

BUSINESS ANALYSIS OF FOOD SECURITY INVESTMENT PROGRAM IN PINRANG REGENCY

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Abstract

The objectives of the research of the food security is to count the investment opportunities that it is generated by increasing of the agricultural products by 40 percent through the provision of highly optimized fertilizer. The increases of the agricultural production will be followed by an investment of the development of the warehouse infrastructure to accommodate the enhancement of food production including others commodities from coconut, coffee, palm sugar, and etc. The analysis of the investment of food security program will covered warehousing for fresh quality various of agricultural products. In the designing of the analysis of investment program is using Present Value Analysis, Return on Investment Analysis, Payback Period Analysis, and Internal Rate of Return analysis. The research result of the investment program of food security is feasible to continue and it is followed by the development of system of transportation from warehouse to shipment, so the need of investment as an integrated area in agricultural industrial complex. The land of area of the food security industry will become a center of the biggest food securities in Indonesia.

Keywords: food security, fertilizer, investment, warehousing, agricultural industrial.

Introduction

The responsibility of the food security belongs of every government. According to Erokhin and Gao (Erokhin & Gao, 2020) the government, either at the central or regional levels, faces various policy options that it must be adapted to meet the needs of the people to ensure food security: expanding investment programs in agriculture; encourage the use of environmentally friendly technology as according to the climate change; restore the agricultural land that it is damaged by the use of chemicals; ensure to improved the postharvest storage and supply chain mechanisms; and even get to involved in promoting of their agricultural products specifically. Each government at each of these levels faces particular challenges for the middle class in their society who are shifting from traditional foods to the food that it more

nutritious products such as meat, fish, and dairy that it need support for expanding their higher resource fulfillment in domestic agriculture or obtaining them. from the import mechanism in larger quantities.

In the relation to the global development of agriculture, according to Balkrishna, etc., (Balkrishna, Chaudhary, Joshi, & Arya, 2021), the Millennium Ecosystem Assessment report list of several general strategies to promote more sustainable land use that are very applicable to organic agriculture. These strategies include creating appropriate governance and marketing structures, overcoming social and behavioural barriers, encouraging investment in development. Promoting appropriate technologies, knowledge, and skill and also suggested some specific policy options.

More over according to Purwanto (Purwanto, 2021) the use of appropriate technology, adequate agricultural knowledge, and farming skills, the factors of water, energy, and food security and the interactions between their components internally and their interrelationships with environmental, social, government and even political conditions make these issues become need more attention. The main topics that are hotly discussed not only in developing countries but also in the developed countries about the currently of water, food and food security very complex. Achieving a certain level of water, energy and food security simultaneously is a complex challenge that will affect investment, and investment is influenced by other sectors including social, political and environmental conditions.

When the time of investment can be realized, the opportunity to do invesment further in seed that it is needed to discover the superior of seed by research of plantation that it could make Pinrang disticts become not only as a largest food security center in Indonesia, but also become a new city of Agriculture marked in Indoneisia with spesific research about the study of national Agriculture nor international Agriculture. At the education field, the opportunity in investment of education is need to prepared for every education graduate with a purpose plunge to agriculture, and they will do a job with a proud profession as a farmer.

The potential and available area for investment in Pinrang through agricultural fisheries reaches 17,143.23 Ha., Fishery production results reach 42,075.01 Tons in 2021. The land area for agriculture for rice reaches 56,097.80 Ha and corn reaches 10,815 Ha. Based on the report from Bappeltibanda (Bappelitbanda Pinrang, 2021) the rice production in 2020 reached 638,983 tons per year, while the corn reached 122.02 tons per year. Meanwhile, the plantation area reached 41,177.65 Ha. With the results of estatery productivity reaching 19,070.47 Tons of production from Coconut to Sugar Palm plantations.

With the opportunities and prospects of agricultural production in food security program by optimizing the use of fertilizers for the community, it can achieve a 40 percent increase in productivity. Based on the investment projections, the financial total incomes that it can be achieved are IDR 4.911

trillion in 2023 and the profits for investors of PT. Bakaruu Tanratuu reached IDR 1.321 trillion in total investment cost of IDR 2.51 3.762 trillion for 10 years.

Based on the analysis of the growth of rice production from the production of 638,983 tons to 894,576 tons in 40 percent increase. The increasing of production requires warehouse infrastructure which they will determine the perceived of benefits for the community. Because of the increasing, it has direct impact of the price of rice. If the warehouse doesn't exist, then the price will go down and the product will be damaged. The design of warehouse of course requires an optimal logistics system that it put the increased of production can be distributed to other regions and even exports. On the other hand, to support the production and to ensure the achievement of production targets at the next stage, according to agricultural projections in Pinrang Regency, the research of seeds is needed that aims to provide added value for agricultural seeds, systems, and logistics systems to ensure the quality of the products of food security is well maintained. The impact on the increasing in agricultural productivity in Pinrang, with the sucess of the investment then it will achieved optimally in the developing of the area more broadly.

