

## PROBLEM ANALYSIS OF THE DEVELOPMENT OF PALM OIL PLANTATIONS PT. AGRO SYNERGY NUSANTARA KEBUN UJUNG LAMIE, NAGAN RAYA REGENCY

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### ABSTRACT

Oil palm is a plantation crop that produces vegetable oil while increasing the economy of people in developing countries, including in Indonesia, including PT. ASN is located in Nagan Raya district, but various problems are faced in developing the oil palm plantation. This research was conducted with the aim of looking at the various problems faced by PT. ASN Nagan Raya district in the development of oil palm plantations, using 11 staff respondents and employees of plantation companies, the results of this study indicate that the problem of developing PT. ASN at Ujung Lamie Nagan Raya Gardens are low productivity, low human resources, unstable finances, lack of fertilization, poor road infrastructure, lack of discipline, Inadequate facilities, many vacant areas, attacks by pigs and porcupines during planting, lack of harvesting bridges, high fertilizer prices and educational factors. Solving these various problems can develop plantations in accordance with the company's business objectives.

Keywords: *Oil palm, Plantation issues, Prospective analysis*

### 1. INTRODUCTION

Indonesia is no stranger to the oil palm plant and has been declared the largest palm oil producing country (Otto Hospes, 2014) Palm oil has been one of the most important basic ingredients since the 1970s (Mohamad F. Hasan and Michael R, 2016). Palm oil also plays a role in various food and non-food industries (Nuryanti.S, 2008), 80% of the food industry, 19% of the cosmetic industry, 1% of which is used by biodiesel factories for renewable energy (MK Swandi, Periadnadi, and Nurmiati, 2025). Indonesia is the largest cultivating and exporter of palm oil in the world and Malaysia is estimated at 45 million tons (Syahril et al., 2020) thus contributing 47% of the total world palm oil cultivation (Rodrigo Goyena and AG fallis, 2019). Therefore Indonesia itself has 240 inhabitants of which more than 46% work and manage the agricultural sector which supports the Indonesian economy and contributes foreign exchange to the country (Gurnita, 2016: 3) and plays a very large role for the survival of the Indonesian people (Situmorang and Munardi, 2018) and being one of the first major producers of palm oil in the world plays an important role in the supply of world vegetable oil (Fauzi et al., 2012). Oil palm plantations are currently being managed by private individuals and the community at 52% who do not have sufficient capacity to manage themselves, 6% by state-owned companies and the plants themselves based on GAPKI records (M. hudori, 2017). 3) and play a very large role for the survival of the Indonesian people (Situmorang and Munardi, 2018) and being one of the first major producers of palm oil in the world plays an important role in the supply of world vegetable oil (Fauzi et al., 2012).

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themselves, 6% by state-owned companies and the plants themselves based on GAPKI records (M. hudori, 2017).

