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Foresight Strategy for Sustainable Oil Palm Development in East Halmahera Indonesia

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ABSTRACT

The huge contribution of oil palm to the Indonesia's economy and sustainability has been widely discussed and required further study. Nowadays, Indonesia's government is focusing on oil palm development in the east of Indonesia. One of the development sites is East Halmahera. However, the previous relevant studies have not investigated the oil palm development in the east of Indonesia. Therefore, strategy for sustainable oil palm development in East Halmahera is a novel and urgently needed for agricultural development programs in Indonesia. This study aimed to map the position of oil palm as an initiative commodity for development and formulate strategy and policy for sustainable oil palm development in East Halmahera. Sustainable development goals (SDGs) became basis for evaluation criteria of this study. Data were gathered through focused group discussion involving some representatives of key stakeholders such as local community, government and company. Preference Ranking Organization Methods for Enrichment Evaluation (PROMETHEE) and Multi-criteria Policy (MULTIPOL) were applied as data analysis with multi-criteria and prospective approaches. This study found that oil palm is a strategic commodity for regional economic development compared to mining. Furthermore, economic growth, inclusiveness and environmental preservation are foresight policy scenario for sustainable oil palm development in East Halmahera.

1. INTRODUCTION

Oil Palm is a strategic annual crop contributing on the Indonesia's gross domestic product of 3.5% and the non-oil and gas export of 13.5% [1]. Moreover, 4.5 million hectares of land is available in Indonesia and Malaysia for sustainable oil palm development with a production potential of 1.3 million tons per year [2]. The potency encouraged the government to focus on oil palm expansion through extensification in the east of Indonesia. One of the development locations is North Moluccas. 12,500 hectares of land was planned for oil palm development in North Moluccas collaborating with some plantation companies [3].

The potential of oil palm should be supported by further planning and policy. Future planning should be directed towards sustainable development [4]. Development should not only emphasize economic aspect but also social and environmental aspects [5, 6]. The sustainability is not only for present but also for future [7]. Hence, the oil palm development should also be directed towards sustainable oil palm development. However, oil palm has not been unfortunately included as agricultural commodity to regional development planning. Thus, a study focusing on strategy of sustainable oil palm development is urgently required.

Sustainability is a condition of well-managed natural resources to maintain production in the future for the next generation [8]. The current status of oil palm sustainability is still in doubt since oil palm raised social and environmental issues such as air and water pollution, peat land degradation, labour issue, human behaviour changes etc. [9]. The oil palm development in East Halmahera also faced some problems such as refusal and conflict between the local community and the company. The causative factors were the rampant negative campaign of oil palm [10], the lack of transparency regarding land tenure [11, 12] and other factors. It could be solved by the empirical evidence indicating oil palm as strategic option for sustainable development in East Halmahera. The way to acquire the evidence is by conducting a research. However, a study focusing on the topic of oil palm sustainability for East Halmahera has not existed. The point became the urgency of this study.

The sustainability of oil palm is not only the government's responsibility but also community and stakeholders involved in the oil palm development [13]. Therefore, the development planning must be participatory and involve stakeholders in decision-making in order to accommodate aspirations and interests from community, government and company to obtain win-win solution [14, 15]. Multi-criteria and prospective approaches are able to obtain rank of options and foresight strategy for commodity and region development [16-18]. The approaches are compatible with this study. Multi-criteria and prospective approaches were widely applied by the scholars to

create a strategy for development in various regions and commodities such as apiary [19], tourism [20], supply chain [21], agricultural sustainability [22], hydrology and water management [23] and etc. There were not many studies on sustainable oil palm development strategy using these analyses. Several relevant studies applied SWOT, AHP or qualitative analysis to formulate the strategy [24, 25]. Consequently, it could be an innovation for this study.

This study had two aims. First, mapping the position of oil palm as an initiative commodity option developed in East Halmahera. Second, formulating strategy and policy for sustainable oil palm development in East Halmahera. This study was expected to obtain empirical evidence from the stakeholders offered to the local community of East Halmahera regarding sustainable oil palm. Moreover, this study was expected to be a positive campaign for oil palm to reduce the conflict. Strategy and policy created through multi-criteria and prospective approaches were expected as recommendations and policy implications for future development planning to the government of North Moluccas and East Halmahera regarding sustainable oil palm development.