Products Description Literature

1. An Organic Fertilizer with Nano Technology from Japan

Based on the secondary research that it published on by Yomari (Yomari International, 2020), the food securities production with an organic fertilizer with nano technology from Japan has several benefits, including (1) The plant has ready to serve to produced direct crops that it could absorbed it without the process of photosynthesis, (2) The fertilizer is made from vegetable ingredients contained in it, (3) The provision of fertilizers as according to the research, it can produce more 40-60% higher than normal harvest, (4) the fertilizer will stimulate plant bear on fruit outside of the season, (5) Save the cost up to 90% on compared to the use of chemical fertilizer / compound fertilizer / conventional fertilizer and increase 40% result compared to use other organic fertilizer, (6) Contains 13 nutrients and

has 4 active ingredients (as results than 10 years research), which it is very needed by the plant for growth, (7) Improve condition the plant acid soil, (8) Make plant stand in all weather conditions, (9) Make speed up in harvest or harvest simultaneously including it their saplings, (10) it can be used in fishponds or shrimp pond that it will make fish or shrimp more comfortable, strong and unstressed, (11) It can be used together with insecticides, pesticides and mixed with chemistry fertilizer in a little size as accordingly that it made efficient in time and in process and in 100% effective (12) it can be an " antibiotic " for diseased plants (moldy , shoots) curl, to prevent pest except mice, etc.) for strong immunity, and (13) No expiration date (the longer the good quality).

The organic fertilizer with nano technology from Japan fertilizer has a composition of methyl purine which is a substance for plant that it can make plants resistant to all weather, Potassium 2,4 Dinitrophenol which it is useful for making plants grow optimally, Potassium 5 Nitroguailakol which it can stimulate flower and fruit growth so that plants can bear fruit out of season, Potassium Paranitrophenol, which is able to prevent twigs on leaves and shoot tips. In addition, the composition also consists of C-Organic, N-Organic and several other nutrients. With this composition, the fertilizer is able to provide an increase in production of 40-60 percent in one time season. The advantages of this fertilizer product to compared to similar products or other organic fertilizers, one of which it is created by using nano technology that it can work without a photosynthetic process, without the need for an incubation period which it is usually 1-5 days, lighter because of the size of a sachet without using sacks or jerrycans to the fields. .

In contrast to the application of organic fertilizer, based on the results of Yomari's research, on a 1 hectare land, using an organic fertilizer with nano technology from Japan can increase production yields by 40 - 60% as an organic fertilizer. Comparison of the results of agricultural food production with the application of non-organic fertilizers, the application of organic fertilizers from various sources, and the application of fertilizers with an organic fertilizer with nano technology from

Japan products, can be seen from Table 1 below.

Table 1 An organic fertilizer with nano technology from Japan Fertilizer Effectiveness for every 100 Kg of Fertilizer on 1 Ha of area.

Comparison of the useful in between organic and nonorganic fertilizer			
	Chemical fertilizer	Other organic fertilizer	Organic Fertilizer with Nano Technology from Japan
UREA	300 Kg	300 Kg x 25% = 75 Kg	300 Kg x 10% = 30 Kg
Sp36	100 Kg	100 Kg x 25% = 25 Kg	100 Kg x 10% = 10 Kg
KCL	100 Kg	100 Kg x 25% = 25 Kg	100 Kg x 10% = 10 Kg
Total Cost	Rp3.070.000, -	x 25% = Rp767.500, -	x 10% = Rp307.000, -

2. Warehouse Products Literature

Based on the case studies Warehouse Receipt System (WRS) in Karawang, West Java, according to Setiajatrika and Gunadi (Setiajatrika & Gunadi, 2020), the estimation of income from warehouse originated from contribution that it use warehouse by another warehouse user. The warehouse (in Karawang) is reported that every 1 m² area warehouse could accommodate as much as 750 kg of commodities of agriculture. Based on the increase in production in 2021, the rice agricultural products in Pinrang District will increase by 40% from 638,983 tons to 894,576 tons, requiring a land area of 255,593,2 tons/0,750 tons = 34.1 ha. Meanwhile, the corn requires an area to accommodate the increasing of production which it is increased from 122.02 tons to 170.83 tons corn, it requiring a warehouse area of 6.5 m². The warehouse receipts system for the plantation of products will be the same assumptions on increased yield from 19,070.47 tons to 26,698.66 tons require a warehouse area of 1.02 Ha.

