

**THE ROLE OF AGRICULTURAL INSTITUTIONS TO INCREASE COCOA
PRODUCTION IN NORTH LUWU REGENCY**

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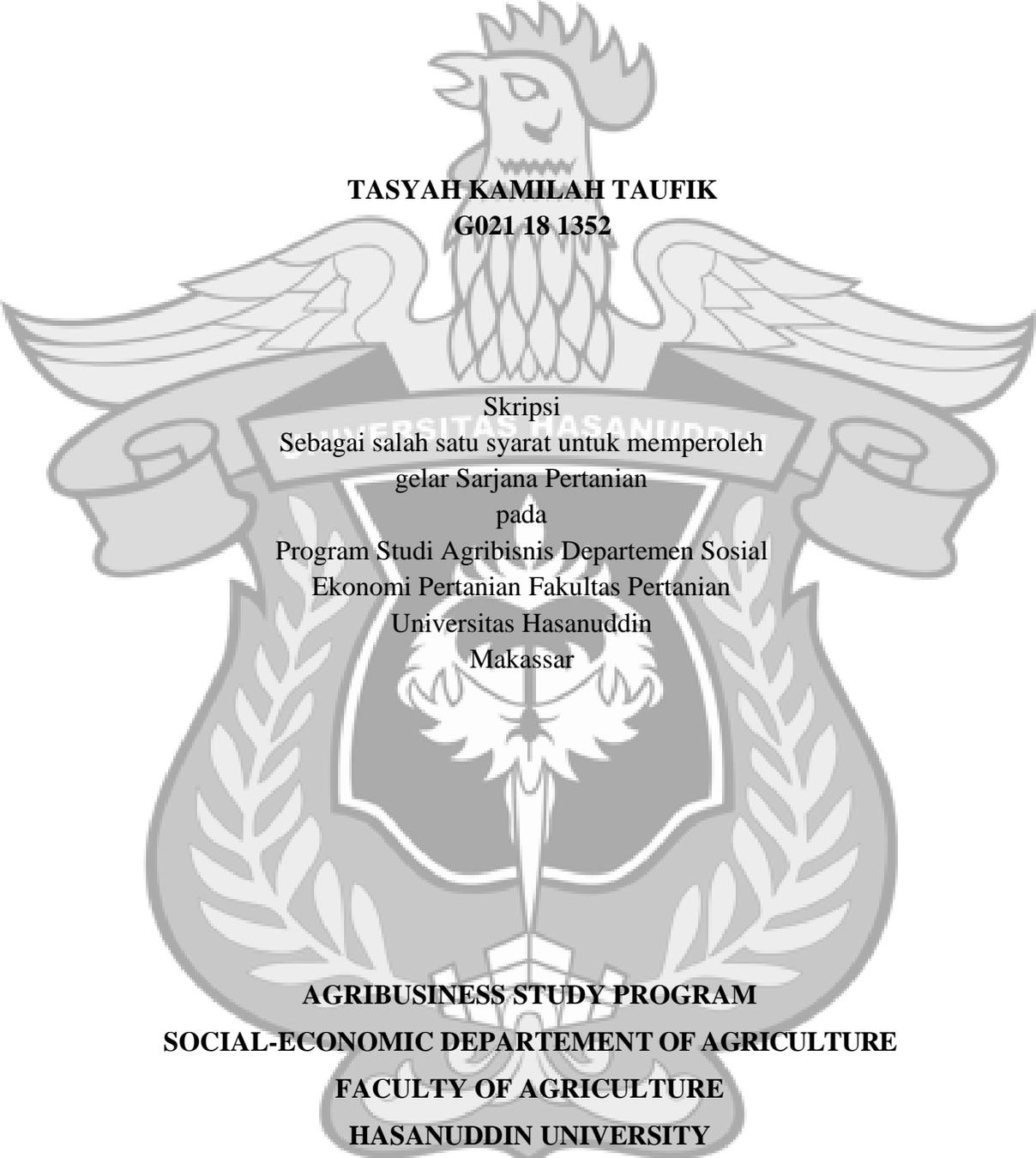


**AGRIBUSINESS STUDY PROGRAM
SOCIAL-ECONOMIC DEPARTEMENT OF AGRICULTURE
FACULTY OF AGRICULTURE
HASANUDDIN UNIVERSITY
MAKASSAR
2022**

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Skripsi
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DEKLARASI

Dengan ini saya menyatakan bahwa, skripsi saya berjudul “The Role of Agricultural Institutions to Increase Cocoa Production in North Luwu Regecy” benar adalah karya saya dengan arahan tim pembimbing, belum pernah diajukan atau sedang tidak diajukan dalam bentuk apapun kepada perguruan tinggi mana pun. Saya menyatakan bahwa semua informasi yang digunakan telah disebutkan dalam teks dan dicantumkan dalam Daftar Pustaka.