This paper consisted of four sections. The introduction included the background, problem and urgency of this research. The methodology provided information about variables and methods of data collection and analysis. The next section is the result and discussion which explained the findings and further analysis of this research. This paper was finalised with the conclusion consisted of a summary of the whole findings, suggestions and policy implications.

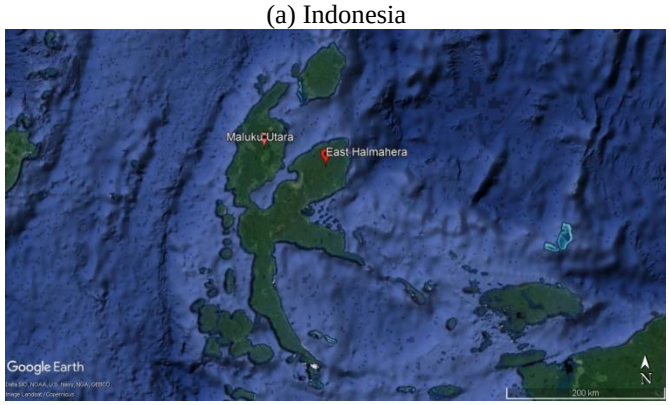
2. METHODOLOGY

East Halmahera is located on the position of 1.33517°N 128.48627°E. East Halmahera was formed in 2003 with an area of 6,538.10 km^2. East Halmahera consists of 10 sub-districts. East Halmahera is geographically bordered by North Halmahera, Central Halmahera, Tidore Islands and the Pacific Ocean. The demographic characteristics of East Halmahera were shown by the total population is 92,954 people and the population growth rate is 1.36%. The average annual rainfall in East Halmahera is 182.62 mm. The climate is appropriate for oil palm cultivation. The oil palm development of East Halmahera was planned in some regions which were Waijo, Jikomoi, Loleba, Tanure, Yawal and Saolat. East Halmahera is one of the targeted locations for oil palm development by Indonesia's government. Figure 1 is the map of the study location.

The data were collected through participatory focused group discussion in order to obtain a consensus. The key stakeholders involved in the sustainable oil palm development in East Halmahera were participants in the focused group discussion (Table 1). The key stakeholders were local community, government and company. A multi-stakeholder approach is required to improve sustainable oil palm governance in Indonesia [26]. The following is the key stakeholders participating in this study.

Preference Ranking Organization Methods for Enrichment Evaluation (PROMETHEE) was first developed by Brans at the University Laval, Quebec, Canada in 1982 [27]. PROMETHEE is outranking method enabling to select the best alternative from some various alternatives using the assessment criteria. The advantages of PROMETHEE were simple concept, easy to use and others [28]. PROMETHEE was employed to obtain outranking value from some various alternatives of the development commodity in East Halmahera such as community based crops (nutmeg, clove and coconut) and mining. PROMETHEE shows potential cluster or commodity to develop in a region. PROMETHEE is multi-criteria analysis requiring criteria for assessment each cluster or commodity. The evaluation criteria used for this study was pillars of sustainable development goals (SDGs) which were economy, social and ecology. This study added one pillar as assessment criterion which was governance. Governance is addition pillar of Indonesia's SDGs [29]. The pillars of SDGs were used since each commodity is expected to contribute to whole community. Table 2 is the assessment criteria for PROMETHEE.

(a) Indonesia



(b) East Halmahera

Figure 1. Location of study

Table 1. Key stakeholders participating in the focused group discussion

Component	Affiliation	Respondent
Local community	Headman of Waijoi	1
	Headman of Jikomoi	1
	Headman of Loleba	1
	Headman of Tanure	1
	Headman of Yawal	1
	Headman of Saolat	1
Government	Regional planning and development agency	1
	Agency of agriculture	1
	Agency of environment	1
	Agency of agrarian	1
	Agency of licensing and investment	1
Company	PT. X	1
	Total	**12**

Table 2. Assessment criteria for PROMOTHEE

Pillar	Label	Description	SDGs
Economy	E1	The availability of local resources	#15
	E2	Potential to community income improvement	#1
	E3	Diversity of community income sources	#1
	E4	Ability to reduce unemployment	#8
	E5	Potential to regional revenue improvement	#8
Social	S1	Community rights guarantee	#3
	S2	Community conflict handling	#16
	S3	Cultural preservation	#16
	S4	Social capital	#10
	S5	Gender equality	#5
	S6	Food sovereignty	#2
Ecology	L1	Environmental conservation	#13
	L2	Disaster mitigation	#11
	L3	Reduction of greenhouse gas emission	#13
	L4	Land and water quality	#6
	G1	Transparency	#16
	G2	Conflict of interest	#16
	G3	Bureaucracy	#16