In addition, warehouse receipts system for fishery products which it is the same assumpriotn will increased from 42,075.01 to 58,905,014 tons that it is require a 2.5 Ha

warehouse area with additional investment of cool storage. The total area of land required for Warehouse Receipts System is 36.61 Ha. or 366,100 m²

Another warehousing system of the the extensive of warehousing receipt system must be specifically designed to protect agricultural products from unharmed and damaged, even in the out of season. At the same time, the warehousing system must be to design to protect the price of agricultural products, during the harvest season, that it is prices usually fall. The warehouse system do not cause farmers to get loss to sell at that price when it harvest season but can store them in warehouses until prices to return to normal.

3. Rice Drying and Milling Plant Services Literature

Taking a comparison with a rice mill in Bondowoso Regency, according to Riyanti, Ibrahim and Baroh (Riyanti, Ibrahim, & Baroh, 2021), the needed for the rice mill is a building of milling area of 600 m², with manufacture floor drying, and the other dryer building or building drying with wide 300m² as a tools of grain production, and the facility to fulfillment of maintenance and operational costs that it is incurred by the Processing Unit to covers the cost of grain, direct tax, materials and etc.. that they measured of total cost in one year. The milling income is derived from the income earned from the rent of processing costs at the rice pProcessing unit for organic product, husks, groats, and rice bran.

4. Container Port Services Literature

By comparing the operations of the Pare-pare Port, according to Hasdiana (Hasdiana, 2021) the analysis Cash Flow Ratio and Overall Cash Flow Ratio is measuring on how much cash receipts and disbursements and to measure how much the amount of CFO (Cash Flow from Operation) generated internally that it can meet the needs of required activity in investment and funding. The activity of investment consist of capital expenditure and the yield of return on investment. The Income are obtained from container loading and unloading activities that it carried out for domestic and international shipments.

5. Research and Development

Research and development is directed in designing and allocating product distribution within a smart city framework that they are integrated with warehousing, production processes, factory processing and transportation. Research costs are allocated from 30% to 40% of the company's operations. Further research is directed at the field of superior seed research so that it could make Pinrang not only as the largest food security center in Indonesia, but also put new city in Indonesia as city of Agriculture marked by all the study of Agriculture in national nor international level is providing in Pinrang. The results are expected to provide added value for agricultural seeds, agricultural systems, and logistics systems to ensure that the quality of the products is well maintained. More than 60% of the rice seeds used by the community that they come from the informal sector in the form of unhulled rice that it has been set aside from the previous season's repeated harvests. Besides the farmers also use non-organic fertilizers (artificial fertilizers) only, and no one farmers use organic fertilizers to plant rice fields. Today the use of fertilizer doses is believed to be far from recommended.

6. Education and Training

In this analysis of education and training, it is intended to measure the readiness of Pinrang agricultural development program as a special area for the center of agriculture in Indonesia, which at the same time becomes a center for the development of agricultural in education, food agriculture in research, and the design of a national food supply management system that it integrated into the supply chain management system based on digital logistics algorithms.

Research Method

The research method is the troubling method which it is measures (1) the innovation of the implementation of technology in green and blue economy of the important implications for social and organizational stability, that it is in a serious consideration, for the possibility to develop an analytical solution model in accordance to the solutions of the technological innovation, and (2) at the level of the practical point of view, the pragmatically

of the settlement that it was directed towards the constructing of the model which it shows the problem of the technological innovation is important.

The research method model in this analysis was to build a dialogue between researchers and resource persons respectively, with focus on finding of data quantitative. The problem method model put a places net present value, payback period, internal rate of return as a quantitative analysis. The arrangement is to be carried out through a problem method model which it is structured by paying attention to the central premise of the investment opportunity, that they are 1) relationship, to find cause and effect, 2) listening, to find all the information that it needed and 3) not knowing, to formulate a correct solution for completely new one.

Discussion

Business Opportunities

The total population of Pinrang, according to Disdukcapil Pinrang (Bappelitbanda Pinrang, 2021) based on statistics from the BPS of Pinrang Regency, the population of Pinrang reaches 403,994 people with a productive age of 15-60 years reaching 274,419 people with an average population growth rate of 1.18 per year. Quoting from the result data Census Resident (SP) 2020 .

By knowing the rate of population growth, when we do predicting the growth of food security products including rice, of course it can be seen the comparison between the needs of food with the current population and the needs of food in the future. With a population that it grows 1.18 percent every year, it significantly affects the achievement of the vision of making Pinrang as a national rice barn, which it provides the availability of labor in the future. With the population growth reaching 1.18 percent, it can be predicted that in the future, Pinrang will be sufficient to meet the needs of agricultural employment as the largest food supply center in Indonesia.

