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The Power of Sorghum Farmer Corporation as Strengthening National Food Security

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ABSTRAK

Budidaya dan pengembangan tanaman sorgum merupakan upaya pemerintah dalam memperkuat ketahanan pangan nasional. Sorgum dapat mensubstitusi gandum dimana Indonesia merupakan importir gandum terbesar dunia sebanyak 10-11 juta ton per tahun. Percepatan budidaya sorgum dilakukan pemerintah dengan menggandeng pihak swasta yang ditunjuk, salah satunya PT H2O (Holistic Health Business Opportunity) Group Indonesia. Dalam idenya, PT H20 mengembangkan kawasan budidaya sorgum berbasis petani dengan pilot project di Kawasan Semarijo (Desa Sumberjati, Desa Rejosari, Desa Manting dan Desa Jembul), Kecamatan Pacet, Kabupaten Mojokerto. Korporasi Tani merupakan salah satu upaya pemerintah dalam meningkatkan kesejahteraan petani sebagaimana tertuang dalam Peraturan Menteri Pertanian Republik Indonesia No.18/Permentan/RC.040/4/1018. Penelitian ini bertujuan pada korporasi petani yang dikembangkan oleh PT H2O Group Indonesia dari aspek manajemen dan komunikasi yang terjalin dengan pemangku kepentingannya. Metode penelitian yang digunakan adalah deskriptif kualitatif untuk memperoleh data sebanyak-banyaknya dengan teknik pengumpulan data melalui wawancara mendalam dan observasi lapangan selama 3 bulan. Hasilnya adalah pengembangan kawasan pertanian berbasis korporasi petani yang dilakukan oleh PT H2O Group Indonesia (Holistic Health Business Opportunity) adalah (1) pengelolaan internal yang unik, solid dan terkendali, (2) terjalinnya komunikasi yang efektif seluruh pemangku kepentingan dengan menjalin kemitraan yang saling menguntungkan. (3) korporasi petani ini mampu memberdayakan masyarakat dan pengembangan kawasan pertanian dapat berjalan beriringan sehingga meningkatkan kesejahteraan petani sorgum. Dengan demikian, sistem ini mampu meningkatkan kesejahteraan petani dan Indonesia mampu swasembada pangan dan memasuki pasar internasional.

Kata Kunci: Sorgum; Perusahaan Petani; Ketahanan Pangan Nasional

ABSTRACT

The cultivation and development of sorghum plants is the government's effort in strengthening national food security. Sorghum can substitute wheat where Indonesia is the world's largest wheat importer as much as 10-11 million tons a year. The acceleration of sorghum cultivation is carried out by the government by cooperating with appointed private parties, one of which is PT H2O (Holistic Health business Opportunity) Group Indonesia. In its idea, PT H20 developed a farmer-based sorghum farming area with a pilot project in the Semarijo Area (Sumberjati Village, Rejosari Village, Manting Village and Jembul Village), Pacet District, Mojokerto Regency. Farmer Corporation is one of the government's efforts in improving the welfare of farmers as stated in Minister of Agriculture of the Republic of Indonesia regulation No. 18/Permentan/RC.040/4/1018. This research aims at farmer corporations developed by PT H2O Group Indonesia from the aspects of management and communication established with its stakeholders. The research method used is qualitative descriptive to obtain as much data as possible with data collection techniques through in-depth interviews and field observations for 3 months. The result is the development of farmer corporation-based agricultural areas carried out by PT H2O Group Indonesia (Holistic Health business Opportunity) is (1) unique, solid and controlled internal management, (2) establishing effective communication of all stakeholders by establishing mutualist partnerships (3) this farmer corporation is able to empower the community and the development of agricultural areas can go hand in hand so as to improve the welfare of sorghum farmers. Thus, this system is able to improve the welfare of farmers and Indonesia is able to be self-sufficient in food and enter the international market