PROMETHEE is determined based on the outranking relation or preference index [30]. If option "*a*" dominated option "*b*", $\pi\ (a,b) = 0$. However, $\pi\ (a,b)$ was not necessarily equal to 1. The preference index between the options "*a*" relative to "*b*" can be defined as the weighted average of the preference function for the different criteria. The formulation was mathematically written as the following equation:

$$(a,b) = \frac{\sum_t^k w_t P(a,b)}{\sum_t w_t} \quad (1)$$

$P_i\ (a,b)$ is defined as the preference function of option "*a*" on option "*b*" for criterion i. This preference function had a value between 0 and 1. 0 referred no difference between "*a*" and "*b*" (indifferent). Furthermore, 1 indicated the real difference between option "*a*" and option "*b*" (strict preference). The selected options (outranking) in PROMETHEE is calculated based on these following formulations:

$$\phi^+(a) = \frac{1}{(N-1)}\ \pi_A(a,b) \quad (2)$$

$$\phi^-(a) = \frac{1}{(N-1)}\ \pi_A(b,a) \quad (3)$$

where, $\phi^+(a)$ is outgoing flow and $\phi^-(a)$ is income flow. The difference between (2) and (3) were calculated as net flow or outranking:

$$(a) = \phi^+(a) - \phi^-(a) \quad (4)$$

Multi-criteria Policy (MULTIPOL) is a prospective analysis and well-known as *la prospective* [31]. *La prospective* approach is used to deal with the existing problems both in the short and long term. The main characteristic of the la prospective approach is not to see the future as a continuation of the past. However, it is a result of the opinion from various stakeholders or actors and limitations caused by the environment [32, 33]. MULTIPOL created alternatives in planning for the future and then choose alternative obtaining the maximum possibility [34, 35]. In this study, MULTIPOL provided alternatives fit used for oil palm development in East Halmahera.

MULTIPOL employed scores and weights to determine the best hierarchy and options [36]. The four main components contained for MULTIPOL are criteria, scenario, policy and action. Criteria are measurable aspects to evaluate. The criteria for MULTIPOL referred to the SDGs as well as the master plan documents for North Moluccas and East Halmahera. MULTIPOL software was executed to facilitate prospective analysis in this study. Table 3 explained the criteria used for MULTIPOL.

Table 3. Criteria for MULTIPOL

Criterion	Description	Pillar of SDGs
Region investment (C1)	Regional based investment development	Economy
Local employment (C2)	Job opportunities for rural community	Economy
Community income (C3)	Income improvement for rural community	Social
Quality of human resource (C4)	Human resource quality improvement of rural community	Social
Environmental conservation (C5)	Protection of biodiversity, ecosystems supporting the capacity of the environment and socio-economic culture of local community	Ecology

Furthermore, the formulation of scenarios based on the consensus or agreements of the FGD participants. Scenarios were structured developments carried out to achieve future goals. The agreed scenarios were economic growth, inclusiveness and environmental preservation. These three scenarios are also in line with the three pillars of sustainable development goals (SDGs). The following was explained in Table 4.

Table 4. Scenarios for MULTIPOL

Scenario	Description	Pillar of SDGs
Economic growth (S1)	Regional economic growth	Economy
Inclusiveness (S2)	Impact of oil palm industry existence to community	Social
Environmental preservation (S3)	Oil palm development prioritizing and focusing on ecosystem and sustainability	Ecology

The other component of MULTIPOL is policy. Policy is the strategy required to support scenarios in achieving goals related to economy, social and ecology. There were six policies offered as a strategy for oil palm development in East Halmahera. These policies were obtained through in-depth interviews with several experts from academia and the government mastering sustainable oil palm development. The policies were presented in Table 5.

Subsequently, 30 actions were identified and agreed upon by all stakeholders participating in the focused group discussion. These actions were derivative of policy. These actions were used as input in the model of MULTIPOL. These actions were presented in Table 6.

