regulation for Industrial Development
2. Provide infrastructure, facilities, and supporting facilities for Industrial Development
3. Improve government human resources competence as the facilitator, companion, and empowered of the main actor of Industrial Development
4. Support the Nagari government to develop Nagari-owned business entities based on SME and regional potential
5. Generate Nagari-based household and medium industry Institutions
6. Determination of Industrial area that integrated into regional layout
7. Improve and maintain an industrial climate that is in line with the development needs of regional industry.
8. Build a collaborative network between large industrial players and SMEs and researchers and universities.
9. Building micro capital institutions and formal capital networks accommodate the needs of industrial business players.
10. Formation of synergy patterns between neighbouring regions to fulfil inputs production and marketing.

11. Growing the entrepreneurial spirit of society through mindset engineering and community work culture.
12. Encourage Small and Medium Industry (IKM) players to develop their businesses by adopting a system that applies to community life.
13. Build a communication network between actors in the SME system.
14. Optimizing the potential of local raw material sources.
15. Establishing a pattern of synergy between the main actors in industrial development, agriculture, plantations, fisheries, and livestock to create a sustainable system of raw material input for SME production.

Lima Puluh Kota regency put gambier as the only commodity for the upstream industry. The upstream industry processes the agroindustry material into main or supporting materials for another industry, which means that the commodity has many opportunities for future development.

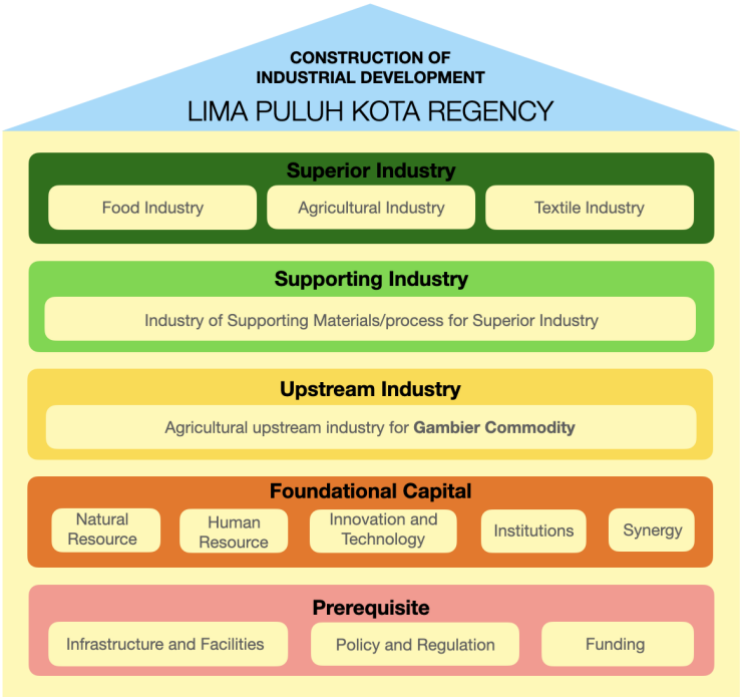

Figure I. 4. Construction of Industrial Development Plan Lima Puluh Kota Regency

Based on the Regent's Decree Lima Puluh Regency Number 741 of 2016 concerning superior commodities as well as the legal basis used by the West Based on the Regent's Decree Lima Puluh Regency Number 741 of 2016 concerning superior commodities as well as the legal basis used by the West Sumatra Provincial government to determine the leading industry.

The potential of gambier for agroindustry, current condition, and regulation as well as the planning development align. Thus, future formulation to get more technical, empirical, and on-target development needs to be done because some of the issues in this commodity have not been solved yet.

The first symptom found regards the productivity that affects the performance of the overall business. Table I. 1 shows the production of gambier based on subdistrict in Lima Puluh Kota Regency.