Keywords: Sorghum; Farmer Corporation; National Food Security

INTRODUCTION

Food are basic needs for everyone on the earth. Food is needed by people to survival. Therefore, one of the United Nations programs is stopping global hunger until 2030 is a sustainable development goal had proclaimed. To realizing zero hunger, various efforts are made especially strengthening food security. According to Law Number 18 of 2012, food security is "a condition of food fulfillment for the state up to individuals, which is reflected in the availability of sufficient food, both in quantity and quality, safe, diverse, nutritious, equitable and affordable and does not conflict with religion, beliefs, and community culture, to be able to live healthy, active and productive lives in a sustainable manner (President, 2012). People can do a lot of activities and live more productively if food is sufficient. The prosperity of a nation can be seen how the country can provide sufficient food and sufficient food availability for its people.

Wheat flour derived from processed wheat plants is a mandatory food ingredient. Flour is a staple ingredient for various processed food products for the people of Indonesia, such as bread, noodles, cakes, fried foods and other food mixtures. The Food and Agriculture Organization (FAO) said that Indonesia is the largest wheat importer in the world. Indonesia was recorded to import 10.29 million tons of wheat in 2020 (Romli, 2022). Indonesia's population of 275 million based on a survey by the Central Statistics Agency in 2022, Indonesia's wheat demand continues to increase. Based on APTINDO (Indonesian Wheat Flour Producers Association) records, in 2022 Indonesia's wheat imports reached 11 million tons per year and are still growing with the availability of Indonesian wheat milling capacity of 13.1 million tons per year (Cut emeria, 2022).

Indonesia's high dependency on wheat can cause national food security to become unstable. Russia and Ukraine are the world's wheat exporting countries where both countries produce 30-40% of the world's total wheat production. The Russia-Ukraine war has had an impact on world food stability for staple foods made from wheat. With the suspension of Ukrainian wheat exports, wheat producing countries have taken a vigilant stance and prioritized wheat needs in their respective countries. As a result, wheat became a scarce item and its price tripled. For this reason, the Government of the Republic of Indonesia has taken steps to reduce wheat imports through the development of sorghum plants as an effort to substitute and diversify processed sorghum with high economic value (Kementerian Koordinator Bidang Perekonomian, 2022).

In 2022, the Government has started a pilot project for sorghum development as an effort to substitute and diversify in strengthening national food security. Government projections, sorghum development will continue to be increased from 4,335 Ha in 2022 to 40,000 Ha in 2024 with a provincial calculation of 4 tons / Ha (Kementerian Koordinator Bidang Perekonomian, 2022). It still had not reached the target from the national flour requirement of 2 million tons / year which requires a minimum of 8 million tons of wet sorghum. Therefore, the government invites appointed private parties to develop sorghum cultivation. One of the companies trusted by the government is PT H2O (Holistic Health Business Opportunities) Group Indonesia which is domiciled at Tower A Floor 38 Casablanca City at Casablanca Raya Street Block 88 South Jakarta. PT H2O is one of the national private companies that has gained the trust of the Director General of Food Crops of the Ministry of Agriculture of the Republic of Indonesia as a company that manages sorghum farmer corporations using SRM 52-3 sorghum variety products as a superior variety under the name soper 9 Agritan.

In this project, PT H2O collaborating with PT Bumi Mahardika Sejahtera located in Petak Village, Pacet District, Mojokerto Regency. This joint partnership is designed to manage farmer corporation-based agricultural areas with pilot project locations in the Semarijo Area (Sumberjati Village, Rejosari Village, Manting Village and Jembul Village), Pacet District, Mojokerto Regency. The farmer corporation model developed by PT H2O and operationalized by PT Bumi Mahardika Sejahtera synergizes farmers, regional entrepreneurs and local governments by creating a farmer corporation program package on 500 hectares of land. This restriction of agricultural areas will facilitate coordination in the field from production (planting period), harvesting to processing production products into ready-to-use sorghum.