Table 5. Policies for MULTIPOL

Policy	Description
Participatory planning (P1)	Participatory rural and regional planning
Ecology based development (P2)	Ecology based regional development through rural potential
Human resource improvement (P3)	Capacity and quality improvement of rural human resource through education, science, skill, technology and innovation
Good governance (P4)	Institutional reinforcement and improvement toward transparent and accountable governance
Connectivity (P5)	Strengthening inter-regional connectivity and linkages covering physical, economic, social, technological, communication and institutional
Indigenous wisdom (P6)	Preservation of local wisdom on investment management according to customary law applying in the society

Table 6. Actions for MULTIPOL

Action	Description
Bio-physical mapping (A1)	Carrying out a systematic inventory or mapping of the regional biophysical condition
Ecology-based Regional Spatial Plan (A2)	Creating regional spatial plan focusing on ecological potential and capacity
Law enforcement (A3)	Support of the parties in strictly enforcing rules and laws against any violations
Community engagement (A4)	Community involvement and engagement including indigenous peoples in the process of decision making for rural development
Social guarantee (A5)	Social guarantee for people who unable control natural resources management but working to utilize natural resources
Institutional reinforcement (A6)	Improving institutional capacity of community to natural resources management
Environmental guarantee (A7)	Guarantee for sustainability of natural resources and ecosystem
Anti-Monopoly (A8)	Preventing monopoly attempts on natural resources carried out by individual, community, private or government business entity
Natural resource management (A9)	Natural resources management without environmental damage
Economic valuation (A10)	Internalizing costs of natural resource and environmental damage to production cost and tangible price
Social and cultural based investment (A11)	Preserving local wisdom on investment according to customary law in the community
Initial investment (A12)	Providing initial condition and information of investment in order to be accepted by all parties
Institutional and Governmental Capacity (A13)	Improving governance and strengthening institutional capacity
Ecological Planning (A14)	Providing document planning related to environmental aspect that easy to understand
Transparency (A15)	Providing accessible document planning related to natural resource management by public
Land use (A16)	Planning land use that not reduce or restrict the rights of indigenous people through free prior informed consent
Wildlife protection (A17)	Providing conservation and protection for endangered wildlife
Natural resource potential (A18)	Developing potential of natural resource in eco-friendly investment
Partnership with the educational institution (A19)	Building cooperation with the universities in preparing and developing qualified human resource
Internship (A20)	Internship in the oil palm company to improve skill of human resource
Sustainable investment (A21)	Developing investment noticing environment and the needs of next generation
Favourable business climate (A22)	Providing the easiness of building a business to encourage the growth of new businesses owned by local community around private investment development areas
Corporate social responsibility for village (A23)	Allocating the CSR fund to improve quality of rural community
Data integration (A24)	Developing cooperation in planning and distributing data between urban and rural
Multiplier effect (A25)	Encouraging investment to contribute huge multiplier effect for rural development
Green business (A26)	Creating conducive climate for eco-friendly business through licensing facilities
Gender equality in work life (A27)	Providing job opportunities prioritizing gender equality
Partnership (A28)	Facilitating the partnership between small-medium enterprises and the oil palm company through CSR to encourage eco-friendly business owned by local community
Relation and connection of village (A29)	Building inter-regional collaboration between village and government
Equal development (A30)	Providing infrastructures to support regional and rural economy

3. RESULT AND DISCUSSION

3.1 PROMETHEE analysis

The analysis of PROMETHEE in Figure 2 denoted community based crops (nutmeg, clove and coconut) and oil palm were positive. Therefore, the both were important to develop in East Halmahera. Also, the both were superior commodities and increased regional economy development. The community-based crops (nutmeg, clove and coconut) have existed in East Halmahera as a regional economic booster which was cultivated by the rural community. However, productivity, technology and marketing of those commodities faced problems in their development [37]. On the other hand, the oil palm development contributed improvement of the regional economy such as community welfare of 43% through business and job opportunities [38]. Furthermore, the oil palm development ecologically contributed and supported sustainable development goals [39, 40] Thus, oil palm was appropriate to be an initiative commodity as a part of development planning in East Halmahera.

The contribution of oil palm was livelihood improvement

through income improvement [41]. The macroeconomics positive impacts of Cameroon oil palm development were job opportunities, national income, infrastructure development and etc. [42]. Therefore, the oil palm development in East Halmahera was expected to contribute benefits and advantages to the community. Meanwhile, mining had a negative value. It pointed out that mining could not be selected as commodity for regional economy development. Mining was an inappropriate commodity for regional development and sustainable development goals [43]. The following was result of PROMETHEE analysis.

