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Identification of Key Actors in Mangroves Plantation using the MACTOR Tool: Study in DKI Jakarta

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ABSTRACT

Considering the benefits of mangrove forest areas and their ability to support the success of sustainable development, this study aimed to determine the attitudes of stakeholders in the Special Capital Region of Jakarta (DKI Jakarta) toward the existence of mangrove areas in the North Coast of Jakarta. Surveys and data collection were conducted through focus group discussions and interviews. The results showed that the key actors in the development of mangrove areas in DKI Jakarta are the Ministry of Environment and Forestry of the Republic of Indonesia, the Department of Environmental Services of DKI Jakarta Province, the Government of DKI Jakarta Province, the Government of North Jakarta City, and the Regional House of Representatives of DKI Jakarta. In addition, other stakeholders, such as the developer, park bureau, regional development and ecotourism, were included as relay variables. In addition, the study identified the entrepreneurs, fishermen, farmers, and ponds as the dependent variables, while the industries, civil society, and warehousing as the independent variables. This study identified several options for the development of mangrove areas in DKI Jakarta, such as utilizing potential areas that have not been planted with mangroves for business area development, property development, national strategic project program, and mangrove plantation. The results of this study are expected to help policymakers develop policies for mangrove development in DKI Jakarta.

1. Introduction

In 2015, the leaders of 193 UN member states adopted an agreement with transformative, integrated, and comprehensive universal goals and targets known as the 2030 Agenda. The 2030 Agenda mandates the elimination of poverty and the realization of sustainable development. Sustainable development includes three dimensions, economic, social, and environmental, which are interrelated and harmonious. The commitment is named Sustainable Development Goals (SDGs) (Asmalia et al. 2018; Fartash et al. 2021; Kayikci et al. 2022; Vörösmarty et al. 2018). Sustainable development is a multidimensional development paradigm that takes into account the

interests of future generations in addition to meeting current needs, both from the economic, social, and environmental aspects, which are realized in measures of justice, convenience, and sustainability (Pratiwi et al. 2018). The concept of sustainable development is characterized by the existence of an ideal and strategic framework for environmental management (Fukuda-Parr 2016). Sustainable development has three main pillars: economic, social, and environmental (ecological), which balance economic, social, and environmental development. Sustainable development will ensure the availability of resources, uphold the dignity and benefits of each individual and promote good governance (Dewi 2011).

Environmental pillars can be categorized as natural capital (Fletcher et al. 2019; Islam et al. 2019). Indonesia is a country that has high natural capital, such as forest wealth, biodiversity, flora, and fauna. Indonesia has various types of forests ranging from mangrove forests to mountain forests. The potential of Indonesia's forests provides various environmental services, including suppliers of raw materials for the wood, pulp, and so on industries. In addition to forest products in the form of wood, Indonesia also has non-timber forest products such as rattan, semar bags, forest honey, and so on (Kissinger et al. 2020; Sihotang et al. 2019). The potential provided by nature must be balanced with initiatives from rewards or payments for environmental services so that natural resources can provide positive externality values (environmental services) (Liu et al. 2014; Suyanto and Khususiyah 2016; Tue et al. 2020).

