

# Sago Agribusiness Development as Sustainable Local Food

Muhammad Arlis Toselong<sup>1</sup>, Sitti Bulkis<sup>2</sup>, Muh. Hatta Jamil<sup>3</sup>

<sup>1,2,3</sup> Faculty of Agriculture, Hasanuddin University, St. PerintisKemerdekaan, Makassar, Indonesia

**Abstract:** *The development of sago agribusiness is aimed to create sustainable food security in the effort of food diversification that utilizes domestic raw materials and is expected to provide benefits, both to the community, government, and stakeholders. This study aims to analyze the potential development of sago agribusiness in Palopo City and analyze the priority strategy of sago agribusiness development that can affect sustainable local food. The sample in this research is called informant by using snowball sampling method which depart from a key informant. The results showed that the development potential of sago agribusiness in Palopo City is highly dependent on the internal and external factors of the farming system from upstream to downstream. Internal factors show that strength lies in the suitability of climate and land, and the weakness lies in the sago processing industry is undeveloped. While external factors indicate that the opportunity lies in consumer demand for high sago products, and the threat lies in sago processed product competitiveness is still weak. The priority of sago agribusiness development strategy based on internal and external factors is increasing sago production, expanding market network, increasing market absorption through product promotion, establishing capital cooperation with financial institution, introducing appropriate technology to produce quality sago product, forming farmer group, preparation of competent extension agents in the field of sago management, diversification of sago processing products, forming partnerships, capacity building of farmers through education and training, establishing sago-specific areas, developing sago processing industries in order to improve product competitiveness, local government policy on pricing, technology to improve the competitiveness of sago processed products and equipment assistance.*

**Keywords:** Development, Agribusiness, Sago, Sustainability

## 1. Introduction

Natural resources and agribusiness sectors provide a very important role for the life of society as a whole. In order to create sustainable food security, it needs to be accompanied by diversification of domestic foodstuffs in order to diversify the types of carbohydrate and vegetable-producing foods. One of the government's efforts to realize this is by the issuance of Regulation of the Minister of Agriculture No. 15 / Permentan / OT.140 / 2/2013 on Program Enhancement Diversification and Food Security Society. In this case it is necessary to optimize the utilization of existing resources such as farmers, land, climate, biology, genetics and technology.

Listyani (2014), reveals that the consumption level of Indonesian rice is 130 kg / capita / Year. It is high compared to the world rice consumption level which is only 60 kg / capita / year. Self-sufficiency in rice also faces a threat, due to the conversion of rice fields to residential areas, public facilities and industries by 120,000 hectares per year. While the printing of new paddy fields only 100,000 hectares per year. Another challenge that is also encountered is the availability of water for rice fields. Not to mention the global climate dynamics resulting in crop failure by the floods and droughts. These challenges encourage various parties to develop other sources of food, one of which is sago. To note, sago is a local food source of Indonesia and become one of the food sources that have high potential to be developed. It is worth noting that the size of Indonesia's sago forest is about 1.25 million hectares, of which 12 million hectares are in Papua. The area of land in Papua which has been cultivated by semi-cultivation is only 14 thousand hectares, while outside Papua (Sumatra, Sulawesi, Maluku and Kalimantan) reaches 120 thousand hectares. With an area of 1.2 million hectares of sago land in Papua

capable of producing 10-20 tons of sago per hectare per year. It is expected to be available sources of carbohydrate reserves of 12-24 million tons per year. Large sago reserves are a great potential as a source of food, as industrial raw materials and as an energy source. Aside from being a food source, sago is also expected to be one of the strongest footholds for improving people's welfare.

Sago (*Metroxylon* spp.) Is a potential agricultural commodity as a source of carbohydrates. Sago carbohydrate levels are almost equal to carbohydrate levels found in rice flour, cassava, and potatoes. In addition, sago can be used for agro-industry raw materials such as starch from other food plants. Starch sago can be used for various purposes, such as raw materials for the food industry and raw materials of liquid sugar (Harsanto, 1986). The market demand for sago both from outside and inside the country continues to increase. Potential export markets are Japan, Canada, USA, UK, Thailand and Singapore. Domestic demand is also increasing due to the development of the food, pharmaceutical, and other industries. National sago consumption is highest in Papua Province, then Southeast Sulawesi, Central Sulawesi, Maluku, South Sulawesi, North Sulawesi and Riau.