In other words Indonesia has the opportunity to become a market leader and the prospects for the agro-industrial market are wide enough where the second largest destination for exporting palm oil from Indonesia is the European Union in 2012 and is Indonesia's third largest source of income (Yose R. Damuri and Creina, 2015). Palm oil is an agribusiness-based plantation sub-sector that provides high added value to the economic sector, the agribusiness sector in question is able to create jobs that play a major role in reducing unemployment rates (Gumbira and Febriyanti, 2005), and plays an active role in creating community welfare (Fauzi et al., 2012). Partisan trade grows 8.5% annually. The main export raw materials are agricultural products, especially palm oil and its derivatives (Bustanul Arifin and Komang Audina Permana Putri. Development of oil palm plantations in Indonesia very rapidly because the demand for palm oil in Europe is very high, the area requires 6 million tons of palm oil per year (Achmad et al., 2020) but Indonesia is only able to send 2.5 million tons per year so that it attracts Indonesia's attention to pay attention to oil palm plantations, Latin America is the largest oil supplier in Europe (Verdinand Robertua, 2019). The lack of data on shipments of Indonesian crude oil to the European Union has led the government to indicate that there is a black campaign linking palm oil to health as well as the environment (Adam Tyson and Eugenia Meganingtyas, 2020). In this case the growth and development of palm oil industrial land is a natural resource that can be renewed in the form of fertile land, productive workforce and abundant sunshine throughout the year (Pahan, 2006) contained in (Arysad and Maryam, 2007), oil palm itself has an important meaning in the development of national or Indonesian plantations (Fauzi, 2012) contained in (Bindrianes et al. , 2017b). Oil palm plantations can reduce income inequality between groups of people, reduce inequality between districts/cities, create an economic multiplier effect, increase the prosperity of rural communities and exports of CPO products and stimulate regional economic growth (Almasdi Syahza, 2007). The socio-economic impacts of the development of oil palm plantations are 1. Absorption of labor; 2. Development of economic structure; 3. Increasing people's income; 4. Providing employment; 5. The opening of village access to other villages (F. Gunarwan Suratmo, 2004:115). The factors causing the rapid development of oil palm plantations include: 1. Prices of CPO and palm kernel oil/kernel oil increased sharply due to increased consumption of edible oils and fats in China and India; 2. Palm oil and palm kernel oil are vegetable oils that have a very wide market share in the food, oleochemical and health industries; 3. Oil palm itself is a formidable competitor to vegetable oils from other crops because it has the highest productivity per hectare and is efficient in the use of solar energy into oil (World Growth, 2011).

With the development of plantations in Indonesia, especially oil palm, problems are not spared where the latest global issue is the EU Directive for Indonesian palm oil production, especially CPO, which caused greenhouse gas emissions in 2011, releasing more carbon, just like sunflower oil, which exacerbated the global greenhouse effect (Balu Nambiappan et al., 2018). Besides that, the increase in arable land decreased, the environment, halting the use of natural forests, peatlands into oil palm fields, extinction of biodiversity and forest and grassland fires. The Indonesian government is trying to be more open in addressing environmental problems related to the expansion and development of the palm oil and CPO derivative sectors (Suwarno and Windratmo, 2009). Oil palm plantations in Indonesia also have problems in the running of palm oil production, namely hard soil. Hard soil, of course, cannot be planted with plants, including oil palm, because they cannot optimize the development of plant roots and vice versa. Soil characteristics in oil palm plantations are needed to know the technical cultural measures that will be carried out in order to ensure the sustainability of land productivity (RR Darlita, Joy and Sudirja, 2017). To get high quality palm oil, supporting factors are needed, one of which is soil fertility (Afrianti, S. et al., 2019). Excessive use of fertilizers is also one of the problems of oil palm plantations because the environment is not good, the water will be polluted, the soil becomes hard, destruction of microorganisms in the soil and making pests and weeds resistant to chemicals so that

their populations increase and endanger the condition of the oil palm area itself, effective fertilization if most of the fertilizer nutrients are absorbed by plants (Poeloengan et al., 2003), macro nutrients in oil palm plants it is given through chemical/inorganic fertilizers by sowing it on plant plates (Bahari, 2010). Incorrect use of peatlands as oil palm lands, if done carelessly using burning ash will cause the function of peatlands to reduce water regulation and carbon storage. Improper management and utilization of peatlands, such as burning, making drainage, logging and mining causes degradation of the chemical, physical and biological properties of peat (Masganti et al. , 2014a; 2017; Masganti and Susilawati, 2018). These changes can affect low productivity, increase environmental pollution, release of GHGs and abandoned land (Las et al, 2012; Masganti at al, 2017; Masganti and Susilawati 2018). Damaged degradation is unable to hold water/hydrophobic (Masganti, 2012) and is also caused by land drainage (Masganti et al., 2017; Masganti and Susilawati, 2018). Pests and plant diseases are also a problem for Indonesian oil palm plantations, if not addressed immediately, it will greatly affect the yield and quality of oil palm fresh fruit bunches (FFB). Pests/insects (pest) in the world of agriculture are known as enemies of farmers (Rukmana, 2002:14).