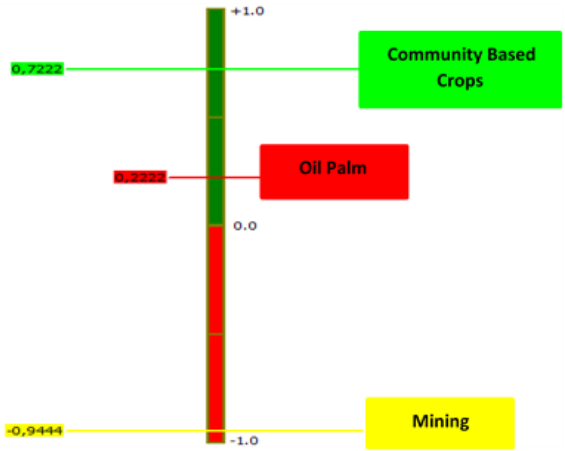


Figure 2. Outranking scores for each commodity

This study assessed four aspects of sustainable development goals namely economy, social, ecology and governance. The community-based crops and oil palm were superior clusters in each of the pillars of sustainable development goals (SDGs). Oil palm had financial advantages over rubber and rice farms [44]. It would be a potential for development in East Halmahera. Meanwhile, the mining business has been operating for several years in East Halmahera. However, mining had surprisingly a negative value for all pillars of sustainable development goals (SDGs). This finding is in line with the case of Pakistan. The mining industry was potentially unsustainable for all the pillars of SDGs which were economy, social and ecology [45]. It was proven that mining had negative impacts in East Halmahera. This finding was able to be disseminated to the community. The community should obtain new information and knowledge regarding oil palm in order to reduce conflict between the local community and the company. Also, this finding could be a positive campaign for oil palm development in East Halmahera. The result of the assessment was presented in Figure 3.

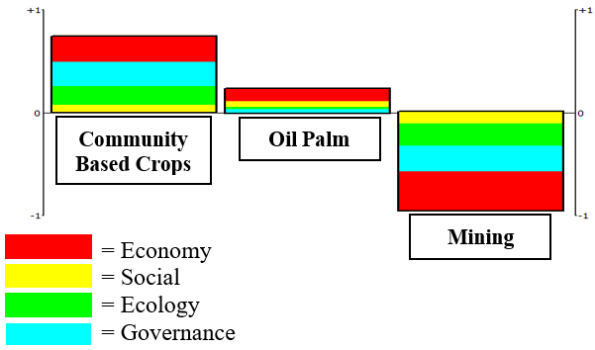


Figure 3. The assessment of SDGs pillars

Sensitivity analysis of PROMETHEE in Figure 4 was created to observe changes in the position of the three commodities when some aspects were changed. The oil palm is able to compete with the community based crops in conditions of the increased economic and governance aspects. This condition was known as convergent meaning that the gap between the community based crops and oil palm was getting smaller. This condition described oil palm became a more potential and strategic commodity to development in East Halmahera. Oil palm was a strategic and potential commodity since it alleviated poverty in rural areas and supplied food, non-food, bio composite, nutritional and pharmaceutical products as well as environmental improvement work as a generator of renewable energy from biogas and biomass [46]. Sensitivity analysis was shown in Figure 4.

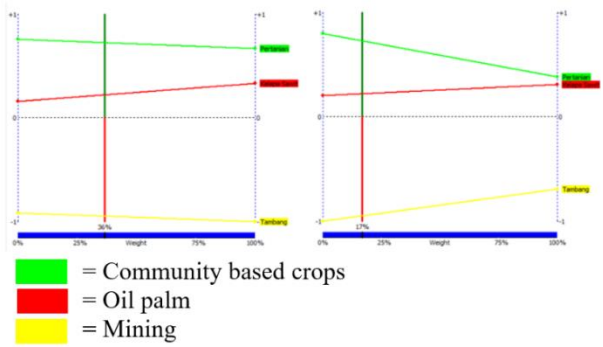


Figure 4. Sensitivity analysis of PROMETHEE

3.2 MULTIPOL analysis

Evaluation between action and policy using MULTIPOL in Table 7 indicated that seven actions with the highest assessment. The seven actions were A21, A28, A3, A11, A16, A18, and A25. The assessment was based on the ratio between the average score and standard deviation. The seven actions had relatively the best performance in the overall model of sustainable oil palm development in East Halmahera. The seven actions were policy measures implying those were not only for one policy but also for more than one policy. Therefore, the actions became catalysts in the policy transmission mechanism to achieve sustainable oil palm development in East Halmahera. Sustainable investment (A21) enabled the local community to obtain maximum sustainable yield [47]. Additionally, sustainable investment in oil palm was related to the application of green economy concept [48, 49]. Partnership (A28) was the strategic key to sustainable oil palm development in East Halmahera. It is in line with the study [50] mentioning that external or private parties were required to build partnerships to achieve sustainable oil palm.