Mangrove ecosystems are coastal resources with a high carrying capacity for life, especially from the functions of their contain (biological, chemical, physical, and economic) (Hilmi 2019, 2018; Hilmi et al. 2017a, 2017b; Kusmana 2015, 2014). For this reason, the mangrove ecosystem, an important part of the coastal ecosystem, has a very important role in the development and economic activities. The preservation of the mangrove ecosystem is also shown by the presence of potential vegetation and ecosystems. The mangrove ecosystem has several benefits and ecosystem services, but its existence continues to face challenges and pressures due to activities in coastal areas. Mangroves are one of the most threatened and rapidly disappearing natural environments worldwide, including in the Special Capital Region of Jakarta (*Daerah Khusus Ibukota*/DKI Jakarta) (Efriyeldi et al. 2020; Muksin et al. 2021). Mangrove damage can disrupt various ecosystem services, including the capacity to store carbon, biota habitat, and reduce disaster risk. Most of the mangrove ecosystems that still look well preserved are located in the Muara Angke Wildlife Sanctuary and Angke Kapuk Protection Forest, although their position is very close and located between residential areas and other infrastructure. The condition of the North Jakarta Mangrove ecosystem potential area is categorized as potential. The mangrove ecosystem area north of Jakarta has the potential to continue to be developed even though it is under pressure, mainly due to activities from the built-up area around it. This condition will also have consequences for the decline in available ecosystem services. Mangrove ecosystem services, which were previously felt to be reduced or even lost, can eventually cause inconvenience, economic losses, and the threat of disaster. A good synergy between the government and the community is hoped to improve the coastal ecosystem (Dalimunthe and Putri 2017). The mangrove ecosystem area on the North Coast of Jakarta needs attention because it still contributes to providing ecosystem services and preserving the environment. It ultimately becomes an important factor supporting the success of sustainable development in DKI Jakarta.

The factors and the role of stakeholders will significantly determine the success of the development of the Jakarta mangrove area, namely the existence of a map of strategic factors and stakeholders that policymakers must consider. This study was conducted to identify the variables

and strategic stakeholders in the North Jakarta coastal area by describing the intensity of influence and the interdependence relationship between the direct and indirect variables and stratifying them from the most important to very indirect. Important and provides an overview of the divergence and convergence positions of key stakeholders regarding the mangrove area in DKI Jakarta in various scenarios that might occur. The findings of this study will assist policymakers in understanding the relationship between variables and strategic stakeholders and direct them to focus on the most enabling and decisive policies to ensure the successful development of mangrove areas in supporting sustainable development in DKI Jakarta. Furthermore, this study aims to analyze the condition of the main stakeholders that have the potential to affect the success of sustainable development in DKI Jakarta.

2. Materials and Methods

This research was conducted in the North Coast of Jakarta (**Fig. 1**) from October 2021 until April 2022. The primary data obtained were processed using the prospective analysis method approach. The prospective analysis is a method used to review a policy in the future. In this study, the prospective analysis was performed using MACTOR (Methode Acteurs, Objective, Reports de Force) tool (Rees and MacDonell 2017; Villegas and Alejandro 2011). It was used to map the strength of the relationship between actors and factors in developing a cluster typology of potential areas for developing mangrove areas in DKI Jakarta. The MACTOR method considers the position and intensity of variables based on stakeholders' influence, roles, positions, and attitudes on a policy to be chosen and their strength in determining the maximum variables that must be involved in the successful development of mangrove areas in DKI Jakarta. The respondents were chosen based on the preliminary Focus Group Discussion (FGD) results.

MACTOR works by filling in the position matrix, the 1MAO matrix (Actor-Objective Matrix), and the 2MAO matrix. The next matrix to be completed is the MID (Direct Influence Matrix), which describes the influencing variable. After filling in the MID and 1MAO matrices, the MACTOR will calculate the 2MAO matrix through a computer program. MACTOR's work system, as referred to by (Arcade et al. 2003; Garza and Cortez 2011; Mafruhah et al. 2020; Rees and MacDonell 2017; Villegas and Alejandro 2011), is described by the following formula:

$$MIDI_{A\rightarrow B=} \; MIDI_{A-B} + \sum_C [\min(MID_{A\rightarrow C}, MID_{C\rightarrow B}) \;] \quad (1)$$

To determine the balance of the strength of the relationship between actors, it is necessary to first calculate the direct and indirect effects of the actors. If MA is defined as the total direct influence of actor A on the others, then:

$$M_{A=} \; \sum_B (MIDI_{A,B}) - MIDI_{A,A} \quad (2)$$

If DA is defined, the total direct and indirect effects received by A from other actors are as follows:

$$D_A = \sum_B (MIDI_{B,A}) - MIDI_{A,A} \quad (3)$$

Furthermore, the coefficient of the balance of the strength of the relationship is calculated by Equation 4.