Plants that are attacked by pests have an effect on decreasing metabolic/physiological functions in plants so that abnormal growth and even plant death (Rukmana, 2002). The management of palm oil cannot be separated from what is known as palm waste, (solid waste and liquid waste). This is also a factor in the problems of oil palm plantations. If the company does not manage this waste properly, it will have a rapid impact on the surrounding environment, even the soil. Solid waste in the form of empty fruit bunches, which account for about 20% of the processed FFB, is organic matter rich in nutrients (Directorate of Agricultural Product Processing, 2006). Liquid waste has a number of ingredients needed by plants such as N, P, K, Ca and Mg which have the potential to be a source of plant nutrients (Budianta, 2005). The management of palm oil cannot be separated from what is known as palm waste, (solid waste and liquid waste). This is also a factor in the problems of oil palm plantations. If the company does not manage this waste properly, it will have a rapid impact on the surrounding environment, even the soil. Solid waste in the form of empty fruit bunches, which account for about 20% of the processed FFB, is organic matter rich in nutrients (Directorate of Agricultural Product Processing, 2006). Liquid waste has a number of ingredients needed by plants such as N, P, K, Ca and Mg which have the potential to be a source of plant nutrients (Budianta, 2005). The management of palm oil cannot be separated from what is known as palm waste, (solid waste and liquid waste). This is also a factor in the problems of oil palm plantations. If the company does not manage this waste properly, it will have a rapid impact on the surrounding environment, even the soil. Solid waste in the form of empty fruit bunches, which account for about 20% of the processed FFB, is organic matter rich in nutrients (Directorate of Agricultural Product Processing, 2006). Liquid waste has a number of ingredients needed by plants such as N, P, K, Ca and Mg which have the potential to be a source of plant nutrients (Budianta, 2005). Solid waste in the form of empty fruit bunches, which account for about 20% of the processed FFB, is organic matter rich in nutrients (Directorate of Agricultural Product Processing, 2006). Liquid waste has a number of ingredients needed by plants such as N, P, K, Ca and Mg which have the potential to be a source of plant nutrients (Budianta, 2005). Based on the problems that have been described, this research was conducted with the title "Analysis of Problems in the Development of Oil Palm Plantations PT. Agro Synergy Archipelago Kebun UjungLamie, Nagan Raya Regency.

## 2. RESEARCH METHOD

### 2.1. Time and Location of Research

This research was conducted in September 2021 - December 2022 at the oil palm plantation of PT. AGRO SINERGI NUSANTARA The Ujung Lamie Garden Unit is located in Ujung Lamie Village, Darul Makmur District, Nagan Raya Regency.

### 2.2. Objects and Scope of Research

The object of this research was carried out on employees with permanent staff positions at Ujung Lamie Gardens, with the scope of research analyzing problems of oil palm plantations at PT. Agro Sinergi Nusantara Ujung Lami plantation with its small perafdeling location.

#### *Research data*

The data used in this study are primary data and secondary data, (Malhotra, 2005) Primary data obtained from the results of respondents' answers, related agencies at PT. The ASN of Kebun Ujung Lamie Unit which is guided by a list of questions (questionnaires) that have been provided previously such as the characteristics of the respondents, where this is meant to obtain complete and accurate data information, primary data collected data by observation includes problems or factors that become obstacles and obstacles in the Development of Oil Palm Plantations at PT. Agro Synergy Archipelago. While Secondary data is on information collected from existing sources, (hidayat, 2009) obtained from literature review and data collection at related private institutions.

### 2.3. Population and Sample

The population of this study were respondents from permanent employees with staff positions at PT. ASN Ujung Lamie, totaling 11 people, uses a deliberate system and is often also called a full sample with selected elements because it is expected to fulfill research objectives. Where it is said, (Churchill, 2005) to a certain person which is taken from the staff of permanent employees in the manager's office and the 3rd department in one of the branches of PT. Agro Sinergi Nusantara Ujung Lamie Plantation Unit (Munizar & Tangakesalu, 2019).

