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CONSTRAINTS ON OIL PALM PLANTATION IN KANAGARIAN RABI JONGGOR, GUNUNG TULEH DISTRICT, WEST PASAMAN REGENCY

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ABSTRACT: Palm oil is one of the mainstay commodities for the national economy and is the country's largest foreign exchange earner in the non-oil and gas sector. Oil palm plantations in West Pasaman were originally developed by companies that established their companies in West Pasaman, this oil palm planting was due to the climatic conditions of West Pasaman which were very suitable for various plantation commodities. Nagari Rabi Jonggor is one of the nagari located in Gunung Tuleh District, West Pasaman Regency which has a large oil palm plantation. There are several obstacles in oil palm plantations in Kanagarian Rabi Jonggor namely; suitability of land for oil palm, seeds or superior varieties, access to fertilizers, labor, plant cultivation technology, marketing of products, and capital. By conducting an analysis using the Interpretative Structural Modeling (ISM) model, there are four sub-elements that have high driver power and low dependency, namely: E1 (Land suitability for oil palm), E7 (capital), E2 (Superior seeds or varieties), and E3 (Access to fertilizers). Obstacles in oil palm plantations in Nagari Rabi Jonggor, Gunung Tuleh District, West Pasaman Regency, there are five levels, and the priority directions in overcoming obstacles in oil palm plantations are land suitability for oil palm and capital.

Keywords: Kendala, perkebunan kelapa sawit, Nagari Rabi Jonggor

1. INTRODUCTION

Palm oil is one of the mainstay commodities for the national economy and is the country's largest foreign exchange earner in the non-oil and gas sector. The problem faced by the palm oil industry at the farm level is the limited investment for rejuvenation [1-4]. Oil palm plantations can improve the rural economy. Economically, it will create purchasing power in rural areas, which in turn will increase the demand for goods that people need.

Oil palm plantations in West Pasaman were originally developed by companies that established their companies in West Pasaman, this oil palm planting was due to the climatic conditions of West Pasaman which were very suitable for various plantation commodities. After seeing the prospects for the plantation, some of the community began to try to plant oil palm in their plantation land, at the beginning the production of oil palm was not very profitable for the farmers, instead there were farmers who lost money, this was because the farmers used oil palm seeds that were not good enough to produce poor yields. [5-7]. Investment in the palm oil sector in Indonesia is still facing problems to optimize it into a conducive business climate. This leads to regulations that are still inconsistent between one legal regulation and another. Oil palm plantations have the potential to be integrated with Bali cattle farming businesses [7-10]. Unrelated diversification strategies that can be carried out are as follows: When the oil palm plants are 1-3 years old, where the leaf crowns are not yet wide, farmers can plant secondary crops such as corn, curly red chilies, bird's eye chilies, and various types of vegetables. 2. When the oil palm is 1-3 years old, farmers can also plant Barangan bananas. 3. When the plantations produce namely when the oil palm is 4-26 years old, farmers can plant cacao (cocoa) intercropping. 4. Raising free-range chickens at the plantation site. 5. Some farmers have a pond in the oil palm plantation so that it can be used to raise fish or ducks.

Changes in the function of forest land into oil palm plantations indicate changes in soil chemical properties including, pH, C_organic, cation exchange capacity, total N and organic matter. [11-14]. The expansion of oil palm plantations has

resulted in changes in forest land cover which have an impact on ecological changes in an area. Expansion of oil palm plantations has had an impact on changes in air temperature, flooding, loss of biodiversity and environmental services. In addition, the existence of oil palm plantations also has a negative impact, especially on the ecology. This is due to the clearing and conversion of land into oil palm plantations which are suspected of eliminating or reducing biodiversity.

The low productivity and yield quality is mainly caused by cultivation factors, including: land suitability and climate/weather, the use of varieties that are not recommended and have experienced genetic degradation, the use of fertilizers (especially fertilizers containing chloride), the excessive use of certain pesticides, cultivation techniques and weaknesses in harvest and post-harvest handling [15-16].

2. RESEARCH METHODS

2.1 Time and place

This research was conducted for 4 months, from February to May 2023. The research location was located in Nagari Rabi Jonggor, Gunung Tuleh District, West Pasaman Regency.

Nagari Rabi Jonggor is one of the Nagari located in Gunung Tuleh District with an area of 289.98 km2 or 63.88% of the area of Gunung Tuleh District. Nagari Rabi Jonggor is astronomically located 00^0 11' N - 00^0 29' S and 99^0 40' E - 99^0 53' E. Nagari Rabi Jonggor consists of 16 Jorongs viz: Sitabu, Rabi Jonggor, Ampang Basa, Bandar, Paroman, Tanjung Durian, Baruh Gunung, Paroman Badar, Bulu Laga, Sibatutu, Guo, Siligawan, Rantau Panjang, Air Dingin, Ampung Sorik, and Sigilawan Menek.