$$r_A = \left[\left(\frac{M_{A-MIDI_{A,A}}}{\sum_A (M_A)} \right] \text{x} \left[\frac{M_A}{M_{A+} D_A} \right] \right. \quad (4)$$

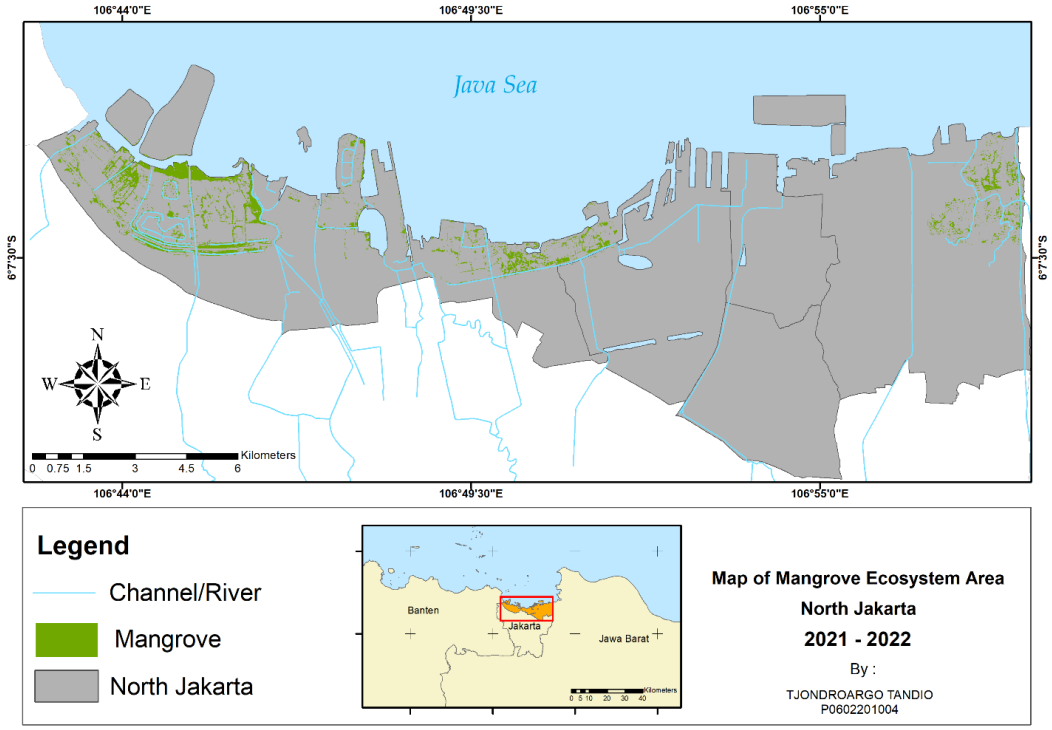

Fig. 1. Research site in mangrove ecosystem area in North Jakarta.

In the next step, ACTOR will calculate the 3 MAO matrix, namely the matrix that is the basis and is important in the MACTOR discussion, with the following formulation:

$$3MAO_{A,i} = 2MAO_{A,i} \times r_A \quad (5)$$

Through the 3MAO matrix, various features can be produced, including the mobilization coefficient, which shows different actors involved in one situation as explained in the following formula:

$$Mob_A = \sum|3MAO| \quad (6)$$

Approval and disagreement over a goal are then overlaid using Equations 7 and 8:

$$Ag_A = \sum_a(3MAO_{A,i}(3MAO > 0) \quad (7)$$

$$DisAg_A = \sum_a(3MAO_{A,i}(3MAO < 0) \quad (8)$$

Another feature that can also be processed from the 3MAO matrix is the convergence matrix (3CAA) which describes how much the actors agree on an issue, and the divergence matrix (3DAA) which describes the opposite or disagreement. The convergence matrix (approval) is generated through the formula:

$$3CAA = \frac{1}{2}\sum\left(([3MAO_{Ai}] + [3MAO_{B,i}])(3MAO_{A,i}\, X\, 3MAO_{B,i} > 0)\right) \quad (9)$$