Sorghum

Sorghum (Sorghum bicolor L. Moench) is a cereal crop that becomes the five staple foods after rice, wheat, corn and barley (Suarni, 2016). Sorghum is able to adapt to tropical climates with temperatures of 23°C - 30°C, humidity 20%-40% and rainfall 375-425 mm per year with soil pH levels of 5-7.5. In addition, sorghum cultivation is not complicated and does not require considerable costs, can be planted 4 monocultures or intercropping, high productivity and can be harvested more than once in one planting. From the form, the sorghum plant is a combination of corn plants where sorghum seeds form a collection of seeds and rise like sugarcane.

The government has designated sorghum as a food substitute for wheat. With various studies that have been carried out, a mixture of wheat flour (flour from wheat) as much as 80% and sorghum flour as much as 20% does not reduce the taste of processed food products such as bread, pastries, noodles and others (Siregar et al., 2022), (Primadani, 2022), (Hilmiati, 2022). Basically, sorghum is a tropical plant that does not require a lot of water. Therefore, the government launched sorghum cultivation in East Nusa Tenggara where ecologically matched the specifications of the plant. Its development is not fixed in the East Nusa Tenggara area only. Many regions in Indonesia have land characteristics that are suitable for planting sorghum.

Farmer Corporation

The development of food estate areas in Indonesia has become more widespread since the Covid-19 pandemic where concerns about national food stability have been disrupted (Syahyuti et al., 2021). Therefore, the government began to develop farmer corporation-based agricultural areas with the launch of Minister of Agriculture Regulation number 18/PERMENTAN/RC.040/4/2018. This Ministerial Regulation is a guideline for the implementation of the development of corporate-based agricultural areas. However, in its implementation, it has experienced many obstacles such as land readiness, management, and human resource empowerment cannot be carried out optimally (Prasetyo & Setiani, 2019).

Its implementation, the development of this food area requires cooperation with various parties. Effective and innovative management of farmer corporation management is expected to be able to realize an advanced, independent and modern and sustainable food production system. Therefore, strong support and commitment from stakeholders at various levels are needed in the development of food center areas, so that farmer corporations are able to increase production diversification, added value, highly competitiveness and increase the farmers' income (Syahyuti et al., 2021).

The cultivation of sorghum plants in Indonesia is difficult to do because the farmer's stigma and the community considers that sorghum is not an alternative food staple. Sorghum is cultivated as animal feed that has no economic value. The strategy undertaken to overcome the challenges of sorghum cultivation is to develop a corporate-based sorghum farming area. Concept of the farmer corporation as a mechanism of a corporation / company which is the farming area is developed by differentiating and production process, integrating the upstream and downstream industries, and utilizing appropriate technology and industry to add economic value to products (Susanti, 2023b). The corporate concept is that agricultural products will be processed into semi-finished goods and finished goods. The sorghum production developed by PT H2O is in the form of wet sorghum, which is then dried and threshed into sorghum grain. The next stage is the sorghum grain separated from the skin which produces sorghum rice. From sorghum rice, it will be reprocessed into sorghum flour. From the illustration, sorghum rice can be a semi-finished material and sorghum flour is a finished item ready for consumption by consumers. Therefore, the function of farmer corporations is to increase the bargaining value of sorghum products by integrating the upstream and downstream industries which are processed into finished goods that are ready for consumption. In addition, agricultural technology does not stop only at the utilization of sorghum seeds. All sorghum plants will be maximally empowered, among others, sorghum stems can be processed into sugar (such as sugar cane), sorghum leaves are processed into animal feed and biodiesel from stalks, leaves and roots.

National Food Security

According to Law Number 18 of 2012, food security is "a condition of food fulfillment for the state up to individuals, which is reflected in the availability of sufficient food, both in quantity and quality, safe, diverse, nutritious, equitable and affordable and does not conflict with religion, beliefs, and community culture, to be able to live healthy, active and productive lives in a sustainable manner (President, 2012). Food security is a shared responsibility that synergizes with various stakeholders such as the government, farmers, banks and entrepreneurs to meet the production of quality, safe, nutritious food at affordable prices. With the synergy of various parties, it is hoped that sustainable national food stability can be realized. In essence, the progress of a country is seen from the independence of the state in meeting the basic needs of its people, namely food.