Makassar, 5 Agustus 2022



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ABSTRACT

TASYAH KAMILAH TAUFIK. The Role of Agricultural Institutions to Increase Cocoa Production in North Luwu Regency. Supervised by: MUHAMMAD ARSYAD and NIXIA TENRIWARU

Indonesia is the third-largest cocoa producer globally, and Luwu Utara District, South Sulawesi Province, is the largest supplier of cocoa production in the country. However, cocoa production in North Luwu tends to decline from year to year. This study aims to identify the key factors of institutions that play a role, the constraints of insufficient institutions, and program strategies to increase cocoa production. The government or private sectors can use the results of this study to develop planning designs and policies for cocoa farming to achieve agricultural sustainability. This research uses Interpretative Structural Modeling (ISM) to formulate a complexity, hierarchy (level), and classification between elements. Results of this research are of the ten sub-elements of actors that play a role, there are four key actors. There are a key actor that can cause insufficient institutions. Of the eleven sub-elements of strategic programs, there is one key actor they have the highest Driver-Power (DP=1.00). Therefore, The roles of institutions is designing the sustainable extension programs based on farmers' need. Moreover, the institutions need to engage and empower farmers groups to increase the cocoa production.

Keywords: *Agriculture development, Luwu Utara Province, cocoa, increase, production, program, ISM analysis*

BIOGRAPHY



Tasyah Kamilah Taufik was born in Makassar on May 16th, 2000 firstborn daughter of 3 children. A daughter from the father, **Prof. Dr. Ir. Muhammad Taufik, M.Si** and mother, **Andi Astuty Altin, Sp., MM**. During her life, the author has taken several formal educations:

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FOREWORD

Praise and gratitude for the presence of Allah Subhanahu Wa Ta'ala, who has given the light of knowledge, mercy, and grace so that the author can complete this thesis as a final project in the Agribusiness Study Program, Department of Agricultural Social Economics, Faculty of Agriculture, Hasanuddin University.

Shalawat and Salam are continuously poured out to the Prophet Muhammad Sallallahu 'Alaihi Wasallam, who has established the religion of Islam on this earth and is an excellent example for all of us. This thesis entitled "The Role of Agricultural Institutions to Increase Cocoa Production in North Luwu Regency" under the guidance of Prof. Dr. Muhammad Arsyad, S.P., M.Si., Ph.D. and Dr. A. Nixia Tenriawaru, S.P., M.Si. The author prepared this thesis as one of the requirements for obtaining a bachelor's degree at the Agribusiness Study Program, Department of Agricultural Social Economics, Faculty of Agriculture, Hasanuddin University.

The author realizes that there are various obstacles and difficulties during the preparation of this thesis. Therefore, all constructive criticisms and suggestions are very much expected for the perfection of this thesis. The author hopes that all good deeds and assistance from all parties given to the author will be rewarded and worth worship in the sight of Allah SWT, and hopefully, what is presented in this thesis can be helpful for all of us. Amin.

Makassar, 5 August 2022

Author
Tasyah Kamilah Taufik

GRATEFUL WORDS

Assalaamualaikum warahmatullahi wabarakatuh,

Alhamdulillah Rabbil Alamin, all praise be to Allah Subhanahu Wa Ta'ala, Lord of the worlds, thanks to His mercy and love, which is always bestowed upon the writer so that the writer can complete the thesis. Entitled "The Role of Agricultural Institutions to Increase Cocoa Production in North Luwu Regency." Sholawat and greetings are always poured out to the role model of all time, the Prophet Muhammad Sallallaahu 'Alaihi Wasallam, along with his family, friends, and followers who always *istiqomah* in his teachings until the end of time.