One of the success factors in managing rice farming is determined through the use of production inputs. The optimalization use of production inputs will result a maximum production and to provide a relatively high

profitability of the farmers. The recommended dosage for the use of production inputs such as fertilization is generally known. However, in practice, not all farmers apply the recommended dose due to different levels of understanding. Based on the results of the research (Raksun, 2016) rice farming is carried out by farmers in an area of 0.50-1.0 ha (average 0.75 ha/farmer) differently. These differences include, the farmers using available varieties from their harvests, or using seeds from local governments and/or using varieties that have been used continuously for several years.

The administrative area of Pinrang Regency divided within 12 districts and 108 Villages / Ward (39 Ward and 69 Villages) with area 1,961.77 Km². As for the District Lembang is widest area with 733.09 Km². The social life of the people in Pinrang Regency according to Bappelitbanda (Bappelitbanda Pinrang, 2021) that it is measured by the Gini Ratio, currently reaching at level 0.375 lower than South Sulawesi Province at 0.389 with average economic growth in 2016 - 2020 reaching 5.83 percent which it is higher than Province of South Sulawesi in the same time the growth at 5.58 percent. This difference of the Gini Ratio and economic growth shows that the income level between the rich and the poor tends to be balanced, so that in the long term it does not cause problems of social impact that it can trigger the chaos. These social and security conditions indicate that the potential of the opportunity to realize the vision of the food security under the investment program in Pinrang that it is quite stable on potential growth with Gross Regional Domestic Product reaching Rp. 52.93 million.

From the point of view of the availability of land area for the agricultural of fisheries, it reaches 17,143.23 Ha., Fishery products reach 42,075.01 tons. The area of land for agriculture for rice reaches 56,097.80 Ha and the corn reaches 10,815 Ha. Based on the report from Bappelitbanda (Bappelitbanda Pinrang, 2021), rice production in 2020 will reach 638,983 tons per year, while the corn will reach 122.02 tons per year. Meanwhile, the plantation area reached 41,177.65 Ha. With the results of plantation productivity reaching 19,070.47 Tons of production ranging from Deep Coconut to Sugar Palm.

With the potential for increased in production yields of 40%, in the use of an organic fertilizer with nano technology from Japan, it is certain that the market potential is very profitable in 3 planting seasons for each year.

Competitor Analysis

Analysis of similar products in the form of subsidized organic fertilizer from the government which is given to farmers for free, according to the Bupati of Pinrang (Bupati Pinrang, 2022), state that it is because of the organic fertilizer is given free of charge, it is a problem for farmers to get it because the treatment not educating them. Beside that it is the fertilized subsidized from the central government, currently there are also many organic fertilizers being marketed with the promises better of yields. Organic fertilizer creates competition because of it is the manufacture of them can be done easily, even by local people that they provide themselves by make it and marketing on it in among Pinrang farmers. In addition, the organic fertilizers such as YGO fertilizer competitors, as well as non-organic fertilizers.

Based on the results of the study, the data that it is collected in various literatures, it is obtained an illustration that agricultural products require certain fertilizers, namely organic and non-organic. The use of fertilizers is associated with production yields. Studies of various literatures show that the use of non-organic fertilizers gives an average increase in production yields per 1 tonne of 3% to 20%. Meanwhile, an organic fertilizers, including organic fertilizers for local communities, average production per 1 tonne of agricultural produce increased by a minimum of 20% and a maximum of 23%. According to research from YGO's organic fertilizers provide an increase in the average production yield per 1 tonne, the lowest is 40% and the highest is 60%.

SWOT Analysis

Strength

The Pinrang Regency food security investment program is based on data from the Pinrang food security report, (Bappelitbanda Pinrang, 2021) taken by policy endurance food through: (a) an increasing diversity production source food

resources, institutions implementing institutions and strengthening the local culture of the Pinrang community, (b) an optimizing efficiency economy and excellence competitive Pinrang agricultural area as a national rice granary, (c) regulation distribution food and food products refers to a competitive and fair market mechanism, (d) optimizing resilience food as part from effort enhancement income farmers, distributors of agricultural products and micro, small and medium enterprises .