### 2.4. Data analysis method

The data analysis model used in this research is prospective analysis. Prospective analysis is used to predict the possibilities that will occur in the future (H. Hardjomidjojo, 2002) contained within (Yulpi Yuandra et al., 2021). The function of the prospective analysis itself is to prepare important strategic actions and see whether changes are needed in the future. Prospective analysis is a development of the Delphi method which uses the opinion of groups who understand and understand the problem well for decision making and policy strategy. (H. Hardjomidjodo, 2002) The prospective analysis system in this study is as follows (Yulpi Yuandra et al., 2021):

a. System-I

In this system, namely employees/staff as respondents who were asked to state all the problems (judgments) that became the identification of factors that could influence the achievement of research objectives. Factors that hindered the development of coconut plantations in PT. ASN Kebun Ujung Lamie. Every 1 problem factor is scored, the sum of the scores on each factor will be ranked and averaged. Factors that have scores above the average are taken as variables for further analysis using prospective analysis techniques.

**Table 1. Problem Score Guidelines**

Score	Information
1	Not important
2	Not too important

3	Important
4	Very important
5	Very, Very Important

b. System II

1. Determining the purpose of the system under study, the system under study specifically needs to be understood by all involved so that they have the same point of view on what is being studied

Identification of Factors (Variables) that influence. The influential factors referred to will achieve the research objectives of PT. The ASN is a problem faced by the company, by requesting participation in identifying factors/variables that inhibit the company's development.

### 3. RESULTS AND RESEARCH

#### 3.1. Profile of PT. Agro Synergy Archipelago

PT. Agro Sinergi Nusantara itself is a subsidiary of PTPN I and PTPN IV which were established based on the Ihd Notary Deedna Nida Marbun, SH No. 12 April 8 2011, the deed of establishment of the company was ratified by the Ministry of Law and Human Rights of the Republic of Indonesia through decision letter No. AHU-25181.AH01.01 of 2011 dated 19 May 2011 and has been announced in the State Gazette of the Republic of Indonesia No. 72 dated 7 September 2012. The Company's Articles of Association have always been amended several times, so that an agreement can be made based on Deed No. 01 September 24 2016 and has received approval from the RI Ministry of Law and Human Rights NO. AHU.AH.01.03-0093409 year 2016 dated 27 October 2012. The collaboration to form this company was carried out as a joint venture between PTPN 1 and PTPN IV so that it was named PT Agro SinergiNusantara. In the plan, both parties will build and manage plantations and Palm Oil Mills (PKS) in accordance with Memorandum of Understanding Number 04.01.9/MoU/04XII/2009 which was signed by the parties on December 7 2009, with a composition of share ownership of 49.4% each for PTPN I and 50.6% for PTPN IV and have started operating since June 1 2011.

Head office of PT. ASN is at Jalan Ujong Beurask No. 25, Lapang, Johan Pahlawan West Aceh, Aceh, PT. Agro Sinergi Nusantara is a state-owned oil palm company (BUMN) where Kebun Jaya Sejahtera has a stated area of 1,619 ha which is divided into three (3) Afdeling and PT. ASN itself has one (1) Palm Oil Mill (PKS) where fresh palm fruit is converted into CPO (Crude Palm Oil) and CPKO (Crude Palm Kernel Oil) in units in Batee Puteh, Aceh Jaya.

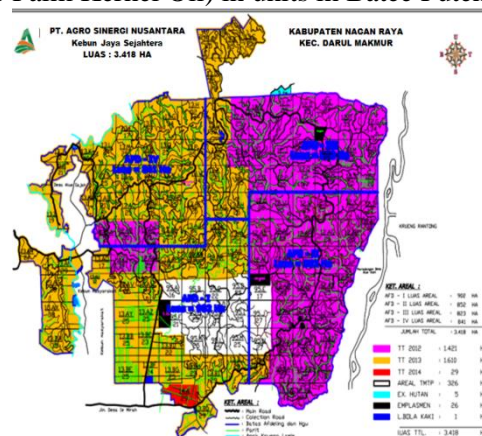


Figure 2. Map of PT. Agro Sinergi Nusantara Ujung Lamie plantation unit

PT. The ASN of Ujung Lamie Gardens unit is a state-owned company (BUMN) which is located in Darul Makmur District, Nagan Raya Regency, so that it has the principle of encouraging the welfare of the surrounding community, especially the workforce owned by the plantation by

providing and providing facilities and infrastructure such as two Musollah building, a resident's building, a school bus and other harvesting equipment.