Some aspects of food security that need attention according to the National Food Security Agency are as follows (Riadi, 2022):

1. Food availability, is the availability of food products, especially staple foods both produced domestically and imported. Food availability will be guaranteed if it is produced independently and does not depend on food imports from other countries.
2. Food access, is the ability of everyone to obtain food sufficiency, whether from their own production or purchases, barter, gifts, loans, and assistance or from all five.
3. Food absorption, is the use of food processed by the community. It is usually adapted to the eating culture in a society and does not conflict with health and religion.
4. Nutritional status is an outcome of food security.

RESEARCH METHODS

This article uses qualitative descriptive research. This method was chosen to obtain as much data as possible according to research needs and presented in the form of a comprehensive narrative. The technique of withdrawing the source of this research data is purposive sampling by conducting direct observation data collection techniques for 3 months from February to April 2023 in the Semarijo area (Sumberjati Village, Rejosari Village, Manting Village and Jembul Village), Pacet District, Mojokerto Regency and an in-depth interview with Mr. Tommy Suprapto, SE., MBA. as President Commissioner of PT Bumi Mahardika Sejahtera and President Director of PT. Holistic Health business Opportunity (H2O) and Sunarno, S.Pd., MM. as Head of the Social and Economic Research Team of PT. Holistic Health business Opportunity (H2O). Structured interviews are chosen to facilitate the collection of research data so that it can be controlled and in accordance with the research objectives. Data analysis techniques are carried out in stages, namely data collection through non-participant observation, in-depth interviews, comparing theories and data then discussed in a descriptive and concluded manner (Susanti, 2023a).

RESULTS AND DISCUSSION

Based on the results of the study, there are two major forces in the sorghum farmer corporation pioneered by PT. Holistic Health business Opportunity Group Indonesia (H2O). First, unique, solid and controlled internal management, Second, assembling all stakeholders by establishing mutualist partnerships. Third, through farmer corporations, community empowerment and the development of agricultural areas can go hand in hand so as to improve the welfare of sorghum farmers.

Sorghum Farmer Corporation Management

Corporate Management applied by PT H2O in the sorghum development project in Pacet Mojokerto by collaborating with PT Bumi Mahardika Sejahtera as a company located in this sorghum project area and PT Mazidah Zamrud Baitussalam as a partner company that provides organic liquid fertilizer, buying all production and marketing. This partnership is carried out to manage managerial more professionally and facilitate company operations from planning, implementing, controlling and sustainability of the company. Management is structured with a lean

model. In an interview with President Director of PT H2O, Tommy Suprapto said "in a farmer corporation there is no need to think much, anyway they will also work with partners." Therefore, this sorghum farmer corporation is divided into 3 main departments, namely the Production Department including the Cultivation Division and Industrial Division, the Operations Department which oversees the General Division and Finance Division, and the Marketing Department.

In **production management**, there are two main things that are done, namely Sorghum Cultivation and Sorghum Product Industry. For sorghum cultivation, they collaborated with the Ministry of Agriculture of the Republic of Indonesia and the Cereal Crops Research Institute in South Sulawesi in terms of transforming agricultural technology and providing superior seeds of SRM 52-3 sorghum varieties under the name soper 9 Agritan. During the sowing period, sorghum needs liquid organic fertilizers. Therefore, PT H2O collaborates with PT Mazidah Zamrud Baitussalam as a distributor of liquid organic fertilizer for sorghum plants. Fertilization is carried out 2 times during the planting period, namely 7 days after planting and 30 days after planting with a composition of 4 liters / Ha. The planting period is carried out 3 times a year and requires 24 liters/Ha, so that for 1 program package of 500 Ha, 12,000 liters of fertilizer is needed.

During the cultivation until the harvest period, PT Bumi Mahardika Sejahtera continues to assist farmers in terms of land processing, planting, fertilization to harvest. To assist farmers with an area of 500 Ha, it was divided into 10 farmer groups that managed 50 Ha. Each farmer group is accompanied by 3 people who will handle cultivation, soil science and crop protection. So that the total companions are 3 people times 10 farmer groups plus 2 supervisors and to the Cultivation Division. The role of 33 assistants in providing advocacy to farmer groups can continuously optimize sorghum production.