The author is fully aware that the author adequately finishes this thesis with the help of various parties, both moral and material. On this occasion, the author would like to express a special award, as a sense of love the author dedicates to Father Prof. Dr. Ir. Muhammad Taufik, M.Si and Mother Andi Astuty Altin, Sp., MM. The author conveys her infinite gratitude to both of them with great humility. Who has been raised, educated, and motivated with love, patience, sincerity, sincerity, and the chanting of prayers. Also, to Andi Aulika Nabila Taufik and Andi Najwa Kirany Taufik, Sisters, thank you for all the prayers and help.

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TABLE OF CONTENT

LEMBAR PENGESAHAN	iii
DEKLARASI	iv
ABSTRACT	v
BIOGRAPHY	vi
FOREWORD	vii
GRATEFUL WORDS	viii
TABLE OF CONTENT	x
TABLE OF FIGURES	xi
TABLE OF TABLES	xii
TABLE OF ATTACHMENT	xiii
1. INTRODUCTION	1
1.1 Background	1
1.2 Research Question	3
1.3 Research Objectives	3
2. LITERATURE REVIEW	4
2.1. Agricultural Development	4
2.2. Cocoa Production Development Program	6
2.3. Institutional Aspect	7
2.4. Interpretative Structural Modelling (ISM)	8
2.5. A Framework of The Study	9
3. METHODS	11
3.1. Research Design	11
3.2. Research Location and Time	11
3.3. Data Types and Sources	11
3.4. Research Step	12
3.5. Analytical Methods	15
4. RESULT AND DISCUSSION	19
4.1. General Description	19
4.2. Expected Institution Plays a Role	22
4.3. Factors that Can Cause Insufficient Institutional Role	30
4.4. Strategic Program	38
5. CONCLUSION	48
REFERENCES	49
ATTACHMENT	52

TABLE OF FIGURES

Figure 1. The framework of the study	10
Figure 2. Flowchart of research stages	15
Figure 3. Directional Graph Driver Power and Dependence (DP-D)	18
Figure 4. Driver-Power and Dependence Graph of Expected Institution that Play Role	25
Figure 5. Expected Institution Plays a Role Structure	27
Figure 6. Driver-Power and Dependence Graph of Factors that Can Cause Insufficient Institutional Role	34
Figure 7. Structure of Factors that Can Cause Insufficient Institutional Role	35
Figure 8. Driver-Power and Dependence Graph of Strategic Program	42
Figure 9. Structure of Strategic Program	43

TABLE OF TABLES

Table 1. Cocoa Production in Indonesia, South Sulawesi, and North Luwu 2016-2020 in (thousand ton)	1
Table 2. Elements and Sub-elements of Research	12
Table 3. Structural Self-Interpretation (SSIM)	16
Table 4. The Form of Contextual and Mathematical Relationships Between Sub-Elements I and J	16
Table 5. Final Reachability Matrix	17
Table 6. Area of Cocoa Plantation Plants by Subdistrict in North Luwu Regency (ha) in 2017 to 2021	20
Table 7. Cocoa Productions by Subdistrict in North Luwu Regency (tons) in 2017 to 2021	21
Table 8. SSIM of The Institutions that Plays Role	22
Table 9. Initial Reachability Matrix of The Institutions that Plays a Role	23
Table 10. Final Reachability Matrix of The Institutions that Plays a Role	24
Table 11. Canonical Matrix of The Expected Institutions that Plays a Role	24
Table 12. SSIM of Factors Causing Insufficient Institutional Role	31
Table 13. Initial Reachability Matrix of Factors Causing Insufficient Institutional Role	31
Table 14. Final Reachability Matrix of Factors Causing Insufficient Institutional Role	32
Table 15. Canonical Matrix of Factors Causing Insufficient Institutional Role	33
Table 16. SSIM of Strategic Program	38
Table 17. Initial Reachability Matrix of Strategic Program	40
Table 18. Final Reachability Matrix of Strategic Program	41
Table 19. Canonical Matrix of Strategic Program	41