The divergence (disagreement) matrix is written with the formula:

$$3DAA = \frac{1}{2}\sum\left(([3MAO_{Ai}] + [3MAO_{B,i}])\,(3MAO_{A,i}\, X\, 3MAO_{B,i} < 0)\right) \quad (10)$$

Furthermore, calculating the convergence and divergence between these actors will produce the final actor from MACTOR, namely the ambivalent coefficient for each actor, calculated by Equation 11.

$$3EQ_i = 1 - \left[\frac{(\sum_k \|3CAA_{i,k} - 3DAA_{i,k}\|)}{(\sum_k \|3CAA_{i,k} + 3DAA_{i,k}\|)}\right] \quad (11)$$

In addition to using a prospective analysis approach, this study also formulates the results of stakeholder FGDs that are directly related to the development of mangrove areas on the north coast of DKI Jakarta in mapping the opinions of key stakeholders. Stakeholders involved in the FGDs included the DPRD DKI Jakarta, the community, related agencies, and area developers.

The FGD was carried out using the Seelig method, which was popularized by (Agustina and Fauzi 2020) and developed by Paulus and Fauzi (2017). During the FGD implementation, participants were divided into three groups to discuss three problem topics: (1) strategic issues for developing mangrove areas; (2) mapping the typology of key stakeholder variables in the development of mangrove areas in DKI Jakarta; (3) each group discussed the same topic, and at the end of the FGD, all FGD participants agreed on the topics discussed, resulting in Delphi convergent issues.

3. Results and Discussion

The results of this study are primarily determined by the accuracy of the sources in identifying the variables that are thought to affect the development of mangrove areas in DKI Jakarta. To achieve this, at the initial stage of the FGD, participants were given an orientation by experts on the concept of sustainable development and the function of the important role of mangroves. After that, a list of variables was made based on the understanding, knowledge, and experience of the participants. The results identified sixteen stakeholder variables that were considered to affect the development of the DKI Jakarta mangrove area and five objectives. The stakeholder and objective variables are shown in **Table 1** and **Table 2**.

Table 1. List of stakeholders in the development of the mangrove areas in DKI Jakarta

No.	Long label	Short label	Description
1	Coastal_Society	C_Society	People and communities living on the north coast of DKI Jakarta
2	Regional People's Representative Council	RegionRep	Regional House of Representatives (DPRD) of DKI Jakarta
3	Local Government Jakarta Special Area	GovJakarta	Local government in DKI Jakarta
4	North Jakarta Government	NorthMayor	The mayor of North Jakarta City
5	Parks and City Bureau of Jakarta	ParkBureau	Department of City Garden and Forest of DKI Jakarta
6	Regional Development Planning Board	RegDev	Regional revenue agency/bureau
7	Ministry of Environment	MinEnvironment	Ministry of environment and forestry of the Republic of Indonesia
8	Jakarta Environment Department Bureau	JakartaEnvBureau	Bureau of Development and Environment of DKI Jakarta Province
9	Fishermen	Fishermen	Fishermen around the mangrove forest area
10	Farmers	Farmers	Farmers around the mangrove forest area
11	Ponds	Ponds	Ponds around the mangrove forest area
12	Entrepreneurs	Entrepreneurs	Entrepreneurs around the mangrove forest area
13	Developer	Developer	Developer around the mangrove forest area
14	Industrial	Industrial	Industrial around the mangrove forest area
15	Warehousing	Warehousing	Warehousing around the mangrove forest area
16	Ecotourism	Ecotourism	Ecotourism around the mangrove forest area

Table 2. List of objectives in the development of the mangrove areas in DKI Jakarta

No.	Long label	Short label	Stake
1	Utilization of potential areas that have not been planted with mangroves for the development of business areas or infrastructure	Business	Business
2	Utilization of potential areas that have not been planted with mangroves for property development	Property	Developer
3	Utilization of potential areas that have not been planted with mangroves for planting mangroves (total)	Total	General
4	Utilization of potential areas that have not been planted with mangroves to plant mangroves (partially)	Partially	General
5	Utilization of potential areas that have not been planted with mangroves for national strategic interests	National	Government