One of the success factors of strength of the the program is in managing rice farming, they are determined through the use of production inputs. Optimal use of production inputs will result in maximum production and ultimately provide relatively high profitability of farming. The recommended dosage for the use of production inputs such as fertilization is generally known to farmers. However, in practice, not all farmers apply the recommended dose due to different levels of understanding. Based on the results of research of Raksun (Raksun, 2016) the rice farming is carried out by farmers in an area of 0.50-1.0 ha (average 0.75 ha/farmer) differently. These differences include, among others, farmers using available varieties from their harvests, or using seeds from local governments and/or using varieties that have been used continuously for several years.

More than 60% of the rice seeds used by the community come from the informal sector in the form of unhulled rice that has been set aside from the previous season's repeated harvestly. Besides that, farmers also use a non-organic fertilizers (artificial fertilizers), and no farmers use organic fertilizers to plant rice at their fields before. The use of new fertilizer doses is believed to be far from recommended. In contrast to the provision of non-organic and organic fertilizers of other brands, based on the results of Yomari's research, on an area of 1 Ha, using an organic fertilizer with nano technology from Japan can increase production yields of 40 - 60% (Yomari International, 2020) as an organic fertilizer.

Based on the analysis of the growth of rice production from 638,983 tons to 894,576 tons forecasting, it requires an integrated warehousing infrastructure in an area of warehousing, ship loading and transportation. This of course requires an optimal logistics

system so that the increased production can be distributed to other areas and even for export. Thus, investing in warehousing that is integrated with the container port, the increased production support will not be damaged or even burden the community, which in turn will result in lower selling prices.

Weakness

The production of agricultural treatment in Pinrang by optimizing fertilizer will increase by 40 percent. Thus the policy on the use of organic fertilizers must be followed by the development of the integrated of warehousing infrastructure in an area of a complex logistics system in the Pinrang. The logistics location complex is on the close to the port. But without any adequate logistical support, the increased of production growth will not have a significant impact on the community.

Opportunities

Broadly speaking, this project will provide benefits for stakeholders (farmers, mill entrepreneurs, the community and the local government of Pinrang). Therefore, it is necessary to disseminate information to the leadership/stakeholder groups (agricultural associations, rice mill entrepreneurs, prospective warehouse owners, local lurah/camat). The target of this socialization is in the form of support to realize the Pinrang food security project as the largest food source.

For this reason, the collaboration with various parties, including consulting companies and contractors, can help to complete the development of an integrated food security industrial area with warehousing, docks, ports and others. In realizing these opportunities, it needs at the same time to set up an agreement with the prospective buyer, in the form of an MoU of selling product.

Threat

The Character of the businessman and the community in Pinrang have their own character follow-up that it will affect the success of the executed investment model because at the same time, several businessman from Pinrang will feel competed and do activities the same investment which they are the same as PT. Bakaru Tanra Tuo. During project

implementation, the Pirang entrepreneurs have the potential to interfere the investment made until they are commodified its their interests .

Operational Planning

Operational planning is prepared with activities to increase 40% of agricultural product output. To achieve this target, various testimonials that it have been published need to be continuously disseminated, in addition for conducting a pilot project. In accordance with a mutual agreement with the local government, socialization will continue to be carried out through various meetings with farmer groups, communities and the agriculture, plantation and fishery services, based on data collected from the Report of Bappeltibanda Pinrang (Bappelitbanda Pinrang, 2021), as a database to forecast the agricultural productions that it require an organic fertilizers . For investment purposes, the data that has been collected are:

1. The area of land available for agricultural engagements reaches 17,143.23 ha. The fishpond yields reach 42,075.01 tons in 2020.
2. The area of land for agriculture for rice reaches 56,097.80 Ha and corn reaches 10,815 Ha. rice production in 2020 reached 638,983 tons per year while corn reached 122.02 tons per year
3. The plantation area is 41,177.65 hectares, the results of fishery productivity reach 19,070.47 tons
4. Production costs for every 1 ton are 10 percent of the cost of non-organic fertilizers with an inflation rate of 2.37 percent per year

Financial Planning

A. An Organic Fertilizer with Nano Technology from Japan investment

Based on the data from Bappeltibanda, Pinrang Regency, South Sulawesi, the area of land that it can be applied to an organic fertilizer with nano technology from Japan includes land available for fisheries which it is reaches 17,143.23 Ha., the land for rice farming reaches 56,097.80 Ha and the corn reaches 10,815 Ha and plantation land reaches 41,177.65 Ha. The availability of the land if we added up as a whole it reaches 125,233.68 Ha.

As it mention above that it is known that the fertilizer needed for 1 Ha is 3 boxes at a price of IDR 300,000 per box or equivalent to IDR 900,000 per Ha. When compared with the selling price of non-organic fertilizers which reached Rp. 3,070,000 per ha, so when

compared, the price offered by PT. Bakaru Tanra Tuo is still below the expectations repectedly.