TABLE OF ATTACHMENT

Attachment 1. Institutional, constraints, and strategic program scoring questionnaire by ISM method	52
Attachment 2. Experts' answers of institutional scoring	58
Attachment 3. Experts' answer the constraints of institutions	59
Attachment 4. Experts' answer of strategic program scoring	60
Attachment 5. The determination level of Institutions that plays a role	61
Attachment 6. The determination level of The Constraints of Insufficient Institutions	63
Attachment 7. The determination level of The Strategic Programs	64
Attachment 8. Narasumber, Experts, dan Praticioneer	66

1. INTRODUCTION

1.1 Background

Agriculture, forestry, and fisheries sectors have an essential role in economic activity in Indonesia. It shows from their contribution to the Gross Domestic Product (GDP), which is quite large, around 12.93 percent in 2021. South Sulawesi's economy is also still dominated by agriculture forestry, which adheres to business fields by 23.89 percent. During the economic crisis, the agricultural sector was a sector that was strong enough to deal with economic shocks and turned out to be reliable in the recovery of the national economy. This data shows considerable potential for Indonesia to reach the independence of national food security. Therefore, both government and the community need to be aware of this potential to improve the quality and quantity of agricultural production through programs that fully support agricultural development.

The Indonesian cocoa sector has experienced tremendous growth from 2016 to 2018 (Table 1), driven by the rapid expansion of smallholder farmer participation. Indonesia is the third biggest cocoa producer after Cote d'Ivoire and Ghana, with about 15% of the total world cocoa bean (Udemezue and Eg, 2018). In contrast, from 2019 to 2021, the number of cocoa productions decreased. At the same time, around 70% of cocoa export is from South Sulawesi as an Indonesian cocoa land and has been a valuable commodity because it contributes mainly to the local economy and is a working field supplier for most farmers. In 2021, according to the Central Bureau of Statistics South Sulawesi, the total cocoa production in South Sulawesi was 107,100 tons in 188,0 Ha. Cocoa is planted in various regencies in South Sulawesi.

Table 1. Cocoa Production in Indonesia, South Sulawesi, and North Luwu 2016-2021 in (thousand ton)

Areas	2016	2017	2018	2019	2020	2021
National	658,390	585,246	767,280	734,795	720,660	706,500
South Sulawesi Province	114,276	99,50	124,952	113,40	110,418	107,100
North Luwu Regency	26,567	19,477	26,406	26,275	30,856	28,573

Source : Directorate General of Plantation, Central Bureau of Statistics South Sulawesi 2021

In South Sulawesi Province, North Luwu Regency is a significant regional cocoa producer. However, production is still dynamic with low productivity. According to Central Bureau of statistics 2021 stated the data for 2018 production reached 26,406 tons and decreased slightly in 2019 to 26,275 tons, while in 2020, it increased by 30,856 tons and 2021 decreased to 28,573 tons. North Luwu Regency is one of the regions of South Sulawesi, which is the center of the cocoa development area and places cocoa as a leading

commodity in 2021, which has a production area of 39,562 hectares of cocoa land with a production of 30,395 tons. Therefore, the productivity is about 768.2 kg/ha/yr, which is considered relatively low compared to current potential productivity may reach up to 2000 kg/ha/yr (Baon et al., 2014).

According to the Horticulture and Plantation Office of North Luwu Regency (2019) the low productivity of cocoa is caused by obstacles to achieving goals in increasing production and targets, including lack of coordination, different understanding at various levels, limited personnel resources, limited agricultural infrastructure, knowledge and inadequate skills of farmers and agricultural officers in using technology, farmer institutions that are not yet optimal. According to the results of research by Managanta et al., (2018) on institutional support and its role in increasing the interdependence of cocoa farmers in Central Sulawesi Province. The results showed that most farmers assessed that institutional support in the context of marketing, capital, processing, and technical guidance was relatively low, so it tended to be less conducive to increasing farmer independence. The institutional role of the four contexts is also still low, so it needs serious attention to increase farmers' independence, which is not yet adequate.