Sago planting centers in the world are Indonesia and Papua New Guinea with a cultivation area of 114,000 Ha and 20,000 Ha. Luas cultivation is very small compared to the area of wild sago reach 2,000,000 Ha. Therefore, most of the sago grows wild and has not been much noticed and managed optimally by the government and the people of Indonesia, even the population tends to decline every year (Bintoro, 2008). Utilization of sago in Indonesia is currently still lagging compared to Malaysia and Thailand, although the sago planting area in Indonesia is higher than the second the country. Sago area in Indonesia is currently around 1.12

million ha of the world sago plantation area, an area of 2.20 million ha. Meanwhile, the area of sago plantation in Malaysia is only 1.5% of the world sago plantation area, even in Thailand is only 0.2%. Sago plantation areas in Indonesia are mostly cultivated as sago palm forest so that management is not optimal (Office of Research and Development Agency, 2010).

The productivity of sago per hectare per year can reach 18 tons of wet sago, so that the sago production potential in Indonesia is currently at 20 tons per year. Thus every year from the existing sago potential area can be produced 16.94 tons of carbohydrate or equivalent to 44 million kilo calories. Consumption National sago when compared with the consumption of very small rice is only about 0.19% (BPS, 1993). The large potential of sago provides an opportunity to increase sago processing industry which currently generally still limited to traditional sago flour processing until semi-mechanical, with business scale ranging from 100 tons to 1,650 tons of wet sago per year. Among the areas that have wetlands with relatively large sago potential is Palopo City, South Sulawesi Province. According to the Palopo City BPS (2016) data, sago area in Palopo City in 2016 is approximately 319.75 Ha and is an important potential considering for the local community sago is one of substitution food after rice. Nevertheless sago development efforts are still not adequate because sago cultivation is not done by the community, is still exploitative. To avoid the extinction of sago in accordance with the development of the city of Palopo, sago agribusiness development needs to be followed by continuous rejuvenation.

The utilization of sago in sago growth centers is generally still limited to the utilization of sago flour for food produced on a small scale industry. In general, it is still done traditionally and the majority is done by farmers, so the quality and quantity is mainly *rendemennya* is still very low. Thus, although there is excess production, can not be marketed properly. Padahal sago utilization is not only limited to traditional food, but can be made various industrial raw materials such as adhesives, energy, fodder, as a dextrin producer for cosmetic, pharmaceutical and pesticide industries, as ethanol producers used for chemical industry (Haryanto and Pangloli, 1992). The development of sago as a non-rice food should have increased with the issuance of Presidential Instruction No. 20 of 1979 and Presidential Decree No. 04 of 1980. The reality of sago development has not changed as expected.

Sago development efforts in Palopo City are expected to provide double benefits, both to the community, government and stakeholders (stakeholders). In agribusiness system operationally there are 5 (five) main components that need attention, that is 1) institute in distribution of production facilities, 2) institutional field of farming, 3) institute in post-harvest, 4) institute in downstream industry and 5 ) institutions in the field of marketing results (Adjid, 1985). With the development of agribusiness sector, it is expected to encourage the development of the five components of agribusiness.

Based on data from the Central Bureau of Statistics of

Palopo City (2016), the number of sago farmers in the research location in 2015 was 1,079 people. This is a great potential in developing sago agribusiness in Palopo City.

In addition to food, sago can be used as raw materials for various industries such as adhesives, cosmetics, chemicals and buildings. In general, people of Palopo City mostly consume sago because this region is one of sago-producing centers. The high percentage of people consuming sago is due to sago for the majority of the surrounding community is the second staple food after rice and it tastes good and is a habit for generations. Based on this, research needs to be done on sago agribusiness development as sustainable local food.

## 2. Review of Literature

### a) Agribusiness

Agribusiness has become increasingly popular, a wide range of understanding and understanding of the term has evolved. From the origin he said, agribusiness consists of two syllables, namely *agri* (agriculture = agriculture) and *business* (business = commercial business). If defined in full, agribusiness is an activity related to the handling of commodities in the broad sense which includes one of all the production, processing, input and output (agro-industry), marketing input-output and institutional support activities (Antara, 2004).

Agribusiness activities are; a) activities based on the benefits of natural resources (on farm agribusiness) with the application of technology and human resources for off farm agribusiness, b) activities that have a broad spectrum ranging from small-scale business, household to scale big business. Efforts to accelerate the growth of the agribusiness sector with the conditions of weak farmers (capital, skills, knowledge and limited land tenure) can be pursued through the application of agribusiness development system. Thus the development of agribusiness is a form that is able to provide benefits for agribusiness actors, main entrepreneurs and business actors in the form of increased income, added value and expansion of employment opportunities (Nainggolan and Aritonga, 2012).