Table I. 1 Gambier Production based on Sub-District 2022 (PERDA, 2020)

No	**Sub-District**	**NPP (ha)**	**PP (ha)**	**DP (ha)**	**Total (ha)**	**Production (Ton)**	**Total Productivity (Ton/ha)(%)**	**Productivity Ratio (%)**
1	Suliki	10	147	0	157	89,65	57%	82%
2	Bukik Barisan	42,5	2625	0	2667,5	516,91	19%	28%
3	Mungka	270	660	6	936	69,5	7%	11%
4	Payakumbuh	0	374	0	374	249,6	67%	96%
5	Lareh Sago Halaban	7	119	0	126	87,22	69%	100%
6	Harau	180	769	150	1099	20,65	2%	3%
7	Pangkalan	0	4345	72	4417	3028,66	69%	99%
8	Kapur IX	106	7653	0	7759	3714,22	48%	69%

Description

NPP : Not Productive Plants

PP : Productive Plants

DP : Damaged Plants

The table above explains that there are top 5 sub-districts that have the largest area of gambier plants are Bukik Barisan, Mungka, Harau, Pangkalan, and Kapur IX

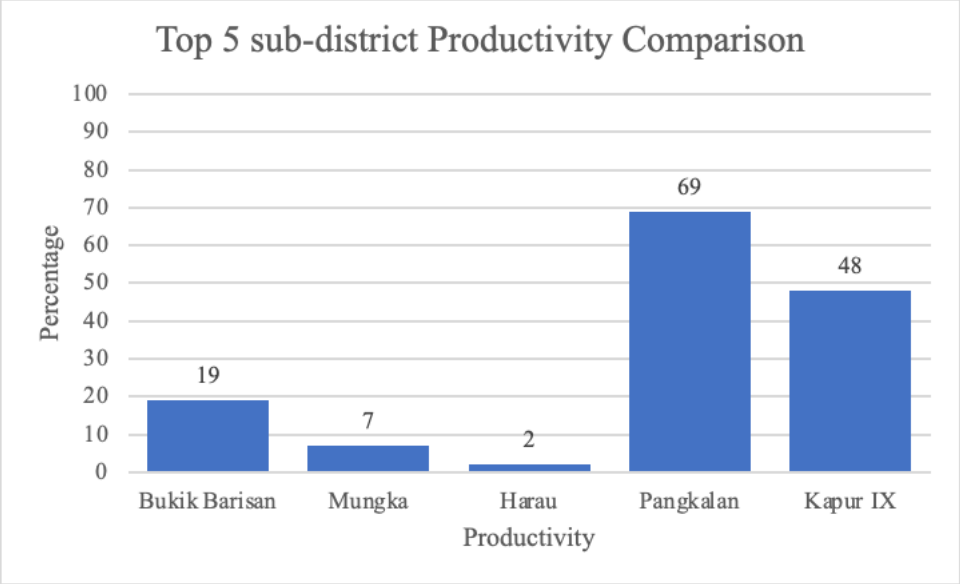

Figure I. 5 Sub-district Productivity Comparison

subdistrict. The table found that there are still many potential plants as well as damaged plants that reduce the productivity of the production. Harau sub-district seems to have obstacles in the industry due to the lowest productivity only 2% and has the largest area for damaged plants. The top 5 potential sub-districts to enhance the development of gambier commodities need to have close attention from all parties involved especially from the government that already plan the development of agroindustry. Figure I.5 shows a gambier productivity comparison for the top 5 Sub-District.

The difference in productivity implies the unequal development of gambier commodities. These issues can come from any direction that causes the lack of productivity. The diagram above implies the gap between the development planning and actual conditions that have major problems due to productivity. This symptom will bring this research to another aspect that might support the cause of the problem above.

From the perspective of market power, the export destination holds the biggest power to control how Gambier exists on the market including prices, products, and

development. The opportunity of being monopolized is so big, because of the weakness of some stakeholders in the gambier industry. The most obvious is about price, as the price can impact production, profit, and also well-being. Monopoly will bring the unbalanced distribution of profits among stakeholders. Figure I.6 shows the price difference between exporter and farmer levels.

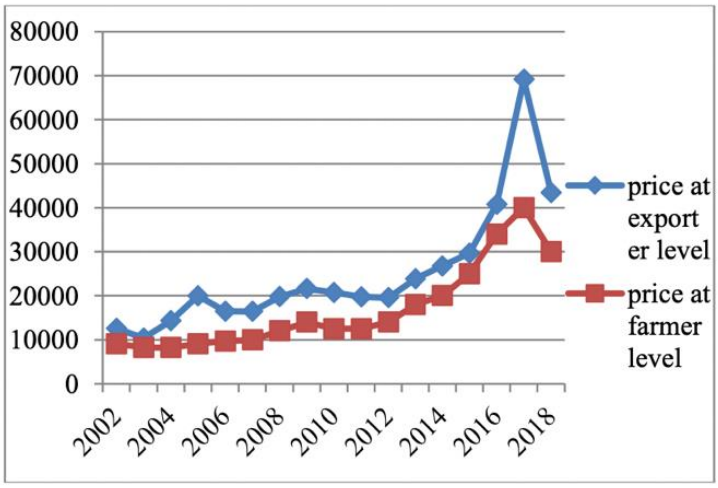

Figure I. 6. Development of gambier export prices and farmer-level prices

The most extensive monopoly level is at the exporter level so that the exporter obtains the most significant domination and profit (Hendri & Fairuzi, 2023). It causes the exporter to have a strong bargaining position and act as a price maker.