With the above data, below we draw the cost required for fertilizer investment of IDR 90.168.249.600 with the following calculation

Table 2
PROJECTION OF NEEDS INVESTMENT IN UNIT VALUE OF THE AN ORGANIC FERTILIZER WITH NANO TECHNOLOGY FROM JAPAN

No.	Type of Land	Area (Ha)	Box @2 for 1 year	Selling Price Farmer	Investment Value	Investment Profit
1	Fishery	17.143	102.859	30.857.814.000	12.343.125.600	18.514.688.400
2	Paddy	56.098	336.587	100.976.040.000	40.390.416.000	60.585.624.000
3	Corn	10.815	64.890	19.467.000.000	7.786.800.000	11.680.200.000
4	Plantations	41.178	247.066	74.119.770.000	29.647.908.000	44.471.862.000
	Jumlah	125.234	751.402	225.420.624.000	90.168.249.600	135.252.374.400

With the assumptions used are:

1. The purchase price of fertilizer is Rp120,000,-
2. The selling price of fertilizer is Rp300.000,-
3. Rice farming area 56,098 hectares and corn 10,815 hectares
4. Plantation area 41,178 hectares
5. Fishery Land Area 17,143 Hectares

Based on the calculation of the costs and benefits of investing in organic fertilizers, calculations are then made for 10 years of investment by assuming a loan interest of 14%.

Analysis is used:

1. Sales of fertilizer for the first year reached three County District at Patampanua, Duampanua and Cempa at selling price at Rp10.081.200.000 at a cost of Rp 4.032.480.000,-

2. Fertilizer sales in the second year were adjusted to an increase to the total land 125.234 Hectares including fishery, paddy, corn and plantation with inflation cost increase of 2.39% (the average inflation in 5 years in Pinrang). According to Atrill (Atrill, 2020). The calculation of the investment as accordingly so that investment costs increased to Rp92.323.270.765,- At the third year, when the time of harvest increase from two time to three time a per years

2.1 Total Investment IDR 500,000,000,000,-

2.2 Annual sales in the first year IDR 225.420.624.000,-

2.3 Payback Period in 5 years

Calculating Payback Period by annual income would be:

**Cummulative
cash flow**

	1	2	3	4	5
	-493.951.280.000	-358.698.905.600	-225.601.552.365	-22.722.990.765	176.923.039.087

2.4 Net Present Value is positive in the 10th year at the rate 14% is positive by calculating cash inflow and out flow as below:

Year	Cash in flow	CoF in 2% Inflation	Net Cash in Flow	Rate 20%	Present Value
	Investment				(Rp500.000.000.000)
1	10.081.200.000	4.032.480.000	6.048.720.000	0,8333	Rp5.040.600.000
2	225.420.624.000	90.168.249.600	135.252.374.400	0,6944	Rp93.925.260.000
3	225.420.624.000	92.323.270.765	133.097.353.235	0,5787	Rp77.023.931.270
4	338.130.936.000	135.252.374.400	202.878.561.600	0,4823	Rp97.838.812.500
5	338.130.936.000	138.484.906.148	199.646.029.852	0,4019	Rp80.233.261.740
6	338.130.936.000	141.794.695.405	196.336.240.595	0,3349	Rp65.752.609.724
7	338.130.936.000	145.183.588.625	192.947.347.375	0,2791	Rp53.848.063.535
8	338.130.936.000	148.653.476.393	189.477.459.607	0,2326	Rp44.066.401.284
9	338.130.936.000	152.206.294.479	185.924.641.521	0,1938	Rp36.033.441.123
10	338.130.936.000	155.844.024.917	182.286.911.083	0,1615	Rp29.440.353.828
	2.827.839.000.000	1.203.943.360.734	1.623.895.639.266		Rp83.202.735.003

2.5 Internal Rate of Return is calculating as according to two NPV positive and negative (Atrill, 2020) in between 20 to 25 percent

2.5.1 The cash flow of Positive rate of IRR at 20% is:

Year	Cash in flow	CoF in 2% Inflation	Net Cash in Flow	Rate 14%	Present Value
	Investment				- 500.000.000.000
1	10.081.200.000	4.032.480.000	6.048.720.000	0,8772	5.305.894.737
2	225.420.624.000	90.168.249.600	135.252.374.400	0,7695	104.072.310.249
3	225.420.624.000	92.323.270.765	133.097.353.235	0,6750	89.836.922.315
4	338.130.936.000	135.252.374.400	202.878.561.600	0,5921	120.120.395.025
5	338.130.936.000	138.484.906.148	199.646.029.852	0,5194	103.689.891.869
6	338.130.936.000	141.794.695.405	196.336.240.595	0,4556	89.448.150.038
7	338.130.936.000	145.183.588.625	192.947.347.375	0,3996	77.108.961.294
8	338.130.936.000	148.653.476.393	189.477.459.607	0,3506	66.423.039.155
9	338.130.936.000	152.206.294.479	185.924.641.521	0,3075	57.173.304.039
10	338.130.936.000	155.844.024.917	182.286.911.083	0,2697	49.170.765.821
	2.827.839.000.000	1.203.943.360.734	1.623.895.639.266		262.349.634.542