The complete scope of agribusiness system according to Saragih (2001) is 1) sub system of procurement, distribution, facilities and infrastructure (input factor), 2) sub system of cultivation (production), 3) sub processing system, 4) sub system marketing (marketing), 5) sub institutional system (supporting institution).

### 1) Upstream Sub System or Production Facility

Upstream sub-system is an industry that produces goods or capital for agriculture in the broad sense such as seed industry / plant and animal breeding, agrochemical industry (fertilizer, pesticide, medicine and livestock vaccine) and automotive agro industry (machinery and agricultural equipment) and supporting industries. Increased production and earnings of farmers can be realized if supported by the upstream agribusiness industry that is the industry that produces agricultural input (input). For areas adjacent to the location of farmers there should be a *saprodi* kiosk (Saragih, 2001).

## 2) Sub-system of Cultivation or Production

The production sub-system is an activity that uses capital goods and natural resources to produce primary agricultural commodities, namely food crops and horticulture, medicinal crop farming, plantation farming, livestock farming, fishery farming and forestry farming efforts managing inputs (land, labor, capital, technology and management) to produce agricultural products.

## 3) Sub Processing System Results

Sub-processing or post-harvest system is an industry that processes primary agricultural commodities (agro-industry) into processed products, intermediate product or finished product. These include food industry, beverages, natural fiber goods, biopharmaceutical industry, agro-tourism and aesthetics.

## 4) Sub Marketing System

Sub marketing system is an activity to expedite the marketing of agricultural commodities both fresh and processed products. Distribution activities to facilitate the flow of commodities from center to center of consumption, promotion, market information and market intelligence are part of sub marketing system.

## 5) Sub System Support

It is a service activity that serves agriculture such as trading facilities, banking / credit, agribusiness outreach, farmer groups, agribusiness infrastructure, state-owned enterprises, private, research and development, transportation and government policy.

In a nutshell it can be stated that the agribusiness system emphasizes the interconnection and vertical integration between several business sub-systems within a commodity system. All these sub-systems are interconnected with each other, so interference in one sub system will affect the other sub system.

## b) Sago

Sago plants include monocots from the *Palmae* Jussieu family, the *Calamoideae* sub-family, and the genus *Metroxylon*. In Indonesia, people recognize two main sago flour producing species, namely from the type of *Metroxylon* and *Arenga* type (sago palm). Sago palm grown on relatively dry land (mostly found in Java, Sumatra and Kalimantan) and the flour content of sago palm trees is relatively less than sago *Metroxylon* (Hengky and Abner, 2003).

Sago plant that resembles a coconut plant, has a brown stem with dark green leaves. The old tree grows perfectly, its outer shell hardens and forms a wooden layer around its trunk with a thickness of between 2-4 cm (Ruddle et al., 1978). Adult sago or cooking crop (ready for harvest) aged 8 to 12 years (Anonymous c, 2009).

Sago which is a potential carbohydrate plant in Indonesia can be used for food diversification in accordance with INPRES no. 20 years 1979 (Haryanto and Pangloli in Bintoro, 1992). Sago is an important source of carbohydrates in Indonesia and ranks 4th after cassava, maize and sweet potato (Lestari et al., 2009).

## c) Sustainable Local Food

Local food is a traditional food produced from a region in Indonesia consisting of various processed foods both staple foods and supplementary foods. Local food can be used as a characteristic of an area. Currently in Indonesia began a lot of food originating from abroad and shifting the pattern of consumption of society to local food. Therefore it is necessary for the development of local food to improve the quality and nutrition, so as to compete with modern food that is now widely found in the community. Awareness of the public is needed to preserve local food, so that not only the government is obliged to maintain local food to support the needs of the community. With the existence of local food, the diversification of food little by little can be fulfilled, because the local food derived from indigenous agricultural materials of Indonesia that can be processed into various kinds of processed products.

There are a number of barriers to developing a local food system. One of them is geographical information (Fenstra 1999; Watts et al., 2005). Given Indonesia has a diverse geographical composition with 17,000 different islands. This poses a challenge for national food distribution in meeting demand for food at a price that is accessible to all Indonesians. Geographical information is concerned with the sustainability of local food systems that include the ecological, economic and social dimensions of the food system (Gatrell et al., 2011).