The monopoly index of Gambier is high at 6.58 (Hendri & Fairuzi, 2023). A strong monopoly at the level of traders and exporters makes farmers only price-takers. The farmer only accepts the price set by the trader for the Gambier he owns when determining the selling price. According to one Padang exporter, importers from India visit the city regularly to negotiate prices for future purchases. The purchase price from traders to farmers is determined based on this price. The bargaining position can deteriorate because traders do not always arrive at the market at the same time, so farmers in need of funds are willing to sell their Gambier even at a low price. It's ironic because they don't have any power to pursue something that they deserve. (Hendri & Fairuzi, 2023).

Indonesia as the main exporter of gambier brings fresh wind to enhance the well-being of farmers, but the monopoly issues above give the contrary point for the farmers. As the main importer, India has a strong position as a price maker(Dhalimi, 2005). The Indonesian gambier market could lead to a monopsony market, where India has a position as the sole buyer with the consequence of India's strong position as a gambier consumer country in influencing prices. This is confirmed by Dhalimi (2006) who states that the gambier market is monopsony.

The condition getting harder because the seller of gambier in West Sumatera also does the monopoly and impacts to Bilateral Monopoly or Countervailing Power when both buyers and seller have monopolistic behavior. Countervailing power refers to the existence of a monopoly in one side of the market that will impact to deterrence and elimination of monopoly power in another side of the market. The condition had a high impact on the price and output of the business process.

Due to the monopoly issues in the market, it can reflect the inefficiency and not optimum market system in the gambier industry. Obviously, will bring many problems and obstacles to the whole supply chain of the gambier industry. In an ideal state, an efficient market is in the perfect competition market. Moreover, the issues supported by the absence of a local stream in the gambier industry impact to high dependence on the export market. The dominance of sellers and exporters made the farmer the price taker. In these circumstances, farmers are the most disadvantaged because they have no bargaining power through the market system, yet it’s still far away for them to take part due the price determination and other issues as well.

Based on the observation, some farmers said that they would not be farmers if there was another job offered because processing the gambier on the production hut called *kampaan* demands them to stay there at least 5 days a week. Moreover, the traditional method of gambier production requires the physical power of humans. Activities to process gambier of the small production hut in the forest called **“*Mangampo*”** the most unwanted choice for work in the village instead of other farming activities. Some of them said “Sapayah-payahnyo iduik jan sampai

mangampo" That's why being a farmer in the gambier industry is not favourable based on the risk taken in the process itself. These things show the irrelevance between the potential of the gambler and the tendency of the farmer because they see no opportunities to get a prosperous life.

Because the problems seem complex and have various aspects, a mapping for these issues need to be conducted to show the relationship among problems and how the hierarchy of the problem. Figure.I.7 is the issues mapping for the gambier industry.