2.5.2 The cash flow of Negative rate of IRR at 25% is:

Year	Cash in flow	CoF in 2% Inflation	Net Cash in Flow	Rate 25%	Present Value
	Investment				(Rp500.000.000.000)
1	10.081.200.000	4.032.480.000	6.048.720.000	0,8000	4.838.976.000

2	225.420.624.000	90.168.249.600	135.252.374.400	0,6400	86.561.519.616
3	225.420.624.000	92.323.270.765	133.097.353.235	0,5120	68.145.844.856
4	338.130.936.000	135.252.374.400	202.878.561.600	0,4096	83.099.058.831
5	338.130.936.000	138.484.906.148	199.646.029.852	0,3277	65.420.011.062
6	338.130.936.000	141.794.695.405	196.336.240.595	0,2621	51.468.367.455
7	338.130.936.000	145.183.588.625	192.947.347.375	0,2097	40.463.991.544
8	338.130.936.000	148.653.476.393	189.477.459.607	0,1678	31.789.042.670
9	338.130.936.000	152.206.294.479	185.924.641.521	0,1342	24.954.382.964
10	338.130.936.000	155.844.024.917	182.286.911.083	0,1074	19.572.908.040
	2.827.839.000.000	1.203.943.360.734	1.623.895.639.266		-Rp23.685.896.963

2.6 Profitability indeks as value of every dollar on each cash out flow from the capital to increase present value of revenue (Atrill, 2020) is $762.349.634.542 / 1.203.943.360.734 = 0,633$ or 63,3%

2.7 ROI (Return On Investment) as a revenue from each dollar from the investor on the project in 10 years (Block, Hirt, & Danielsen, 2019) is $1.623.895.639.266 / 500.000.000.000 = 3,248$ or 324,8%

B. Warehouse Receipt System Investment

Based on a comparative study on the West Java Province at Distribution Center Warehouse Investment (Setiajatnika & Gunadi, 2020), the investment data is used to forecast the warehouse investment with the following assumptions:

1. The total investment as based on the study Setiajatnika and Gunadi (Setiajatnika & Gunadi, 2020) is Rp23,700,000,000 on a land area of 850 m² or Rp. 27,882,352.94 per m².. In predicting the warehouse demand that it is needed to accommodate 255.593.200 Kg / 750 Kg x IDR 27,882,352.95 for 3 times harvest seasons of IDR 3.167.351.027.451 rounded up to IDR 3.200.000.000.000, -

2. By taking a sample from a warehouse research in West Java, the income obtained from warehouse rentals for the warehousing paddy is ((Rp133+200 profit margin x 12 Months) x 255.593.200 Kg = Rp 1.021.350.427.200,-)

3. Operating Costs for:

3.1 Maintenance 5% of income

3.2 Salary 20% of income

3.3 Electricity 5% of revenue

3.4 Operational increase costs 5% of revenue

3.5 Environmental impact analysis, Traffic and Accident Handling Fees Rp900,000,000 per year and the total cost per year is IDR 358,372,649,520

4. Payback Period 3 years 2 months

5. Net Present Value (Setiajatnika & Gunadi, 2020) with Positive 14% Interest IDR 95,182,201,358

6. Internal Rate of Return (IRR) positive at 0.036 (Setiajatnika & Gunadi, 2020)

7. Profitability Index is greater than 0 which is 3.19

8. Return On Investment (ROI) 31.3%

C. Investment In Rice Processing and Milling

Based on a study on rice processing and milling in Bondowoso Regency (Riyanti, Ibrahim, & Baroh, 2021), it is known that the Unit Rice Processing Organic Botanic cost investment is amounting to IDR 2.223.900.000. The cost of investment consist from the development one building unit for office building and milling area of 600 m², manufacture floor drying grain, dryer building or building drying grain with wide of 300m² as tools of production,

including the facilities of office and others. The operations cost for produce by the Rice Processing Unit Organic in every year that is IDR2.288.931.250.