## 3. Materials and Methods

This research was conducted in Palopo City, South Sulawesi Province. The selection of this location is done deliberately with the consideration that this region is one of sago commodity center in South Sulawesi Province and has the potential of developing sago agribusiness. Geographically, Palopo City has 9 (nine) subdistricts, from nine districts, there are 8 (eight) districts have potential for sago agribusiness development. The study was conducted from April to June 2017.

The sample in this study is called informant. Selection of informants in this study using snowball sampling method. Technique of snowball informant retrieval implies increasing number of informant along with the passing of observation time. Researchers depart from a key informant who is considered to have more knowledge about the research object to initiate data collection. Furthermore, key informants pointed to other informants who were considered to know and master a lot. Thus the number of data source samples will be greater, such as snowball with rolling process - rolling and so on until the researchers feel confident that the required data has been obtained sufficiently to answer the research problem. This informant will later provide information on internal and external factors of the company. It will then be analyzed by in-depth interviews and Focus Group Discussion with the informants that have been determined.

The method of processing and data analysis used in this research is the analysis of internal and external environment. Strategy formulation on internal and external environment analysis is used method which comes from Cravens & David book (1998). In the input stage, IFE matrix (internal factor

evaluation) and EFE (external factor evaluation) are used. In the matching stage, an IE (internal-external) matrix analysis tool and SWOT matrix are used. The IE matrix is used to determine the business position. The SWOT matrix is used to generate strategies that match the internal and external environment conditions. The final stage is the decision stage (the decision stage) to determine the priority of several alternative strategies resulting from the integration stage then used the analytical method Hierarchy Process AHP (Analytical Hierarchy Process).

## 4. Results

### a) Identity of Informant

The identity of the informant describes the condition or circumstances and status of the person. Informants are very helpful for the smoothness of research and facilitate researchers to find out the information needed by researchers. Informants in this study include those who play a role in sago agribusiness system and master and know the required information related to this research. From these informants, information about internal and external factors, weighting of IFE and EFE matrices, and weighting on priority scale to find out the priorities of various alternative strategies formulated.

The first informant taken in this study consisted of 5 sago farmers. Farmers who made informants are farmers who have experience of trying to farm for decades that is between 17 years to 47 years. The characteristics of farmer informants can be seen in the following table:

**Table 1: Identity of Sago Farmers' Informants**

No	Name	Age	School	Number of Family Counts	Land Area (Ha)	Long Farming	Source of Capital
1	Ne Madan	73	SD	1	5	47	Own
2	Syukur	60	SMA	5	3	30	Own
3	RahmanLawe	52	SMA	4	1	23	Own
4	Suminang	47	SMP	6	2.5	20	Own
5	Nirmal	45	SMP	7	1	17	Own
Total				23	12.5		

The second informant is the collecting merchant. The collecting trader in this study consists of 2 (two) persons. The selection of these two informants is based on the length of the operation, so that the researchers both have more experience. The characteristics of merchant collectors can be seen in the following table.

**Table 2: Identity of the Gathering Merchants' Informant**

No	Name	Age	School	Number of Family Counts	Long business	Source of Capital
1	Herdi	45	SMA	4	17	Own
2	Ani	59	SMA	2	15	Own
Total				6		

The third informant is a retailer. Reseller's reseller's information consists of 2 persons. Selection of informants at retailers is obtained from collecting traders who transact directly on the purchase of sago and from direct consumers. All retailers deal directly with collecting merchants. The

characteristics of retailers can be seen in the following table:

**Table 3: Identity of the Resellers' Informant**

No	Name	Age	School	Number of Family Counts	Long business	Source of Capital
1	Abdullah	65	SMA	7	27	Own
2	Kusrin	50	SMA	4	10	Own
Total				11		

The fourth informant is the home industry. There are 2 sago processing household industries that become informant researchers. The characteristics of household processing industry sago can be seen in Table as follows:

**Table 4: Identity of Household Industry Informants**

No	Name	Age	School	Number of Family Counts	Type of business	Long business	Source of Capital
1	Indrawati Arsyad, SE	47	S1	3	Bagea	17	Own
2	Mega Laksmi Aulia, SE	45	S1	2	Bagea	10	Own
Total				5			

### b) Analysis of Agribusiness Development Potential of Sago

#### 1) Land

According to Pangloli in Herlina (2016), at the national level sago starch can already be used in food industries such as rice flour, corn, potatoes, wheat and tapioca, both as raw materials and as substitution materials. The combination of inputs that produce optimum output must be found by a company in order for the company to be in a low cost production process.