Based on the mapping diagram in can be define the main issues that need to be

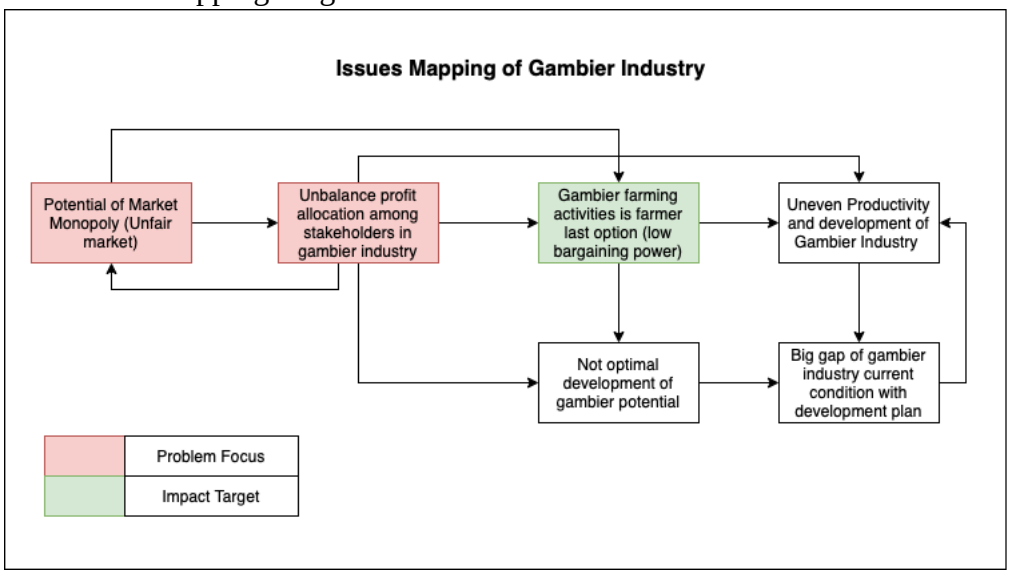

Figure I. 7 Problems Relationship

overcome as the main focus for this research. The potential of market monopoly and unbalance profit allocation have interplay relationship, those issues as the tier of another issues. Logically if the research can define a solution for those 2 issues, another issues can be solved as well. In this research the issues target is the farmer.

The explanations above bring up another gap, the gambier industry has already been at the top of mind for the government to develop but the market condition of gambier is bad which has high potential for monopoly. Logically this situation need a massive intervention from the highest authority holder with most powerful tools such as government policies. Government policy and role should be able to control the business process and make it favourable to support development for the

industries and avoid one-sided earning (Rieznik & Beom, 2018). Industrial policy is a group of policies whose main aim is to encourage the development of certain industries (Taufik, 2005) .

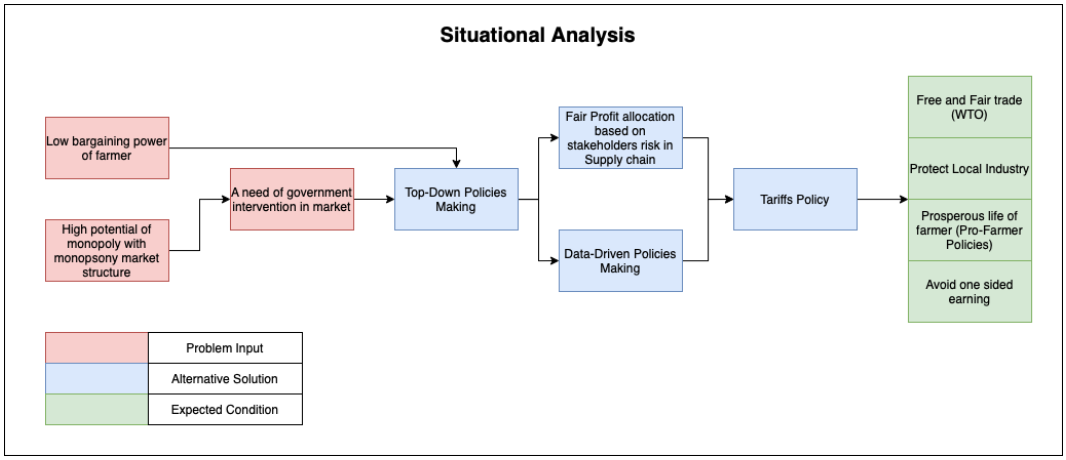

Figure I. 8 Gambier Industry Situational Analysis

Government policy plays a central role in the development of industries based on agricultural products explains that the agro-industrial business climate is largely determined by government policies and actions (Austin, 1992). The use of comprehensive data and facts and the role of experts, researchers, and academics are very important in providing an adequate knowledge base for policy formulation (Herawati, 2011). Government intervention is needed in the market so that there can be healthy competition which is expected to prevent monopoly, guarantee equality of opportunity in doing business and compete fairly, and freedom to sell and buy products based on the principle of efficiency (Campbell R & Stanley, 2005).

Based on PERDA 2020, Lima Puluh Kota regional regulation No. 3 of 2022 concerning industrial development plans for Lima Puluh Kota Regencys for 2022-2042 is only give the general regulation to develop commodities. The regulation cannot be used to intervene in the market and gambier commodity closely. The regulation seems still need some of technical guidance about the industry also standard control for the implementation to ensure the development is on track and progressing. It concludes that there is no industrial regulation for gambier industry

for now in Lima Puluh Kota Regency that helps to protect and control the business process of the commodity (PERDA, 2020). The absence of regulation make the market of the gambier industry is not conducive and has high potential to earn some disadvantages in the aspects of business mechanism, supply, prices, quality and etc. This issues supported by the information about the price standard of gamblers is still unclear (Setyo, 2024).