Therefore, North Luwu's agricultural institutions need to pay attention to support farmers fully. Moreover, Institutions are an essential element that cannot be copied or borrowed from other countries but must be explored and formed based on local potentials and resources by considering the social and cultural values inherent in the community and the applicable laws and regulations. Furthermore, the institution must be directed and mobilized to balance the dynamics in the economic field and anticipate (Nasution, 2002 in Eskarya and Elihami, 2019). The role of institutions in building and developing the agricultural sector in Indonesia is especially evident in food crop farming activities. At the national macro level, the role of agricultural institutions is very prominent in programs and projects for the intensification and improvement of food production. Agricultural development activities are outlined in programs and projects by building coercive institutions (institutional forces) (Nasrul, 2012). It should be underlined that the success of agricultural development is not only influenced by technical aspects but is also determined by aspects of agricultural institutions. The institution referred to here is not just an entity that is only limited to the organizational structure, but as a system of values, institutions, or norms that regulate the behaviour of individuals and groups behaviour and has been accepted in the social aspect of society. Therefore, institutional entities can be understood as complex issues in agricultural development (Arsyad *et al.*, 2021).

Based on the issues, to increase the quantity of cocoa productions in North Luwu Regency, this research is needed to show the data and information about cocoa production, shows the roles of agricultural institutions, and define the strategies for strengthening agricultural institutions in North Luwu Regency. Moreover, this research can be used by the government in formulating programs. Therefore, the researcher intends to conduct a

study titled "The Role of Agricultural Institutions to Increase Cocoa Production in North Luwu."

1.2 Research Question

Based on the description, the formulation of the problem that the author in this study will study are:

1. Which kind of agricultural institutions that play a role in increasing cocoa production?
2. What are the constraints that can affect the insufficient role of institutions to increase cocoa production?
3. What is the strategic program in increasing cocoa production?

1.3 Research Objectives

Based on the description of the problem formulation above, the objectives in this study are:

1. Identify the main actors that play a role in increasing cocoa production
2. Identify the constraints that can affect the insufficient role of institutions in increasing cocoa production.
3. Determine strategic programs in increasing cocoa production.

This study's results are references for the reader to deeply understand how institutions have a significant role in ensuring productivity of cocoa. Therefore, this data can be used by the government or private sectors to develop planning designs and policies about cocoa farming. Farmers are also expected to support the programs to achieve agricultural sustainability.

2. LITERATURE REVIEW

2.1. Agricultural Development

2.1.1 Agricultural Development Theories

According to Nwachukwu (Udemezue and Eg, 2018), agricultural development is a multi-sectional activity that supports and promotes positive change in rural and urban areas. However, the main objectives of agricultural development are improving the material and social welfare of the people. Therefore, agricultural development is seen as synonymous with rural development. The two terms are different but intrinsically related. Agricultural development is a part of rural development; rural areas cannot develop without developing agriculture. About 90% of the rural dwellers are engaged in agricultural practices as their primary source of income. Therefore, it is often seen as an integrated approach to improving the environment and well-being of people of the community.

According to the Law on Environmental Management No. 23 of 1997, sustainable development is a conscious and planned effort that integrates the environment, including resources, into the development process to ensure present and future generations' welfare and quality of life. It is necessary to conduct environmental management to preserve and develop a harmonious, harmonious, and balanced ecological capability to support sustainable development. The essence of this concept is that social, economic, and environmental goals should help and interrelate in the development process.

Moreover, agricultural development or more precisely the development of agricultural progress, is a long series of changes or increases in the capacity, quality, professionalism, and productivity of agricultural labor, accompanied by the arrangement and development of the physical and social environment, as a manifestation of the accumulation of capital and material wealth and organization and management. Therefore, agricultural development is an effort to increase the community's capacity and culture (especially in rural areas) by taking advantage of opportunities and overcoming all forms of threats, challenges, constraints, and disturbances, which is a constraint for them to achieve prosperity they desire (Sudalmi, 2010).

Regional economic development is when local governments and communities manage existing resources and partner with local governments and the private sector. Creating new jobs and stimulating economic growth in the region has a vital role in developing at the national level because development at the regional level will lead to the national level (Ramlawati, 2020).

2.1.2 Indicator of Agricultural Development Success

The positive impact of agricultural development is to increase the availability of food (staple) and prices following people's income. As a result, it will strengthen the level of food security. Sufficiently food can improve the quality of human resources. In addition, increasing food security is expected to reduce cases of food insecurity. For farmers, the

impact of agricultural development will expand employment opportunities and provide stability to farmers' consumption and income. It will reduce the number of poor people. (Dermoredjo and Noekman, 2006).