Natural resources, especially sago forest in Palopo City with an area of 316.60 hectares is relatively sufficient for the fulfillment of food carbohydrates. For more details can be seen in the following table:

**Table 5: Area of Sago Plantation in Palopo City.**

No	Year	Land Area (Ha)
1	2013	552.34
2	2014	397.24
3	2015	319.75
4	2016	316.60
Average		396.48

The existing condition of sago land in Palopo City for the last 4 (four) years, since 2013 until 2016 has decreased. This is caused by several factors, such as the conversion of sago land into food crops and land conversion into residential areas. Natural resources, especially sago forest in Palopo City in 2016 covering 316.60 Hectares.

This is in line with the explanation of one informant (Gratitude, sago farmer, 65 years, high school) that:

*"Formerly sago forest in Palopo City is very wide. Even wider than rice fields. But now the day is getting less. The cause is the owner of sago already many who cut the sago*

*trees and the land is converted into rice fields and some built buildings on it. This is done because the harvest is too long, that is 6 new years to harvest, whereas if you plant rice 3 months can be enjoyed the results"*

## 2) Production

Production is a system and contains three elements, namely input, process, and output. Production is an activity that is done to add value to an object or create a new object, so more useful in meeting the needs. Production aims to meet human needs to achieve prosperity. Prosperity can be achieved if goods and services are available in sufficient quantities.

Production of sago palm trees in Palopo City, from year to year decline with the decrease of sago plant growth area. Palopo City Forestry and Plantation Office data shows that in 2013, Palembang City sago production reached 85.20 tons. This figure is decreasing to 70,81 tons, 50,74 and 31,24 tons respectively in 2014, 2015 and 2016. Meanwhile, if seen from the width of the growing area, sago palm trees in Palopo City lost up to 236 ha during the last 4 years . Information on sago plant production data in Palopo City can be seen in the following table:

**Table 6: Sago Production in Palopo City**

No	Year	Production (Ton)
1	2013	85,20
2	2014	70,81
3	2015	50,74
4	2016	31,24
Total		237,99
Average		59,49

Based on table 6, it can be seen that there is a decrease in sago production every year. The average sago production in Palopo City every year for the last four years, from 2013 until 2016 is 59.4 tons. Land conversion is the main cause of the decline in sago production in Palopo City. Another cause is the absence of a special sago farmer group as a forum for communication and information for farmers and technology used by farmers is still simple.

As one informant (Suminang, a sago farmer, 47 years old, junior high school) related to the production of sago that:

*"Many factors that make sago production decline in Palopo City. Land use is the main cause. In addition, I have been working for sago farmers but have not been visited by agriculture extension workers to convey technological information about innovation and good sago processing, so the technology used by farmers is still very simple or not yet developed. special sago farmer groups. Local government prefers farmers of paddy fields, gardens and livestock to be provided assistance and assistance compared to us. There are thousands of farmers who try to farm sago in this area "*

## 3) Household Industry Processing Sago

The development of sago agroindustry is basically expected to stimulate the economic growth of a region. It is also at the same time directed to improve employment opportunities and income farmers. Sago development needs to be developed economically, socially, culturally, so as to

maintain environmental sustainability.

Indonesia's sago development into the future includes upstream to downstream industries, as well as its marketing. Sago is one of the traditional sources of potent food that can be developed in food diversification in support of local and national food security (Herlina, 2016). Processing of industrial scale flour sago flour has long been developed in Palopo City. From the interviews, the long business of sago flour processing industry has been more than 10 years even those who are almost 20 Year. Data sago households and listed in Palopo City can be seen in the following table:

**Table 7: Sago Household Industry in Palopo City**

No	Business Name	Name of the Owner	Forms of Business Entities	year is issued a permit	Product Name
1	Bagea	Indrawati Arsyad, SE	Individual	2000	Bagea
2	Ole-Ole Bagea	Mega Laksmi Aulia, SE	Individual	2007	Bagea
3	Tanjung Agung Sejahtera	Saifullah	Individual	2014	Sagu Kering
4	Al -Furqan	Arman	Group	2012	Tepung Sagu
5	Tanjung Agung Sejahtera	Saifullah	Individual	2014	Sagu Kering
6	Pengemasan Sagu Kering	Arman Said, SE	Individual	2015	Sagu Kering
7	Sitti Munirah	Sitti Munirah	Individual	2012	Kue Bagea
8	Bagea Anggrek	Mariati	Individual	2014	Sago, Kue Kering

Based on table 7 above, it can be seen that the number of sago-based household industries in Palopo City as many as 8 business entities. There are seven industries of individual entrepreneurs and one industry is a group business. Type of processed sago products produced there are three types, namely bagea, dried sago and sago flour.