After harvesting, sorghum products are processed into 3 main products, namely flour, sugar and silage / animal feed. PT. H2O invested 44 billion funds to establish a sorghum product factory with a medium industrial scale. The capacity of the corporate factory located in Jatirejo District, Mojokerto Regency in a day produces 25 tons of sorghum grain, 16 tons of sugar, 80 tons of silage.

To support the **operational management** of the sorghum farmer corporation, PT H2O is supported by 5 strong shareholders as initial capital. Four of these five shareholders are sons of the Mojokerto region. With 70% share ownership controlled by regional sons, it will facilitate the operationalization of the company, especially in terms of licensing and proximity of local residents to new industries in their area

For capital, PT. H2O cooperates with state-owned banks, namely BRI, BNI and Bank Mandiri. The form of cooperation carried out is in the form of facilitating banking credit needs with details of (1) People's Business Credit to finance the cultivation of sorghum farmers, (2) Investment Credit to finance the operation of sorghum processing plants from building and warehouse rents, purchase of industrial processing machinery (grain, sugar and silage), and (3) Working Capital Credit to finance the company's production and operations.

The following is the calculation of estimated profit loss in 1 program package 500 Ha in one year:

I	Cultivation of Sorghum 3 harvests		
	1. Land Area	500	Ha
	2. Grain Production Results @ 5 tons	7.500	Tons
	3. Production of rods @ 40 tons	60.000	Tons
II	Sorghum Processing Industry		
	1. Grain (12% moisture content)	7.500	Tons
	2. Sugar	4.800	Tons
	3. Silage (animal feed)	24.000	Tons
III	Estimated Profit Loss		
	1. Income	135,24	Billion IDR
	2. Fees	99,57	Billion IDR
	3. Profit	35,67	Billion IDR

This profit loss estimate data, sorghum has a high economic value, especially if managed in the right farmer corporate model it will increase the selling value and income of sorghum farmers.

The **marketing management** chosen by PT H2O is to choose partners who are ready to market sorghum products, namely PT Mazidah Zamrud Baitussalam. The Collective Agreement as stated in the MOU, provides the lowest retail price from PT H2O with the calculation that partners still get the difference in profits after going through the packaging process. PT Mazidah Zamrud Baitussalam handles all marketing of sorghum products both in the form of B2B (Business to Business) by utilizing partnerships with companies that need processed sorghum production or B2C (Business to Customer) which is directly managed by the company according to market prices.

The Power of the Sorghum Farmer Corporation

This farmer corporation model is one of the government's efforts to prosper farmers. Through the Ministry of Agriculture Regulation, the government invites farming communities to maximize integrated agricultural business from downstream to upstream (Kementerian Pertanian, 2018). **The community empowerment** in the Semarijo Area is an effort by PT H2O and in collaboration with Perhutani which recruited 4 farmer groups who are members of the Forest Village Community Institution (LMDH). Forest Village Community Institution is Perhutani's effort in actively involving communities around Perhutani forests to maintain environmental sustainability and forest management (San Afri et al., 2008). The land used are Perhutani land that is currently vacant periodically, Perhutani cuts trees according to a predetermined schedule. The average vacant land period is 3 years and this land is managed and lent to forest village communities and empowered so that farmers are accustomed to moving land locations.

In an effort to empower forest village communities, PT H2O together with PT Bumi Mahardika Sejahtera advocate or assist starting from land processing to harvest including planting and fertilization, all of which are provided. The synergy of farmer corporation management is expected to improve the welfare of farmers by providing additional income in addition to the productive agricultural land they manage.

This assistance is carried out by millennial farmers in collaboration with Bogor Agricultural University where they are given the opportunity to apply modern agricultural mechanism technology. By combining conventional agriculture (local farmers) and modern agriculture (millennial farmers), the tool attracts the interest of both parties where the goal is to maximize agricultural productivity with economic value, based on specialization of expertise, and increase the bargaining position of farmers (Anwaruddin et al., 2020).