Agricultural sustainability measurements are necessary to understand current conditions better, identify trends, set targets, monitor progress, and compare regions' performance. Research on agricultural sustainability in Indonesia is done at the farm or local level. Indonesia does not yet have sustainable agriculture indicators as a benchmark for assessing sustainable agriculture at the regional/provincial/national level. Because of the complexity of the assessments, it needs to be carried out to obtain good results for reviews at regional and national levels. Measurable indicators of the environmental sustainability of agriculture, to minimize the environmental impact of agriculture, are essential tools to help move the world towards a sustainable food future (Mucharam et al., 2020).

According to (Dermoredjo and Noekman, 2006), agricultural development indicators will contribute to the national economy, food security, farmer welfare, environmental quality, and institutional. Several indicators to assess the sustainability of a system, such as agriculture, have been found. Walker and Reuter (1996) in (Nurmalina, 2017) show that indicators to assess sustainability are divided into two types. First, condition indicators define the system's condition relative to the desired requirements or can be used to assess environmental conditions. This condition indicator characterizes the entire magnitude of a specific resource state from the excellent condition value during a certain period. Second, trend indicators are those that measure how the system changes over time. Trend indicators describe the entire linear trend of a state of resources over a certain period.

2.1.3 Agricultural Development Planning Stages

Ministry of Agriculture regulation of agricultural development planning mechanism, No. 363/1996 updated to by the Ministry of Agriculture No. 146/2003. The Ministry of Agriculture regulates the development planning mechanism from the bottom, starting from the district, provincial to the central level. The Ministry of Agriculture also handles each agricultural agency's duties, roles, and functions at every level of government, from the district to the central level.

According to (Rachmat, 2014), The planning mechanism for top-down policy and bottom-up planning in the agricultural sector is shown in the following process. The central government establishes a national policy for agricultural development as a macro reference for implementing activities in the regions. This is closely related to the spatial planning of economic growth, agricultural, natural resources (including superior agribusiness areas, the potential for strategic commodities nationally), competitiveness, empowerment of the disadvantaged regions, poverty alleviation, development of facilities, and infrastructure. Again, the provincial government shall describe the central policy by assessing and

coordinating commodity-based regional development in its territory by involving and empowering the Regency/City in a comprehensive and integrated manner in developing aspects from upstream to downstream and its supporting elements. Then, the Regency/City Government prepares program planning and performance budgets for agricultural development in the region, referring to national policies and regional resource capacity. The Regency/City government must first identify the amount, quality, and characteristics of natural resources, human resources, capital, technology, social, and culture to support this.

2.2. Cocoa Production Development Program

Cocoa plants developed in Indonesia around the 1980s, and the productivity decreased when the demand of both national and International was inversely balanced. Therefore, The Ministry of Agriculture launched cocoa development and intensification programs called GERNAS. This program is concerned with rejuvenation, intensification, and rehabilitation to overcome the worsening impact. The intensification and extensification can increase production and improve Indonesian cocoa's quality. Implementing these two programs in Indonesia requires the availability of superior cocoa seeds. The programmatic development of superior cocoa cultivars or clones needs to be carried out immediately. The main activities of the National Movement for Increasing Cocoa Production and Quality include (Purwanto, 2016). First, rehabilitation of plants covering an area of 28,280 ha, which activities include side grafting, cutting of main stems, planting of protective trees, maintenance of connection products, fertilization and pest, and disease control. Second, empowerment of farmers whose participants come from farmers involved in cocoa rehabilitation activities, the activities include farmer training and assistance to farmers by assistant staff. Third, implementation of quality standards includes providing facilities for socializing quality standards and giving post-harvest facilities.

This program was designed based on problems that occur in cocoa production. The result of Sahardi et al. (2005) in (Managanta *et al.*, 2018) tells that the main problem in cocoa farming are production, concerning the quantity and productivity of cocoa pod borer (CPB). Then, Diversification, cocoa farmers pay less attention to other types of commodities to reduce the risk of failure, post-harvest, low quality of cocoa impacting in low prices, the inefficiency of cocoa downstream development. Also, the usage of cocoa waste as fertilizer and animal feed is not optimal, the incompleteness of facilities and infrastructure in cocoa farming, the farmer group has not operated optimally as an institution, and the existence of capital-provider institutions is still limited.