Information about sago home industry can be known from the results of researcher depth interview with Head of Industry Office of Palopo City, he said that:

*"The sago-based home industry in Palopo City is still limited and undeveloped. This is because the industry average is still managed on a small scale and individually using its own capital. But even so, the City Government of Palopo through the Department of Industry has given assistance to them in the framework of developing their business. Some efforts have been done is to provide training to them on how to develop the business and provide business equipment assistance. In addition to participate in exhibition activities both on a local, regional and national scale. "*

There are two household industries that researchers use as informants. Both informants were chosen based on length of effort. The informant in question can be seen in the following table:

**Table 8:** Sago Processing Household Informants in Palopo City

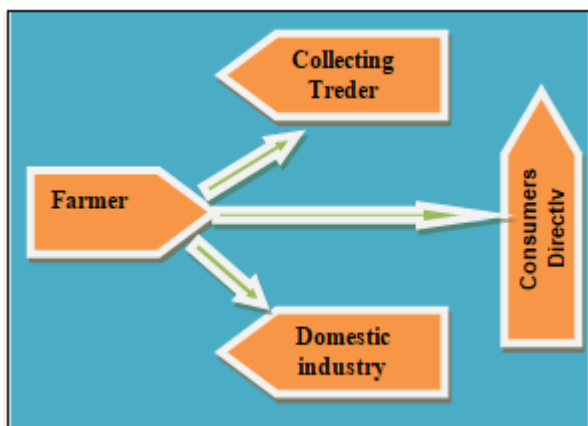
No	Business Name	Name of the Owner	Forms of Business Entities	Product Name	Value Investation (RP.000)	Production Capacity /year.
1	Bagea	Indrawati Arsyad, SE	Individual	Bagea	100,000	60,000
2	Ole-Ole Bagea	Mega LaksmiAulia, SE	Individual	Bagea	80,000	42,000

Based on the data in the above table, it can be seen that there are informants who have business bagea with labor as much as three people with an investment of Rp. 100.000.000 with annual production capacity reaches 60 thousand packs of bagea cake.

#### 4) Marketing

Marketing is an organizational function and a set of processes for creating, communicating, and delivering value to customers and for managing customer relationships in ways that benefit organizations and stakeholders (Kotler, 2009).

The marketing process of sago produced by farmers is distributed to three main marketing actors: 1) sago marketing from farmers to collecting merchants, 2) sago marketing from farmers to home industry and 3) marketing from farmers to direct consumers. For more dazzling data seen in the picture below:



Consumer interest in sago is increasing and market demand for sago is high enough. It is known from the demand of sago to farmers who also increase every year. Secondary data related to sago demand is not owned by the relevant agencies, but based on interviews with informants researchers can be seen an increase in demand sago derived from collectors merchants, home industries and consumers directly. One of the informants (RahmanLawe, sago farmer, high school, 52 years old), said that:

*"Sago demand to us always increase from year to year. Consumers remain sago farmers in Palopo is clear that traders, local industrial entrepreneurs and consumers directly. Even sometimes there is a gathering merchant from Makassar who came. Once they come carrying a container and need sago as much as 400 sacks raskin sago once*

*transport. According to the information, the sago will be sent to Surabaya. Sometimes farmers are unable to meet demand due to limited production capability."*

#### c) Identification of Internal and External Factors of Sago Agribusiness in Palopo City

The identification of internal factors is done to determine the strengths and weaknesses faced in the development potential of sago agribusiness in Palopo City. Based on these results, the strengths and weaknesses of the potential development of sago agribusiness in Palopo City can be summarized in table 9 below:

**Table 9:** Internal Factors Potential of Sago Agribusiness Development in Palopo City

Internal Factors	
(strengths)	(weakness)
1. Sago flour consumer demand	1. The price of sago terbung is determined by the trader
2. Strong farmer motivation	2. Lack of quantity and quality of extension / escort
3. There are fixed consumers	3. There is no Sago farmer group yet
4. Good quality of sago	4. The sago home industry is not yet developed
5. Land suitability and climate	5. Market demand has not been fully met
6. Competence of farmers	6. No partnership yet
7. Multipurpose properties of taNamen sago	7. Sago processing technology has not developed yet
8. Land area owned by farmers	