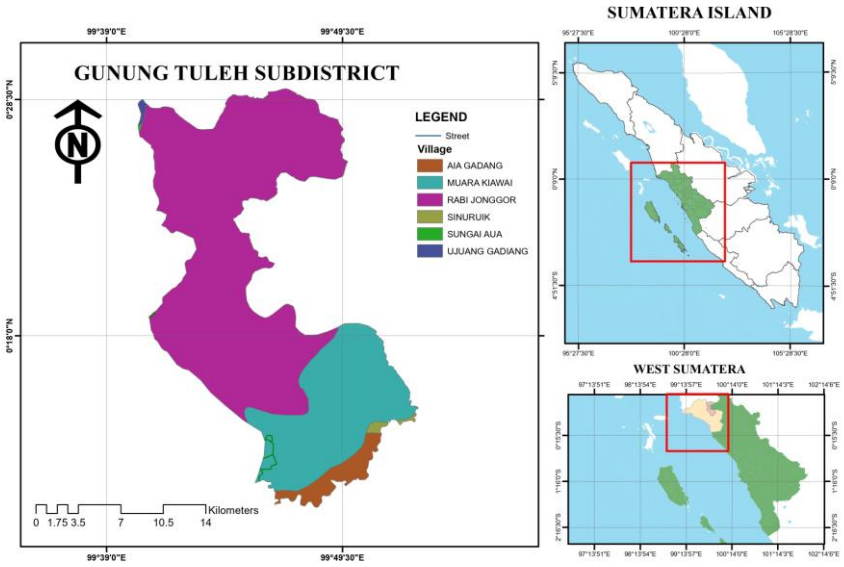

Fig 1. Map of research locations

2.2 Research methods

The research method used is the Interpretative Structural Modeling (ISM) method. The ISM method is very effective for structuring very complex problems, explaining problems, and determining causal relationships. Further explained that there are several steps in the ISM method, namely: (1) breaking down elements into several sub elements; (2) determine the contextual relationship between sub elements; (3) determining the Structural Self Intraction Matrix (SSIM); (4) creation of Reachability Matrix (RM); (5) perform transivity; (6) determine the hierarchical structure vertically; and (7) determine the relationship matrix Driver Power (DP) and Dependence (D). To create an SSIM (Structural Self Interaction Matrix) interaction matrix, a pairwise comparison with the VAXO symbol is performed. Where the symbol has meaning is:

a. V if Eij = 1 and Eji = 0; V = the ith sub element plays a more important role than the jth sub element and not vice versa

b. A if Eij = 0 and Eji = 1; A = the jth sub element plays a more important role than the ith sub element and not vice versa

c. X if Eij = 1 and Eji = 1; X = both sub-elements have the same and interrelated role level values, and

d. O if Eij = 0 and Eji = 0; O = the two sub

elements are not related to each other

Classifies element relationships into four categories, namely:

a. The first quadrant is called autonomous, which consists of sub-elements that have a driver power value (DP) ≤ 0.5 X and a dependence value (D) ≤ 0.5 X. Where X is the number of sub-elements in each element. The sub-elements that are in the first quadrant can be interpreted that the sub-elements are not related/little to the system.

b. The second quadrant is called dependent, consisting of sub-elements that have a driver power value (DP) ≤ 0.5 X and a dependence value (D) ≥ 0.5 X. The sub-elements that are in the second quadrant are sub-elements that depend on the elements in the third quadrant.

c. Quadrant III: Linkage consists of sub-elements that have a driver power value (DP) ≥ 0.5 X and a dependence value (D) ≥ 0.5 X. Where X is the number of sub-elements in each element. The sub-elements included in quadrant III need to be studied carefully, because every action on one sub-element will affect other sub-elements in quadrants II and IV.

d. Quadrant IV: Activator (Independent) consists of sub-elements that have a driver power value (DP) ≥ 0.5 X and a dependence value (D) ≤ 0.5 X. Where X is the number of sub-elements in each element.

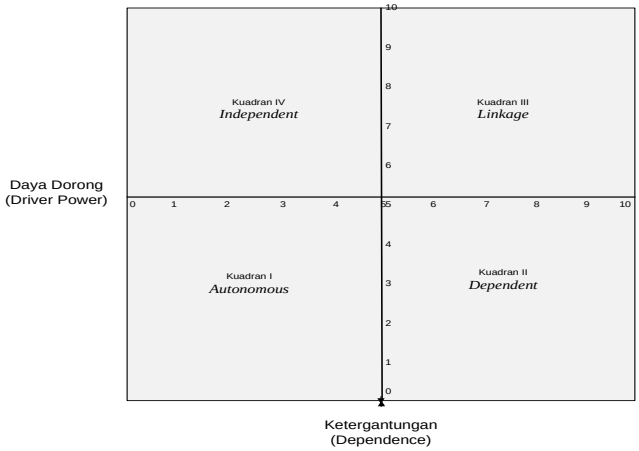

Fig 2. Matrix of driver power and dependence on ISM

3. RESULTS AND DISCUSSION

From the results of discussions with community stakeholders in Nagari Rabi Jonggor, Gunung Tuleh District, West Pasaman Regency, there are several obstacles in the community's oil palm plantations. There are seven sub-elements of constraints on oil palm plantations in Nagari Rabi Jonggor, namely:

E1. Land suitability for oil palm
E2. Superior seeds or varieties
E3. Access to fertilizer
E4. Labor
E5. Plant cultivation technology
E6. Sales of production
E7. Capital
E8. Accessibility

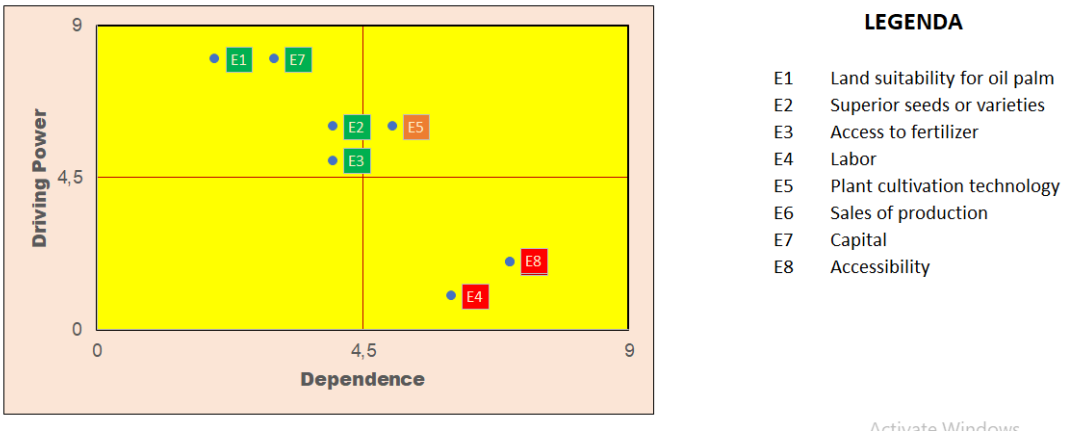

Fig 3. Oil palm plantation constraints

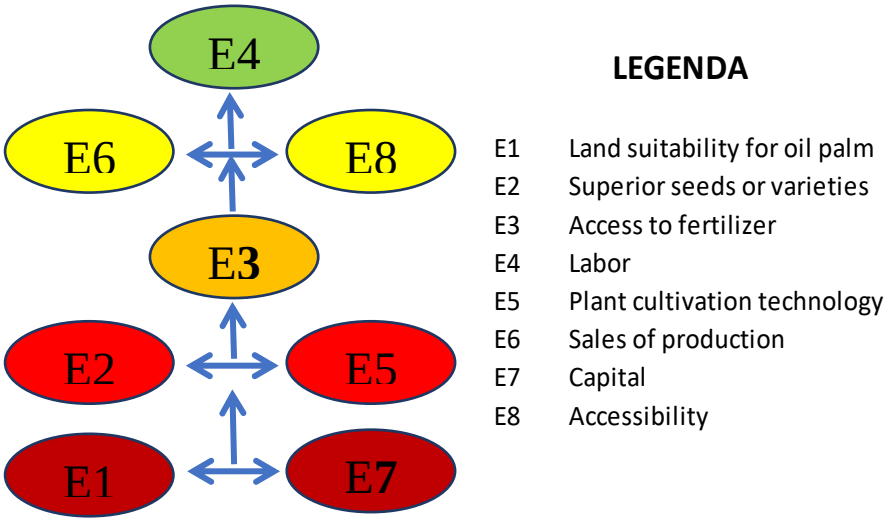

Fig 4. Hierarchical structure of oil palm plantation constraints

Based on the results of the ISM analysis, there are four sub-elements that have high driver power and low dependency, namely: E1 (Land suitability for oil palm), E7 (capital), E2 (Seeds or superior varieties), and E3 (Access to fertilizer). Obstacles in oil palm plantations in Nagari Rabi Jonggor, Gunung Tuleh District, West Pasaman Regency, there are five levels, and priority directions in overcoming obstacles in oil palm plantations are land suitability for oil palm and capital.

The main obstacle that needs to be overcome immediately in oil palm plantations in Nagari Rabi Jonggor is land suitability. Many community oil palm plantations are planted on land that is not suitable, especially the altitude. The people of Rabi Jonggor plant oil palm in areas with elevations above 400 m. Listia, et. al (2019) stated that oil palm can grow optimally in the wet tropics (12^0 LU – 12^0 LS) at an altitude of 0-250 meters above sea level. The duration of bright sunlight is 5-7 hours/day, CH is 1,750-3,000 mm/year, and the average temperature is 25^0-28^0C.

The problem of capital is the main problem faced by farmers, although many farmers have the ability to increase their agricultural output if they do not have adequate capital, these farmers will not be able to develop their agriculture.

4. CONCLUSION

There are several obstacles in oil palm plantations in Kanagarian Rabi Jonggor namely; suitability of land for oil palm, seeds or superior varieties, access to fertilizers, labor, plant cultivation technology, marketing of products, and capital. By conducting an analysis using the Interpretative Structural Modeling (ISM) model, there are four sub-elements that have high driver power and low dependency, namely: E1 (Land suitability for oil palm), E7 (capital), E2 (Superior seeds or varieties), and E3 (Access to fertilizers).

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