### 3.2. Description of Respondents

The identity of the respondent is a worker (permanent staff) at PT. ASN in general is a staff of permanent employees who are ready to be placed wherever the location or branch of PT. From these ASNs, we can find out the differences between each with a background of education level, age and length of work, as follows.

**Table 4. Description of Respondents**

No	Characteristic	Amount	Percentage
1	Education		
	a. high school	4	36,36
	b. D3	1	9,09
	c. S1	6	54,54
<b>Total</b>		<b>11</b>	<b>100.00</b>
2	Length of Service (Year)		
	a. 1-5	2	18,18
	b. 10-15	3	27,27
	c. 20-26	6	54,54
<b>Total</b>		<b>11</b>	<b>100.00</b>
3	Age (Years)		
	a. 30-35	1	9,09
	b. 36-40	3	27,27
	c. 41-55	7	63,64
<b>Total</b>		<b>11</b>	<b>100.00</b>

Based on table 2, it shows that the highest age of permanent employee staff is 41-55 years which is 63.64% with a total of 7 people and the lowest age is between the ages of 30-35 years of 9.09% or 1 person. This age is referred to as productive age (17-55 years) both physically and biologically, so it is very supportive in efforts to increase the productivity of employee staff. decrease, (Hasanah & Widowati, 2011). The education level of the permanent employee staff is the highest at Bachelor level (S1) at 54.54% with a total of 6 people and the lowest education level is Diploma (D3) or 1 person. From the data table, the company determines the level of education for the workforce permanent employee staff. It is known that the highest length of service of permanent employee staff is 20-26 years of service, namely 6 people or 54.54% and the lowest length of service of permanent employee staff is 18.18% or 2 people. Work that has been repeatedly done in the long term will make a person more agile and skilled in carrying out their duties (Bindrianes et al., 2017a).

### 3.3. Variable analysis of the problem factors of oil palm development

On this analysis stage where problem factors are identified that can hinder the development of oil palm plantations is carried out in system-I, namely scoring one problem factor, the sum of the scoring on each factor will be arranged in a ranking and average. Factors that have scores above the average are taken as variables for further analysis with prospective analysis techniques.

**Table 5. Variables Inhibiting Oil Palm Development**

No	Variable	Score average	Rank
1	Lack of fertilization	4.64	1
2	Many vacant areas	4,27	2
3	Low human resources	4,27	3
4	Unstable finances	4,18	4
5	Lack of harvest bridge	4,18	5
6	Pigs and porcupines attack at the time of planting	4,18	6
7	Low productivity	4,18	7
8	Road infrastructure is not good	4.00	8
9	Lack of discipline	4.00	9
10	Fertilizer prices are high	4.00	10
11	Education/training factor	3.91	11
12	High cost of production	3.91	12
13	Theft around the plantation area	3.91	13
14	Inadequate facilities	3.91	14
15	Lack of transparency on employee performance	3.91	15
	Average	3.84	
16	Community claims on the company's HGU land	3.82	16
17	Lack of concern for work	3.82	17
18	Weed attack on oil palm	3.73	18
19	Lack of availability of maintenance workforce	3.55	19
20	Less water flow	3,36	20
21	High rainfall climate	3.09	21
22	Flood	2.91	22
23	Hilly topography	2.64	23

Based on the table above, there are 23 variables recorded based on the results of the respondents who are the problem factors, but only 15 variables are followed up based on prospective analysis with system-I where variables below the average score are not used (Yulpi Yuandra et al., 2021). As well as in Quadrant III (free/unused variables) there are 3 variables where the variables in question are; 1. Lack of transparency on employee performance; 2. The cost of production is high; 3. Theft around plantation land. Variables that are in quadrant III (independent/unused variables) show the existence of factors that have low influence but also have low dependence so that they are considered neglected variables (Bourgeois and Jesus, 2004).