The agro-industrial supply chain aims to synergize relationships between supply chain actors in the agro-industrial sector, which means creating organized ways of managing activities. Supply chains interact depending on the consensus of the actors involved in building relationships in the system (Deperiky et al., 2020). This research will take a wide range for the investigation which is a gambier industry, which means that there will be some network of the supply chain on this industry that will discussed along with other variables such as market structure, development plan and government roles.

Moreover, the Deputy Governor of West Sumatera said “We are currently finalizing derivative regulations from Regional Regulation Number 3 of 2023 concerning Management of Leading Plantation Commodities. Gambier is one of the plantation commodities that needs to be regulated and what will be regulated later is standardization of the quality and price of gambier.” Gambier farmers complained that the purchase price of gambier by the Foreign Investment Company (PMA) was not suitable and he added that this was also our effort to prepare appropriate regulations, in order to create a symbiotic mutualism between farmers and industry (Setyo, 2024). Head of the West Sumatra Industry and Trade Service, Novrial, said that the gambier trade chain is still very long. From farmers to collectors one to three, then arriving at industry. “The length of the chain puts pressure on prices at the farmer level. This chain is also what we need to cut. "The industry also agrees that this trade system will be cut," he said.

An imbalance in a country's implementation of domestic policies to support the production and trade of an agricultural commodity can lead to unfair international trade practices. Output price and trade policies are generally designed to protect both producers (farmers) and consumers. Price policies that protect producers are commonly referred to as floor prices, whereas those that protect consumers are known as ceiling prices. Many countries use these two policies to protect their domestic agricultural sectors. In addition, domestic farmers can be protected through trade policies such as import prices, export subsidies, import bans, and so on.

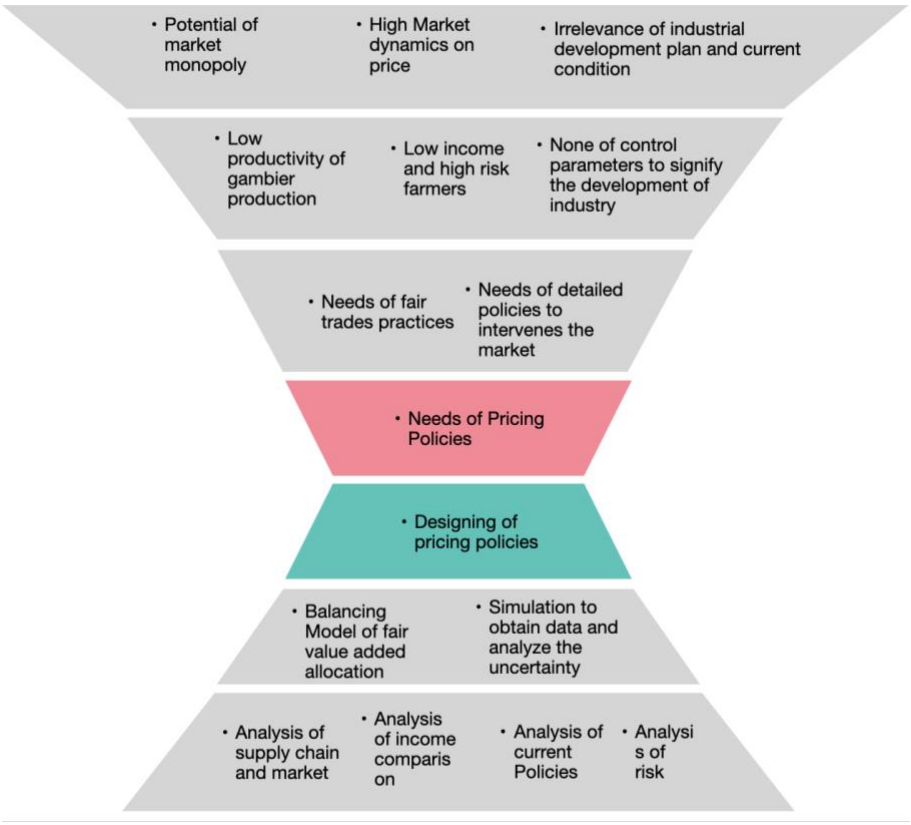

Figure I. 9 Pricing Policies as the Main Result

The need of pricing policies is the top port of all issues above, because most of gambier industries issues come from the market and price which plays a crucial role for decision making mostly in farmer level. Figure I.9 define the hierarchy of why pricing policies is the main lenses of this research. Pricing policies have the main ability to protect and lead market to implement fair and free market (Murray, 2007).