The development of Farmer Corporation-Based Agricultural Areas initiated by PT H2O Group Indonesia in the Semarijo Area which includes 4 villages, namely Sumberjati Village, Rejosari Village, Manting Village and Jembul Village, was developed in an integrated manner. This means that agricultural production from upstream to downstream is carried out in one area. The production of the main raw material is sorghum plants from the process of seeding, planting, fertilizing care to harvesting then processed into semi-finished materials and finished materials in the form of sugar, flour and silage. Furthermore, sorghum has to be developed into other ready-to-use materials such as bioethanol, biogas, and organic fertilizers that have high economic value. Farmer corporations are owned together with corporate member farmers to improve farmers' welfare (Syahyuti et al., 2021).

This Farmer Corporation can later be owned by farmers. This is one of the advantages of Cooperation in the form of Corporations. In the calculation of PT H2O, the ownership of this farmer corporation will be given within 10 years amounting to 30% of the total shares or it can be faster if this corporation can run successfully. The offer of shareholding of farmer corporations is a regulation that has been set by the government as an effort to improve the welfare of farmers. In addition, this share offer increased the enthusiasm of farmers to be more serious about developing sorghum in their territory. The high sense of belonging of farmers means that the development of this sorghum agricultural area can be achieved.

According to Sunarno as the Head of the Socio-Economic Research Team of PT H2O said that the Semarijo area will be projected as a center for processed sorghum in collaboration with to produce food with sorghum uatam ingredients. This is intended to make sorghum better known to the wider community. The effort to make finished products from sorghum flour is expected to reduce people's dependence on wheat flour. Thus, public demand for sorghum flour will increase and the hope of achieving food independence will be realized (Jamil et al., 2023).

The main problem of sorghum cultivation is that it is less popular and people are not familiar with sorghum food products. With the proclamation of East Nusa Tenggara as a national sorghum center by the President, the government does not stop socializing about sorghum plants and their benefits. **Habituation of processed products from sorghum** is important to do immediately. Indonesians prefer it if there is concrete evidence and not rhetoric. PT H2O invites the public to make snacks from sorghum flour and then eat them together. This is a way to get the community's response about sorghum. The result, from the taste, texture and shape is no different from wheat flour in general. tasted together. Thus, people can be used as informants to disseminate processed sorghum because they have experienced it themselves and it will be easy to tell it.

For this reason, the dissemination of information about processed sorghum needs to be encouraged. Social media that is able to disseminate information quickly and precisely according to its audience by empowering various channels. Habituation of processed products from sorghum is to change the tongue culture that is already accustomed to wheat. With continuous habituation, it will turn permanent. Starting from this moment.

Sorghum is a plant that can substitute wheat plants as the main ingredient of wheat flour. The climate of Indonesia makes it possible to produce sorghum in large capacities. This is **a new source of food security** that needs to be understood by all Indonesians. By substituting as much as 20% of national wheat flour, it can save wheat import costs. In addition, several countries also experience the same problem as Indonesia, namely the high demand for wheat flour. This is a golden opportunity to mass produce sorghum because other countries also need sorghum as an alternative ingredient to substitute wheat flour. Therefore, this farmer corporation that is professionally managed has an impact on economic growth in this agricultural sector that is faster growing, established and able to compete. Professionally managed sorghum products will produce quality and competitive products in the international market (Jannah et al., 2022).

CONCLUSION

The development of farmer corporation-based agricultural areas carried out by PT H2O Group Indonesia (Holistic Health business Opportunity) is (1) unique, solid and controlled internal management, (2) establishing effective communication of all stakeholders by establishing mutualist partnerships (3) this farmer corporation is able to empower the community and the development of agricultural areas can go hand in hand so as to improve the welfare of sorghum farmers. Thus, this system is able to improve the welfare of farmers and Indonesia is able to be self-sufficient in food and enter the international market.

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