Furthermore, Law enforcement (A3) was a significant factor in oil palm expansion in South East Asia [51]. It was related to conflict reduction and how to deal with the indigenous people or local community on tenure rights. The people of East Halmahera had local wisdom and culture. It should be respected for rural development planning. Hence, this study found culture (A11) was one of the key actions to achieving sustainable oil palm. The local wisdom and culture of the indigenous people are important for ensuring agriculture sustainability [52].

Land use (A16) and natural resource potential (A18) were also policy measures for sustainable oil palm development in East Halmahera. Land use is one of the sustainability

indicators [53]. It affected the spatial planning document created by the government. Hence, the government should notice about this consideration for sustainable oil palm development. Then, natural resource potential (A18) should be properly managed and utilized to obtain maximum benefit. Otherwise, it would be a challenge and threat [54]. Therefore, participatory natural resource management is important to achieve sustainability [55, 56]. It should be conducted through collective actions from the community. The ultimate important action was the multiplier effect (A25). The existence of sustainable oil palm development was expected to create a multiplier effect. Oil palm created a high multiplier effect to the regional economy [57, 58]. It was proven by study of Agustira et al. [59] calculated the multiplier effect of oil palm was 3.01 to Siak regional economy.

Evaluation between policy and scenario in Table 8 was carried out to obtain the best policy for sustainable oil palm development in East Halmahera. This study exhibited three policies with the highest position namely P4, P6 and P1. Meanwhile, P5, P2 and P3 had lower score. Good governance (P4) is important to achieve sustainable oil palm development since the conflict could be solved by transparency and information. The local community perceived safety with clear regulation so that oil palm development could be accepted by the whole community. Then, an integrated, competitive and sustainable approach was offered to the government for sustainable oil palm development [60]. As sustainable oil palm development involved the community, the Indigenous wisdom (P6) should be paid attention to and respected. The value of local wisdom is important and part of institutional strategy for oil palm development [61]. Furthermore, the involvement of all stakeholders is required to sustainable oil palm development. Participatory planning (P1) should involve all parties obtaining interest from the development. One of the cases is Brazil. The government of Brazil did not carry out a participatory planning for oil palm development to include the ideas of rural communities. This was a factor causing the failure of the rural development program [62]. Therefore, it should be prevented since participatory planning is key of rural development to achieve sustainable development goals.

According to the evaluation, a potential path could be constructed. The evaluation of action to policy and policy to scenario generated a potential path referring to the appropriate actions for each policy and the appropriate policies for each scenario. Figure 5 illustrated the six potential paths. The paths contained a set of strategic policy supporting scenarios to achieve sustainable oil palm development in East Halmahera. The potential paths also exhibited a set of priority actions or policy measure to each policy. Each potential path indicated a potential to each scenario through various actions in line with strategic policy.

In the context of sustainable oil palm development, it represented the 3 pillars namely economy, social and ecology. Therefore, the three scenarios should be recommendations to the East Halmahera government for implementation. Policy options selected through a participatory basis allowed for faster achievement of sustainable development since it is community-based decision [63].