**Table 6. Global Direct Influence, Global Dependence, Global Power and Global Power Weighted Scores for each variable.**

No	Variable	Global Direct Influence	Keterangan Tungan Global	Global Power	Weighted Global Forces	rank
1	Low productivity	1.40	1.39	0.5	1.38	1
2	Low HR	1.19	0.91	0.5	1.33	2
3	Unstable finances	1.20	1.06	0.4	1.24	3
4	Lack of	0.86	0.68	0.4	1.20	4

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	fertilization					
5	Poor road infrastructure	1.06	0.80	0.4	1.19	5
6	Lack of discipline	1.08	0.87	0.4	1.18	6
7	Inadequate facilities	1.25	1.46	0.4	1.14	7
8	Many vacant areas	1.16	1.19	0.4	1.13	8
9	Pigs and porcupines attack at the time of planting	0.87	0.49	0.4	1.09	9
10	Lack of harvest bridge	0.86	0.68	0.3	0.94	10
11	Fertilizer prices are high	0.86	0.76	0.3	0.89	11
12	educational factor	0.91	0.99	0.3	0.86	12
13	Lack of transparency on employee performance	0.71	1.01	0.2	0.58	13
14	High cost of production	0.66	1.18	0.2	0.47	14
15	Theft around the plantation area	0.58	1.6	0.1	0.40	15

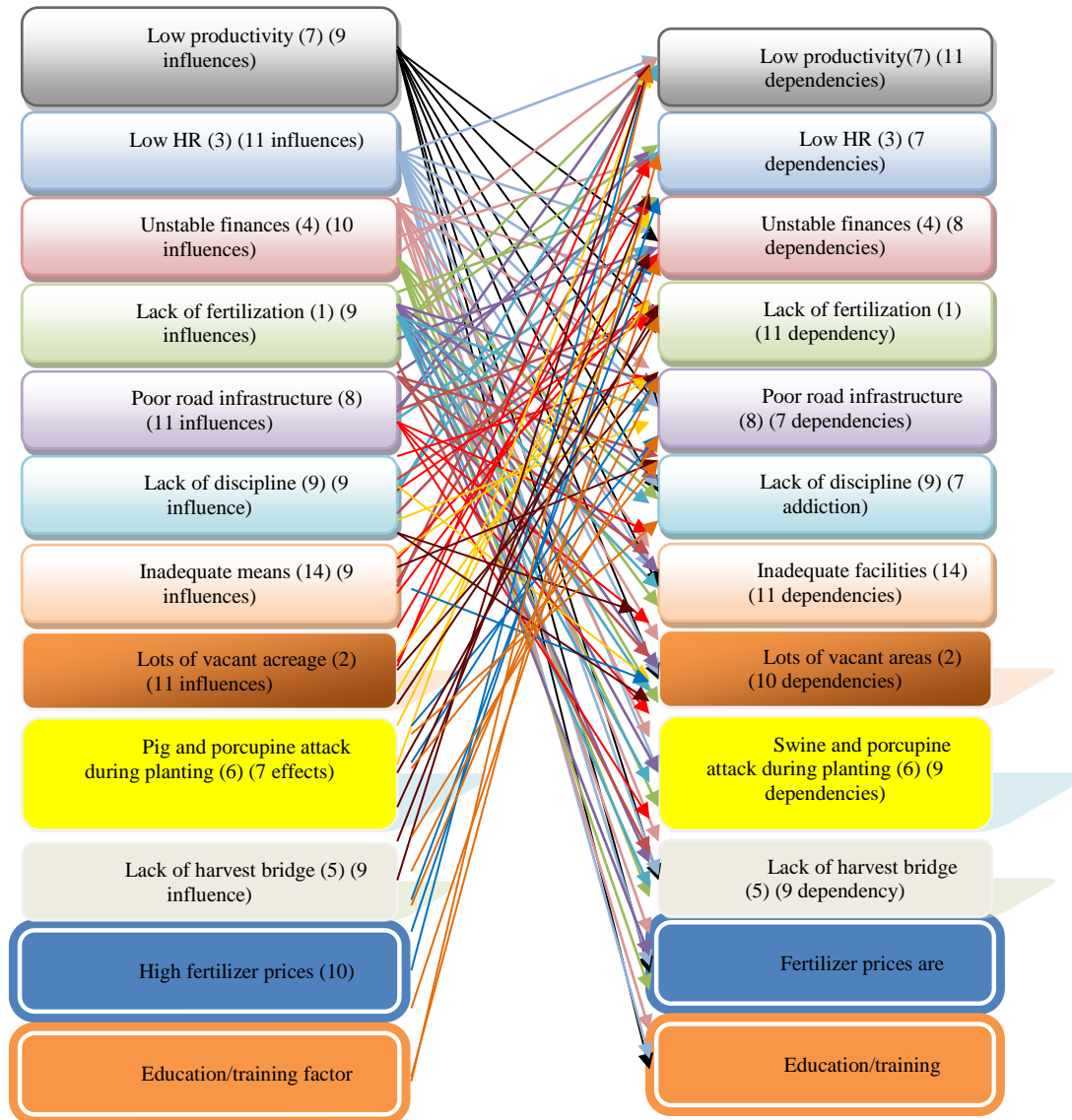
Information:

 :variable to be discarded/removed

With the information on the distribution of variables contained in the four quadrants of the prospective analysis of influence and dependency factors, the prospective analysis can also inform the strength of the weighted global variable which is a description of the score to determine the ranking level of the variable. Variables that have high weighted global scores are strong variables, namely those that have high or strong influence but low dependence (Apriyani et al. 2014). Based on the results of the analysis of direct, indirect and global influences in Figure 5, the variables in order of scores 1 to 12 (table 5) are in quadrants I, II and IV which have a strong influence. The variables in the 3 quadrants (I, II, IV) are strong variables that will be selected as the determining variable in the next analysis (Bourgeois and Jesus, 2004). However, variables with order 13, 14 and 15 or those in quadrant III have a weak influence and dependence so that they can be ignored or discarded for the next stage of analysis (Bourgeois and Jesus, 2004). In the prospective analysis of the development strategy for oil palm plantations in Ujung Lamie, Nagan Raya, based on the judgment of permanent employee staff, it shows that the variable distribution system tends to cluster in quadrants I, II and IV which indicates that the system built is stable because it shows a strong relationship, the driving variables regulate the variables that are strongly bound (Bourgeois, 2007).



Table 6 also shows that the Low Productivity variable has the highest weighted global power score followed by other variables. This shows that these variables have a strong influence and a strong dependency so that if resolved it will have the opportunity to solve the problem of developing Ujung Lamie oil palm plantations, Nagan Raya. The relationship of influence and dependence between the selected key variables is in table 6, described in Figure 4. Figure 4 in question is a unification between table 4 and the selected variables based on weighted global forces with table 6. The influence and dependence of variables shows that in general almost all selected variables influence and have dependencies with other variables.



**Figure 4.** Influence and dependency models between selected key variables

This mutual influence situation illustrates that a change in one variable will have an effect on other variables, so that it can improve/change a variable and affect other variables as a multiplier effect that is directly or indirectly related and encourages the movement of activities or other variables. (Sarjanti et al, 2019). This mutual influence or multiplier effect will become the basic mechanism for local or regional development (Domanski and Gwosdz, 2010). This also includes the development of the Agro Sinergi Nusantara oil palm plantation in Ujung Lamie Nagan Raya.

## 4. CONCLUSIONS AND SUGGESTIONS

### 4.1. CONCLUSION

PT. The problem-based ASN Kebun Ujung Lamie Nagan Raya has 12 selected variables with the highest ranking order based on a weighted global score which is a problem factor in the growth and development of a plantation company, namely: 1. Low productivity, 2. Low human resources 3. Unstable finances 11 12. The price of fertilizer is high, 12. The education factor.

### 4.2.SUGGESTIONS

It is necessary to carry out an evaluation of activities and improvement both for employee staff and vice versa so that it can minimize the non-development of plantations and anticipate factors that are inhibiting the growth and development of these plantations. The plantation company must be more active in communicating with staff employees as well as with field employees, especially in order to better understand what are the personal obstacles and obstacles in the plantation company by using a time control system once a month or a maximum of once in three months.

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