In processing and milling of the rise factory by taking the results of the study, the Rice Processing Unit Organic that they have an employee as many as 8 people employees, consisting of 3 employees man on assign to arrange the machine milling rice, 3 employees on assign to set the drying process of grain dry by use of manual technology and machine of dryer, 2 worker woman on assign to sort rice that has been grinded for quality rice. The system of payment of wages that is conducted payment by daily basis, with working hours started 07.00 until 16.00. For the salary of given for man wages of Rp50,000 per day,

while for woman given wages of Rp30,000 per day. The average (\pm) total costs incurred in every year that is of IDR129.900.000.

Based on the data from the dry milled unhulled rice (Gabah Kering Giling, GKG) according to (Kalsum, Sabat, & Imadudin, 2020), from 1 Kg of dry unhulled rice to 62.74% of rice. Thus, it can be assumed that if the production increase of 40% of grain from 255,593,200 Kg is converted, it will be 160,359,173.68 Kg in total. The assumption is that the price of rice is Rp. 5,000 Kg and the selling price of rice is Rp. 9,000 per Kg. The total investment required is IDR1.300.000.000.000,- and the annual sales reach Rp 1.603.591.736.800,-

The Positive Net Present Value can be calculated (Atrill, 2020) as cash flow below:

Year	Cash in Flow	CoF in Adj Infl 2,3%	Net Cash in Flow	Rate 14%	Present Value
	Investment				(Rp1.300.000.000.000)
1	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,8772	Rp283.514.829.430
2	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,7695	Rp248.697.218.798
3	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,6750	Rp218.155.455.086
4	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,5921	Rp191.364.434.286
5	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,5194	Rp167.863.538.847
6	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,4556	Rp147.248.718.287
7	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,3996	Rp129.165.542.357
8	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,3506	Rp113.303.107.331
9	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,3075	Rp99.388.690.641
10	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,2697	Rp87.183.061.966
	16.035.917.368.000	12.803.848.312.500	3.232.069.055.500		Rp385.884.597.029

The Net Present Value of the Investment in rice processing and milling is positive at level Rp385.884.597.029

The two approximations of Internal rate of return in between 20 percent and 25 percent. Both positive and negative describe are below:

Year	Cash in Flow	CoF in adj infl 2,3%	Net Cash in Flow	Rate 20%	Present Value
	Investment				(Rp1.300.000.000.000)
1	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,8333	Rp269.339.087.958
2	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,6944	Rp224.449.239.965
3	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,5787	Rp187.041.033.304

4	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,4823	Rp155.867.527.754
5	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,4019	Rp129.889.606.461
6	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,3349	Rp108.241.338.718
7	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,2791	Rp90.201.115.598
8	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,2326	Rp75.167.596.332
9	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,1938	Rp62.639.663.610
10	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,1615	Rp52.199.719.675
	16.035.917.368.000	12.803.848.312.500	3.232.069.055.500		Rp55.035.929.376

And,

Year	Cash in Flow	CoF in adj infl 2,3%	Net Cash in Flow	Rate 25%	Present Value
	Investment				(Rp1.300.000.000.000)
1	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,8000	Rp258.565.524.440
2	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,6400	Rp206.852.419.552
3	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,5120	Rp165.481.935.642
4	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,4096	Rp132.385.548.513
5	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,3277	Rp105.908.438.811
6	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,2621	Rp84.726.751.048
7	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,2097	Rp67.781.400.839
8	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,1678	Rp54.225.120.671
9	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,1342	Rp43.380.096.537
10	Rp1.603.591.736.800	Rp1.280.384.831.250,00	323.206.905.550	0,1074	Rp34.704.077.229
	16.035.917.368.000	12.803.848.312.500	3.232.069.055.500		-Rp145.988.686.718

D. Container Port

Based on the cash management study at PT Pelindo Indonesia branch Parepare in 2014-2017 according to Hasdiana (Hasdiana, 2021) the cash receipts experienced are fluctuation . From the results of cash management at PT Pelindo Indonesia branch Parepare in 2014-2017 it is known that the receipt cash inflow of the company's is from activity of operation. For the construction of containers and ports activities, it is necessary to consider to waiting for investment in fertilizers, warehousing and grain milling to draw analysis.

Conclusion

Based on the analysis of the investment opportunities in organic fertilizer of the investment of IDR 500 billion, warehouse receipt system investment of IDR 3.200 trillion, and rice processing and milling investment of IDR 1.300 trillion using Swot Analysis and Financial Analysis, the project of the organic fertilizer, the warehouse receipt system and rice processing and milling investments are feasible to continue with the positive NPV, the IRR upon NPV rate, the payback, the profitability index and return on investment are feasible. The capitalizations of the projects totally is IDR4 trillion (in word as Four Trillion Rupiahs)

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