Pricing policies scope is technical enough to help the government have the parameters to control and track the market condition based on it. Pricing that arranged by government will provide a protection and restriction to the business practice that not align with the industry development.

The World Trade Organization (WTO) does not emphasize the situation of globalization of trade on the words free trade alone, but fair trade. it is a system of rules dedicated to open, fair, and undistorted competition (WTO, 2024). The rules on non-discrimination are designed to secure fair conditions of trade. The issues are complex, and the rules attempt to establish what is fair or unfair, and how governments can respond and how pricing policies play crucial roles to provide fair trades (C. Barrett & Bellemare, 2011).

Most issues are significant in the farmer level as the most important actor in this industry. Most of pricing policies is intended to protect farmers and ensure a conducive business environment (C. Barrett & Bellemare, 2011). Pricing policies like export restrictions, price stabilization plans, and farmer subsidies that are intended to reduce the volatility of food prices are wrong if the goal is to improve the welfare of the impoverished or prevent political instability in emerging nations. Increased output, or a decrease in waste and diversion, will lower costs and promote the building of food stocks, which will keep prices stable. The cost of food is a significant problem for society as a whole. To effectively address that challenge, policies must first accurately define it (Sexton & Lavoie, 2001).

In the end pricing policies is able to provide the sustainability and continuity of an industry which also the main issues of this research. The changing on the industry will disturb the stabilization and need high adaptation, the ability to identify and mitigate to the changing condition is highly needed, pricing policies is able to be the parameters of industrial changing and can determine how the industry strategy can be survive along the time and ensure the continued participation of small-scale producers in developing countries in the markets (Kirsten & Sartorius, 2002)

Based on the explanations above, this research aims to develop a model of pricing policy formulation based on the balancing of value-added and risk levels of the

supply chain. The research process includes an analysis of the current condition in the gambier industry, an analysis of supply chain configuration and mechanism, value-added identification, supply chain risk identification, optimization, and a balanced model of the risk and value-added based on the expected condition for a healthy business atmosphere and formulating pricing policy based on the data, facts, and insights obtained. The model is partially used and implemented by another researcher, but the balancing model is mostly only based on coordination with business actors that don't bring ideal conditions because the pattern will follow the type of market. The variable of regulation and policy is mostly not discussed in most research. So, this research will integrate the balancing model with the ideal condition for a healthy business to reduce monopoly potential and formulate a pro-farmer policy that will support the sustainability and optimality of this business. Thus, it will be the recency of this research.

I.3 Problem Formulation

In this thesis, the research question is synthesized as how to formulate Industrial policy based on the model of balance of fair distribution of added value based on risk weights for Gambier supply chain actors that purpose to have a sustainable flow of product, information, and cost based on the industry development direction.

The practical research question is described as follows :

1. How is the current supply chain condition of the gambier industry in the context of market structure and development plan of regional economic development in the Lima Puluh Kota Regency?
2. How is the model of balancing fair added value and risk level of the supply chain of the gambier industry?
3. How does the concept of fairness in fair profit allocation in a gambier supply chain achieve supply chain sustainability?
4. How are the optimization risk level and added value balanced among the dynamic behaviour of stakeholders that support the ideal condition-based market structure and development plan?

5. How the pricing policy formulation supporting the development of the Gambier industry based on fair added value be able to guide stakeholders at the policy level in accommodating a healthy business atmosphere?

I.4 Research Objectives

Based on the problem formulation, here are the objectives of this research :

1. Generate the current supply chain condition of the gambier industry in the context of market structure and development plan of regional economic development in the Lima Puluh Kota Regency?
2. Generate and calculate the model of balancing fair added value and risk level of the supply chain of the Gambier industry Formulate the method to calculate the added value of each actor in the Gambier Agro-Industry Supply Chain.
3. Concept of fairness in fair profit allocation in a gambier supply chain achieve supply chain sustainability
4. Conduct optimization risk level and added value balanced among the dynamic behaviour of stakeholders that support the ideal condition-based market structure and development plan
5. Design a pricings policy model to support the development of the Gambier industry based on fair added value be able to guide stakeholders at the policy level in accommodating demands for achieving the performance of the Gambier industry supply chain