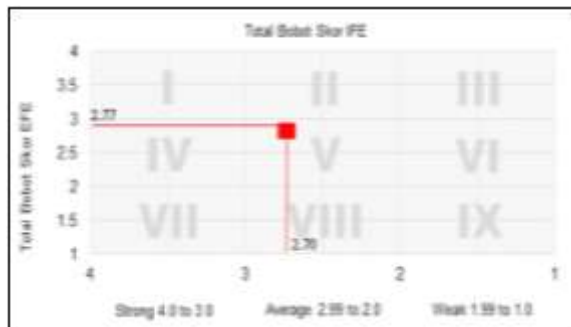
Identification of external factors conducted to determine the opportunities and threats in the development of sago agribusiness potential in Palopo City can be examined in the table below:

**Table 10:** External Factors Potential of Sago Agribusiness Development in Palopo City.

External Factors	
(opportunities)	(threats)
1. Sago market demand will be high enough	1. There is still practice of bondage
2. Have market segmentation	2. Sago land conversion increases
3. Potential Sago supports food diversification	3. The role of local governments that do not support the development of sago
4. Trade across vast areas	4. The competitiveness of sago products is still weak
5. Promotion of sago processed products	5. No adaptation of agricultural extension workers

#### d) Internal-External Matrix (IE)

Internal-external matrix or abbreviated IE matrix is based on analysis of internal and external factors combined into one suggestive model. The IE matrix is based on two criteria, ie the total weighting of internal factors (IFE) on the X axis and the total weighting of external factors (EFE) on the Y axis.



Combined instance - Synthesis with respect to Goal: Sago agribusiness development priority strategy that affects sustainable local food



From the picture it can be seen that the potential position of sago agribusiness development in Palopo City is in cell V on IFE matrix. The strategy cell demonstrates the best strategy to maintain and maintain (hold and maintain strategies). This suggests that a viable strategy is a strategy of market penetration and product development.

**e) SWOT Matrix**

The strategy generated from the IE matrix only produces a general strategy alternative without any implementation of a more technical strategy at the company level. Therefore the IE matrix is complemented by the SWOT matrix which is the concrete steps that should be done by the sago agribusiness. The key to the success of the SWOT matrix is to bring together internal and external key factors to form a strategy. The SWOT matrix is a systematic identification of various factors for formulating a corporate strategy. This matrix is based on the logic that maximizes strength and Opportunities while simultaneously minimizing Weakness and threats (Threats).

Based on the SWOT Potential of Sago Agribusiness Development in Palopo City, several alternative strategies that can be formulated are increasing sago production, expanding market network, increasing market absorption through product promotion, establishing capital cooperation with financial institution, introducing appropriate technology to produce product quality of sago, forming farmer groups, preparation of competent extension agents in sago management, diversification of sago processing products, establishing partnerships, enhancing farmers' capacity through education and training, establishing sago-specific areas, developing sago processing industry in order to increase product competitiveness, local government policy on pricing, adoption of technology to improve sago processed product competitiveness and equipment assistance.

**f) AHP analysis**

After determining some alternative strategies, then AHP analysis will be conducted to determine which strategy will be priority and done for the development of sago agribusiness. To choose the right strategy, then set some criteria that will be considered in the selection strategy, namely 1) Production of farmers continuous, 2) Efficient marketing, and 3) Improvement of product quality.

After analyzing the data through Expert Choice 2011 application, the following results are obtained:

Based on the above figures, the fifth highest priority order of the alternative selection of agribusiness development strategies that can affect the income of the community is first to form a partnership with a value of 0.090, the second adoption of technology to improve the sago processed product competitiveness with a value of 0.089, the third aid equipment with a value of 0.088, the fourth industrial development of sago sowing in order to increase product competitiveness with value 0,087, and fifth forming sago farmer group with value 0,81.

**6. Conclusion**

The potential of sago agribusiness development in Palopo City is very dependent on the internal and external factors of the farming system from upstream to downstream. Internal factors indicate that the strength lies in the suitability of climate and land, and the weakness lies in the sago processing industry is undeveloped. While external factors show that the opportunity lies in consumer demand for sago products high, and the threat lies in the competitiveness of sago processing products are still weak.

The priority of sago agribusiness development strategy based on internal and external factors is increasing sago production, expanding market network, increasing market absorption through product promotion, establishing capital cooperation with financial institution, introducing appropriate technology to produce quality sago product, forming farmer group, preparation of competent extension agents in sago management, diversification of sago processing products, forming partnerships, capacity building of farmers through education and training, establishing sago-specific areas, developing sago processing industry in order to improve product competitiveness, local government policy on pricing, technology to improve the competitiveness of sago processed products and equipment assistance.