Therefore, several points of technical policy for cocoa development includes (1) Cocoa commodity development, (2) Increasing the capacity of human resources, (3) Institutional and partnership development, (4) Increasing business investment, (5) Management information system development, and (5) Institutional development is a

particular point in technical policy and indicates the importance of institutional strengthening in supporting cocoa development programs (Rahmatullah, 2021).

2.3. Institutional Aspect

2.3.1 Meaning of Institutional

Sianipar (2012) states that the institution is a set of rules, procedures, norms of individual behavior, and control over resources that regulate one's relationship with others. Institutional development is an improvement process that includes the structure and relationships among members in the organization to be more productive to meet the needs of its members effectively, efficiently, and fairly. An institution's ability to coordinate and control the sources of interdependence between partisans is determined mainly by the institution's power to control the sources of interdependence, which are characteristics of commodities such as transaction costs, risk, and uncertainty.

According to Schotter (1981), Institutions provide equilibrium in a standard repetitive coordination game. We call social institutions not rules of the game but rather alternative rules of behavior or conventions formed around a game with specific rules. In other words, institutions are features of the equilibrium state of the game and not a part of the game itself. We do not care about the content of the rules, only how the players follow them. Institutions are the rules of the game in society; more formally, they are the humanly devised constraints that shape human interaction. Thus, they structure incentives in exchange, whether political, social, or economic. Institutional change shapes the way societies evolve through time and, hence, is the key to understanding historical change (North, 1990).

Institutions such as local governments, user associations or service organisations are important for sustainable development for a number of reasons (Uphoff, 1992):

- (1) For sustainable development, institutions, especially at local levels, are important for mobilising resources and regulating their use with a view to maintaining a long-term base for productive activity.
- (2) Available resources can be put to their most efficient and sustainable use with location- specific knowledge, which is best generated and interpreted locally.
- (3) Monitoring changes in resources' status can be quicker and less costly where local people are involved; making adaptive changes in resource use is speeded up where local decision- making has become institutionalised.
- (4) While local institutions are not always able to resolve resource management conflicts, if they are absent, all conflicts must be dealt with at higher levels, yielding slower and often less appropriate outcomes.

- (5) People's behaviour is conditioned by community norms and consensus, so preserving or instituting practices that are environmentally sound requires more than just individual incentives and persuasion.
- (6) Institutions encourage people to take a longer-term view by creating common expectations and a basis for cooperation that goes beyond individual interests. To the extent institutions are regarded as legitimate, people comply without (or with fewer) inducements and sanctions.

2.3.2 Agricultural Institutional Strengthening

Agricultural institutions are norms or habits that are structured, patterned, and continuously practiced to meet the needs of community members closely related to livelihoods from agriculture in rural areas. In the life of the farming community, the position and function of farmer institutions are part of social institutions that facilitate social interaction or social interplay in a community. At the national macro level, the role of agricultural development institutions is very prominent in programs and projects for the intensification and improvement of food production. Agricultural development activities are outlined in programs and projects by building coercive institutions (institutional forces). The development of various programs shows the significance of institutional empowerment in accelerating the development of the agricultural sector (Nasrul, 2012).

The agricultural institution is a farmer organization that can be widely defined as a set of play rules or behavior rules that determine the actions of an institution. An agriculture institution is created to fulfill some farmers' needs; this is how the institution works. The institutional role is one of the essential aspects that support the radio community's continuity in the case of getting agriculture information, where the involved institution can be as an interviewee to enrich the farmer knowledge (Alif *et al.*, 2021). Efforts to increase farmers' productivity, farming efficiency, and competitiveness are carried out through institutional development of agriculture, including strengthening the institutional capacity of farmers. The reality shows that it is increasingly difficult for development programs to reach many individual smallholders. The existing economic situation, infrastructure, and policies created by the government often push farmers with narrow lands and farm laborers into economic and social marginalization. In addition to the limited control over agricultural land, low agricultural exchange rates, agricultural policies that are not in favor of farmers have further pushed farmers into poverty (Eskarya and Elihami, 2019).