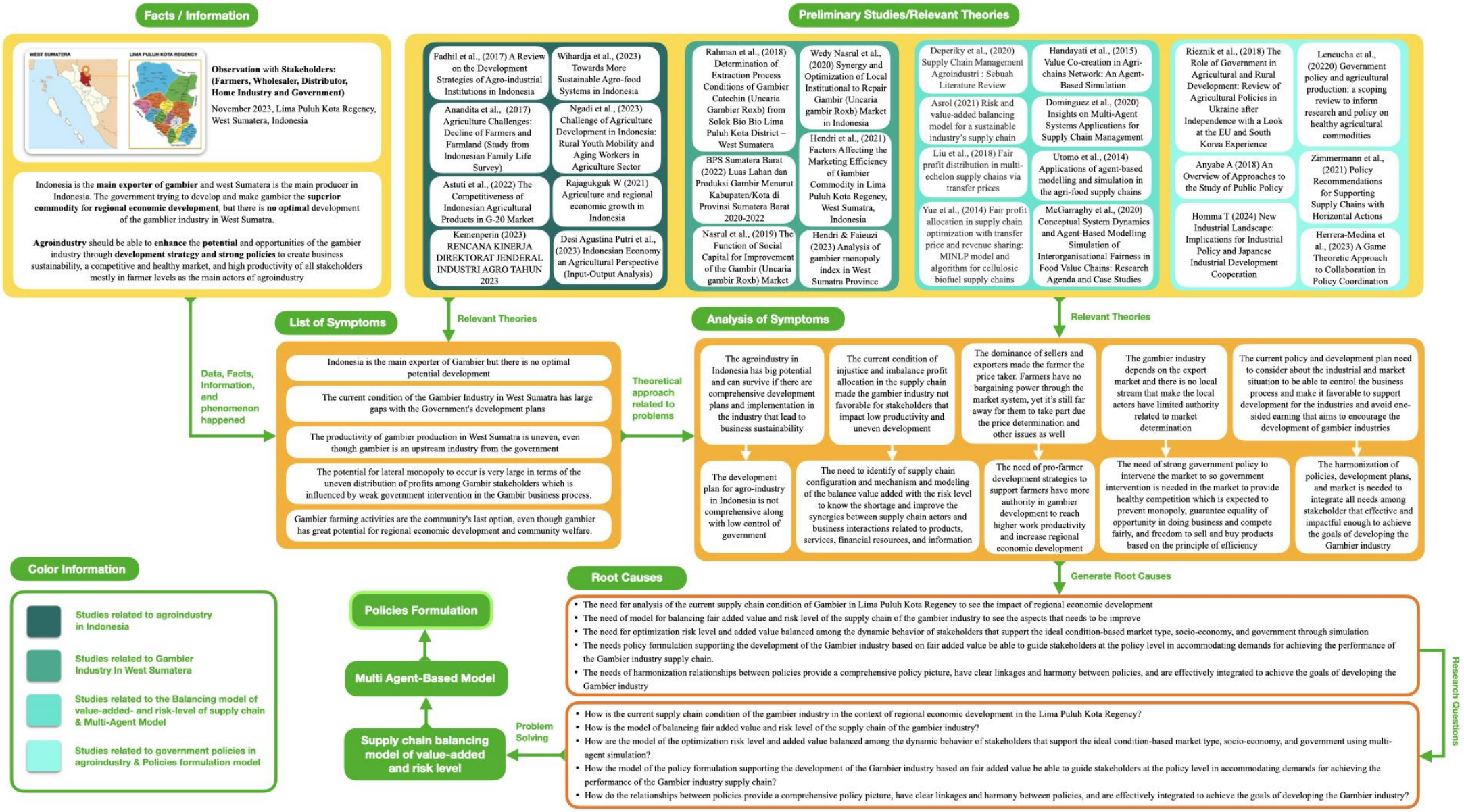

Figure I. 10 Scheme of Problem Formulation

I.5 Research Benefits

The benefits from this research are divided into two main users which are stakeholders (practical) and academicians (theoretical) as follows :

Practical Benefits :