**References**

[1] Listyani, 2014. *BPPT Dorong Pemanfaatan Sagu Sebagai Sumber Pangan Nasional*. (<http://www.bppt.go.id/index.php/teknologi-agroindustri-dan-bioteknologi/1941-bppt-dorong-dorong-pemanfaatan-sagu-sebagai-sumber-pangan-nasional>).

[2] Harsanto, PB., 1986. *Budidayaan Pengolahan Sagu*. Kanisius, Yogyakarta.

[3] Bintoro, H.M.H, 2008, *Bercocok Tanam Sagu*. IPB

- Press. Bogor.
- [4] Office of Research and Development Agency, 2010. *Balai Penelitian Tanaman Palma*, Kementerian Pertanian Republik Indonesia.
- [5] Antara, M., 2004. *Pengembangan Usaha Hortikultura pada Petani Kecil*. Lokakarya Pengembangan Strategi Agribisnis. Fakultas Pertanian UNUD, Jurusan Sosial Ekonomi. 30-31 Juli 2004.
- [6] Nainggolandan Aritonga, 2012. *Pengembangan Sistem Agribisnis dalam Rangka Pembangunan Pertanian Berkelanjutan*. Disampaikan pada Seminar Nasional "Pertanian Presisi Menuju Pertanian Berkelanjutan".
- [7] Saragih, B., 2001. *Agribisnis: Paradigma Baru Pembangunan Ekonomi Berbasis Pertanian*. Yayasan Mulia Persada Indonesia dan PT. Surveyor Indonesia bekerjasama dengan Pusat Studi Pembangunan IPB dan Yayasan USESE, Bogor.
- [8] Fenster, 1999; Watts et al., 2005. *Growing a community food system*. Partnerships in education and research.
- [9] Gatrell JD, Neil R, Paula R. 2011. *Local food systems, deserts, and maps: The spatial dynamics and policy implications of food geography*. Applied Geography 31: 1195-1196.
- [10] Cravens & David, 1998. *Pemasaran Strategis Jilid 3, Edisi ke-4*. Alih bahasa oleh Aris Anandadkk, Jakarta: Erlangga.
- [11] Kotler, Philip. 2009. *Manajemen Pemasaran*. Jakarta: Erlangga.
- [12] Central Bureau of Statistics of Palopo City, 2016. *Kota Palopo Dalam Angka (Palopo in Figures) 2016*. Badan Pusat Statistik Kota Palopo.
- [13] Lestari, T. 2009. *Dampak Konversi Lahan Pertanian Bagi Taraf Hidup Petani*. Skripsi. Bogor. Institut Pertanian Bogor.
- [14] Haryanto, B. dan P. Pangloli., 1992. *Potensi dan Pemanfaatan Sagu*. Kanisius. Yogyakarta.
- [15] Anonim c., 2009, Hasil Susenas 2007: *Konsumsi Sagu Cenderung Meningkat*, [http://ditjenbun.deptan.go.id/sekretbun/sekret/index.php?option=com\\_content&task=view&id=160&Itemid=26](http://ditjenbun.deptan.go.id/sekretbun/sekret/index.php?option=com_content&task=view&id=160&Itemid=26), 30 April 2009
- [16] Hengky, N., 2003, *Sagu Untuk Ketahanan Pangan*, Pusat Penelitian dan Pengembangan Perkebunan, Manado.
- [17] Adjid, D.A. 1985. *Pola Partisipasi Masyarakat Pedesaan dalam Pembangunan Pertanian Berencana*. Penerbit Orba. Bandung.
- [18] Bintoro, H.M.H, 2008, *Bercocok Tanam Sagu*. IPB Press. Bogor.
- [19] Herlina. *Tarigandan Ening Ariningsih*, 2016. *Peluang dan Kendala Pengembangan Agroindustri Sagu di Kabupaten Jayapura*. Pusat Analisis Sosial dan Kebijakan Pertanian. Jakarta.

## Author Profile



**Muhammad Arlis Toselong** was born in Palopo, South Sulawesi, Indonesia on March 17<sup>th</sup>, 1978. He got his Bachelor Degree (S.P) in 2002 at Faculty of Agriculture and Forestry of Hasanuddin University, Indonesia. In 2015 until now, he continued his study to get his Master Degree on Agribusiness Study Program at Faculty of Agriculture at Hasanuddin University, Makassar, Indonesia. This paper is a part of his thesis which is supervised by Prof. Dr. Ir. Sitti Bulkis, MS. and Dr. Muh. Hatta Jamil, SP, M.Si.