2.4. Interpretative Structural Modelling (ISM)

A structural model and linkages between institutions and policies are needed to determine what institutions play a role in increasing cocoa production and obtaining a more appropriate quality of strategic program proposals. This structural model is called Interpretative Structural Modelling (ISM) method. Interpretive structural modeling or ISM

is an interactive learning process. In this technique, different directly and indirectly related elements are structured into a comprehensive systematic model (Attri *et al.*, 2013). The formed model portrays the structure of a complex issue or problem in a carefully designed pattern implying graphics and words.

The basis for decision-making in the ISM technique is the group. Structural models are generated to portray complex problems of a system through carefully designed patterns using graphics and sentences. The ISM technique transforms an unclear mental model into a visible system model (Sianipar, 2012). The ISM methodology is interpretive in that the group of experts decides whether and how the items are related. It is structured in that, based on relationship, it extracts an overall structure from a complex set of items. It is modeling in that it portrays the specific relations and overall structure in a digraph (Directed graph) model. It is a tool for imposing order and direction on the complexity of relationships among variables (Shahabadkar *et al.*, 2012). Moreover, Attri *et al.* (2013) tell about characteristics of ISM are; methodology is interpretive as the judgment of the group decides whether and how the different elements are related. It is structurally based on mutual relationships; the complex elements' overall structure is extracted. It is a modeling technique, as the specific connections and overall design are portrayed in a digraph model. It helps impose order and direction on the complexity of relationships among various system elements. It is primarily intended as a group learning process, but individuals can also use it.

2.5. A Framework of The Study

The low production coupled with fluctuating land productivity for cocoa commodities is a problem that makes the government need to take strategic policies to increase the productivity of these commodities again. Various approaches have been implemented to increase production, but none has shown the expected results so far. After evaluating the existing program, it could clearly understand the weaknesses of institutions as factors that impacted the low cocoa production.

Analysis of the institution becomes urgent to determine which key actors and institutions increase cocoa production. In addition, the research of experts will also produce a clear hierarchy in a system to make it easier for policymakers to plan programs. In addition to identifying the institutions that play a role, it is also necessary to know the constraints that lead to the weakness of institutional positions and strategic programs to increase cocoa production. To provide a model that can support the planning of a program that can increase the production of cocoa commodities and strengthen the institutions.

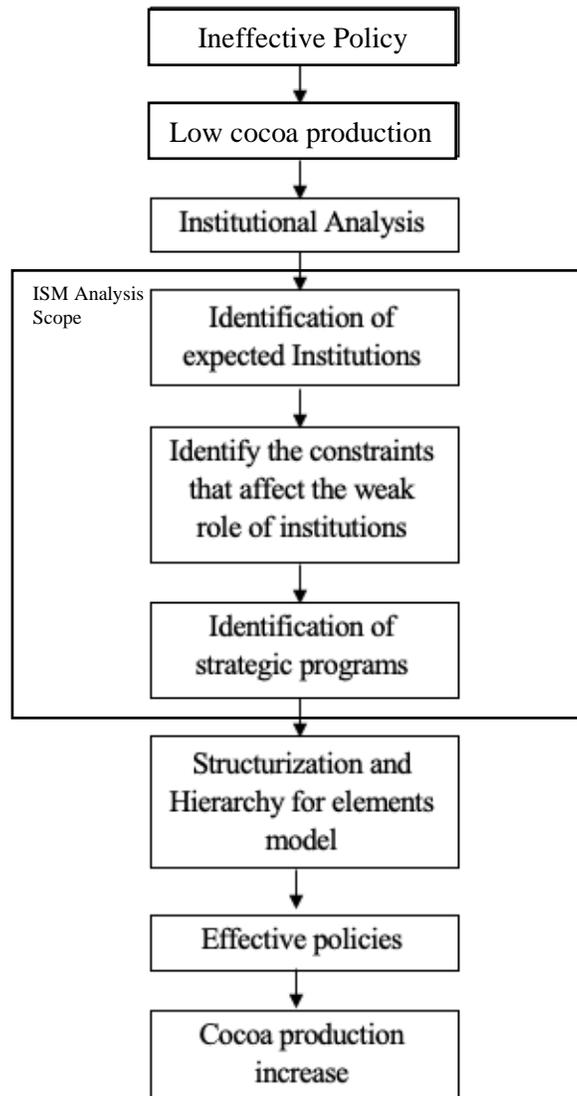


Figure 1. The framework of the study