1. Provide information about the optimized supply chain model of the gambier industry to give the perspectives of all stakeholders technical and managerial about the fair distribution of value added from the supply chain can help the sustainability and growth of this commodity and provide some of the risks on the supply chain as a consideration for stakeholders to plan their act and behavior to help this industry more beneficial.
2. Give information about risk and value added to provide insight and recommendations on how gambier commodities development direction in the future as consideration for the stakeholders to take action and prevention
3. Provide a balancing model of risk and value-added on the gambier supply chain to give a fair profit allocation of all stakeholders in Gambier's supply chain and help generate pricings policies to overcome the market monopoly and protect the industry along with enhancing farmer position
4. Obtain a cooperation pattern that ensures the sustainability of the Gambier supply chain from upstream to downstream by optimizing the distribution of added value

Theoretical Benefits :

1. This research can be used as a reference for academicians in any relevant knowledge scope that includes agro-industry, supply chain management, policies formulation with this approach.
2. The conceptual and practical model of the research procedure can be as guidance to analyses, measure, and imply the fairly valued added distribution along supply chain management.
3. This research gives new perspectives that are more holistic because it includes the formulation of policies to make another design that can apply to the object.

The power of authority is something that is hard to hit and with reasonable reason and a proactive approach make any research not just left as a paper.

I.6 Problem Constraints

The constraints in this research as follows :

1. The research object was chosen because Lima Puluh Kota Regency has a high contribution to gambier production in West Sumatra and is easy to data access.
2. This research focuses on the top 5 potential subdistricts for gambier production
3. The data is mostly gathered directly from the stakeholders because of the limitation of data on the internet.
4. The period of data gathering is mostly at the end of 2023 and early 2024
5. To limit the research so that it can be carried out well, several representatives are selected from each actor or stakeholder. For downstream industrial products, only one type of processing industry is selected.
6. This research is about the gambier industry not just the supply chain so the holistic approach to model this research is used.
7. The policy referred to in this research is public policy that focus on trades and pricings.

I.7 Writing Systematic

The writing systematic includes chapters that will be discussed in this research as follows :

CHAPTER I INTRODUCTION

The introductory chapter contains a description of the context of the problem, background of the problem which includes the reasons for the research carried out, problems and preliminary studies on the agro-industrial topics observed. The discussion about agricultural industry along with current condition of gambier industry in Lima Puluh Kota Regency,West Sumatera. In this chapter the roots cause analysis is conducted along with research questions. In this chapter also discuss about the main aims of the research and benefits from the research itself.

CHAPTER II LITERATURE STUDY

The literature review contains literature studies that are appropriate to the research problem. The sources used for the literature study are taken from reference books and research journals related to the topic of research problems and are included in the bibliography which can be used to design and solve problems. In the literature review, theories are also presented as the basis for developing research models and determining theories used as a basis for research activities (based on review and elaboration of previous theories) so that the direction and focus of research becomes clearer. In this chapter tools related to balancing added value and risk level of supply chain is presented along with model of policies formulation related to gambier industry. The previous study that help understand the context of this research and confirmed the reliability of several approaches for usage. State of the arts will

be provided to ensure enough information about supply chain, policies, socio-economics related to agroindustry.

CHAPTER III RESEARCH METHODOLOGY

The research methods chapter explains the methods/concepts and techniques used to collect and analyses results that can answer research problems. This chapter contains a description of: Types of Research, Data collecting and processing, calculation with certain method, result implication and adjustment, and solution modelling related to gambier industry. In this chapter, the explanation of research design is provided that help defining the algorithm of approaches that used. In this research system modelling and analysis, balancing model of supply chain, policies formulation are used to provide expected solution.

CHAPTER IV RESULT AND DISCUSSION

The result obtained from the research will systematically explained on this chapter. The data processing, solution modelling, calculation is provided to answer the problem formulation and how the result align with the purposes. In this chapter the result of policies will be provided based on the data and facts provided from the model of balancing value added and risk level of supply chain.

CHAPTER V ANALYSIS

This chapter explains about the result of the research and how reliable the result in answering the problem formulation. The analysis done holistically to see the impacts, implementation, managerial implication, shortage and future plan. This chapter able to show the alignment of information among previous chapters. The analysis of balanced model supply chain for

gambier industry along with policy formulation along with it and how it can give benefits theoretically and practically in Lima Puluh Kota Regency

CHAPTER VI CONCLUSION AND SUGGESTION

The conclusion will provide brief information about result and analysis that obtained from the problem solving in gambier industry at Lima Puluh Kota Regency. Suggestion will provide the recommendation for various stakeholders and entities that related to gambier industry. The suggestion will be based on the exact condition of the research procedures, data availability, insights obtain, implementation analysis, shortage and etc.