Table 7. Evaluation between action and policy using MULTIPOL

Action	Policy						Avg.	Std. Dev.
	P1	P2	P3	P4	P5	P6		
A1	5.6	4.8	1.6	8.6	3.8	10.2	5.8	2.9
A2	9.6	8.8	3.3	12.7	7.6	14.2	9.4	3.5
A3*	10.6	9.2	10.6	12.6	10.2	13.1	11.1	1.4
A4	9.4	10.2	8.6	9.6	8.6	10.6	9.5	0.8
A5	8	10	8.4	6.9	7.3	8.1	8.1	1.0
A6	9.7	9.9	11.1	9.6	9.7	9.8	10	0.5
A7	9.7	12.3	6.1	9.9	7.4	12.1	9.6	2.3
A8	7.2	7.2	6.4	8.8	6	10	7.6	1.4
A9	8.1	7.7	6.6	10.2	6.8	11.4	8.5	1.8
A10	9.5	9.3	5.9	10.8	8.5	11.6	9.3	1.8
A11*	10.9	9.5	8.4	13.4	10	14.1	11.1	1.2
A12	7.6	5.2	6.9	8.1	9	6.4	7.2	1.2
A13	9.4	7.8	9.5	10.4	9.9	9.5	9.4	0.8
A14	9.1	11.7	6.8	8	7.8	9.5	8.8	1.6
A15	7.5	6.7	4	8.2	7.4	7.8	6.9	1.4
A16*	10.1	9.9	8.4	12.1	8.7	13.6	11.5	1.3
A17	7	8.4	5.5	9.3	4.2	12.3	7.8	2.6
A18*	10.8	10	6.4	11.7	10.5	11.5	10.1	1.8
A19	8.4	7	9.9	9	9.1	8.4	8.6	0.9
A20	8.4	8.4	12.7	7.2	9.5	6.7	8.8	2
A21*	12.5	13.5	9.4	12.9	11.3	13.6	12.2	1.5
A22	9.6	12.4	8.6	7.3	9.1	7.9	9.1	1.6
A23	7.7	7.7	12.5	7.1	8.4	7	8.4	1.9
A24	9.3	7.7	6.7	10.9	9.2	10.6	9.1	1.5
A25*	11.1	10.9	8.2	9.7	12.1	8.2	10	1.5
A26	10.1	9.1	7.3	11.2	9.9	11	9.8	1.3
A27	9	11.8	9.8	6.3	8.9	6.5	8.7	1.9
A28*	11.8	11.8	15.6	10.3	13.1	9.3	12	1.2
A29	10.1	10.1	6.8	9.3	10.5	8.3	9.2	1.3
A30	10.4	12.2	7	8.1	10.5	8	9.4	1.8

* = policy measure

Table 8. Evaluation between policy and scenario using MULTIPOL

Policy	Scenario			Avg.	Std. Dev.
	S1	S2	S3		
P1*	25.5	18.5	17.8	20.6	3.5
P2	17	23	18.2	19.4	2.6
P3	11.2	26.8	15.5	17.8	6.5
P4*	26	13.8	25	21.6	5.6
P5	30.8	19	12	20.6	3.7
P6*	17.5	14.8	31.2	21.2	2.7

* = selected policy

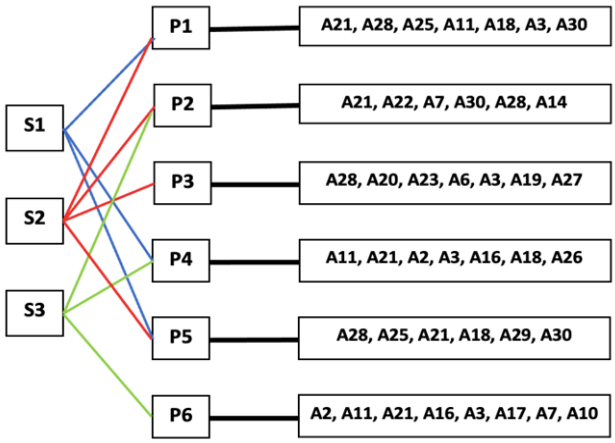


Figure 5. The potential path of scenario, policy and action

4. CONCLUSION

Oil palm has a strategic potential position to development as a leading commodity in East Halmahera. The strategy for sustainable oil palm development in East Halmahera consisted of three scenarios, namely economic growth, inclusiveness and environmental preservation. Some selected policies were participatory planning, good governance and indigenous wisdom. Some actions such as law enforcement, social and cultural-based investment, land use, natural resource potential, sustainable investment, multiplier effect and partnership could be taken to support and achieve sustainable oil palm development in East Halmahera. This research was expected to provide new knowledge for the community to accept the existence of oil palm in East Halmahera and become policy recommendations for the East Halmahera government for development strategy and plan for East Halmahera.

Due to the limitation of this research, the future research could be directed to some topics such as mapping stakeholder position, governance of oil palm, comparative study of social, economic and environmental impacts between oil palm and mining to obtain more comprehensive findings.

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