The results of a prospective analysis using MACTOR software show the interdependence between actors in the development of mangrove areas in the visualization, as shown in **Table 3**. The stakeholder with the greatest influence is the regional representative (local legislative), and the stakeholder with a high dependence tendency is the fishermen (**Table 3**). This matrix shows that DPRD DKI Jakarta stakeholders have a powerful and decisive influence on the success of any scenario in the development of mangroves in DKI Jakarta. Meanwhile, fishermen stakeholders are the weakest in influencing the mangrove area development scenario in DKI Jakarta.

Table 3. Matrix of influence and interdependence between stakeholders

MDI	C_Society	RegionRep	GovJakarta	NorthMayor	ParkBureau	RegDev	MinEnvironment	JakartaEnvBureau	Fisherman	Farmers	Ponds	Entrepreneurs	Developer	Industrial	Warehousing	Ecotourism	Ii
C_Society	9	5	4	7	7	12	3	4	12	10	10	5	5	3	3	10	100
RegionRep	17	17	16	22	25	32	9	12	33	30	30	26	25	16	15	31	339
GovJakarta	17	14	11	18	21	28	9	10	29	26	26	22	21	13	13	29	296
NorthMayor	17	13	9	14	17	25	9	9	26	23	23	18	17	12	12	23	253
ParkBureau	17	11	8	14	12	24	9	9	22	19	19	13	12	11	12	20	220
RegDev	17	12	10	14	16	25	9	10	25	22	22	17	16	12	12	22	236
MinEnvironment	15	17	15	20	23	29	9	13	28	27	27	25	24	17	15	28	323
JakartaEnvBureau	17	16	14	19	22	34	9	11	31	28	28	24	23	15	14	28	322
Fisherman	10	10	6	11	12	13	5	8	14	14	14	9	9	8	7	14	150
Farmers	6	5	3	7	7	8	2	3	10	9	9	5	5	4	3	10	87
Ponds	6	5	3	7	7	8	2	3	10	9	9	5	5	4	3	10	87
Entrepreneurs	12	8	6	9	10	20	8	7	16	13	13	9	9	8	7	13	159
Developer	13	12	12	16	16	21	9	12	21	20	20	15	14	12	11	21	231
Industrial	8	9	8	10	10	12	4	6	12	12	12	9	9	9	8	12	141
Warehousing	6	9	8	8	9	10	3	4	10	10	10	10	10	10	9	9	126
Ecotourism	15	14	17	20	23	29	8	13	28	26	26	22	22	15	13	27	291
Di	19 3	16 0	13 9	20 2	22 5	30 5	9 8	12 3	31 3	28 9	28 9	22 5	21 2	16 0	14 8	28 0	336 1

Fig. 2 shows that the DPRD DKI Jakarta, the Ministry of Environment and Forestry of the Republic of Indonesia, the Bureau of Development and Environment of DKI Jakarta Province, the Mayor of North Jakarta City, and the Government of DKI Jakarta Province are in Quadrant 1 (top left). All stakeholders in this quadrant had great influence and low dependence on the mangrove development scenario in DKI Jakarta. On the other hand, in Quadrant 3 (bottom right), entrepreneurs, farmers, fishermen, and ponds have a high level of dependence and very little influence on the mangrove development scenario in the area (DKI Jakarta). In Quadrant 2, developers, the Department of City Garden and Forest of DKI Jakarta Province, Ecotourism, and the Board of Regional Development Planning of DKI Jakarta Province are the relay stakeholders. The relay stakeholder is dependent on driven stakeholders in Quadrant 1, but they had a significant influence on Quadrant 3 by the impact of action by Quadrant 1 stakeholders to Quadrant 2 stakeholders. Meanwhile, the warehousing, coastal society, and industrial sectors occupy Quadrant 4 as autonomous stakeholders with no impact functions.

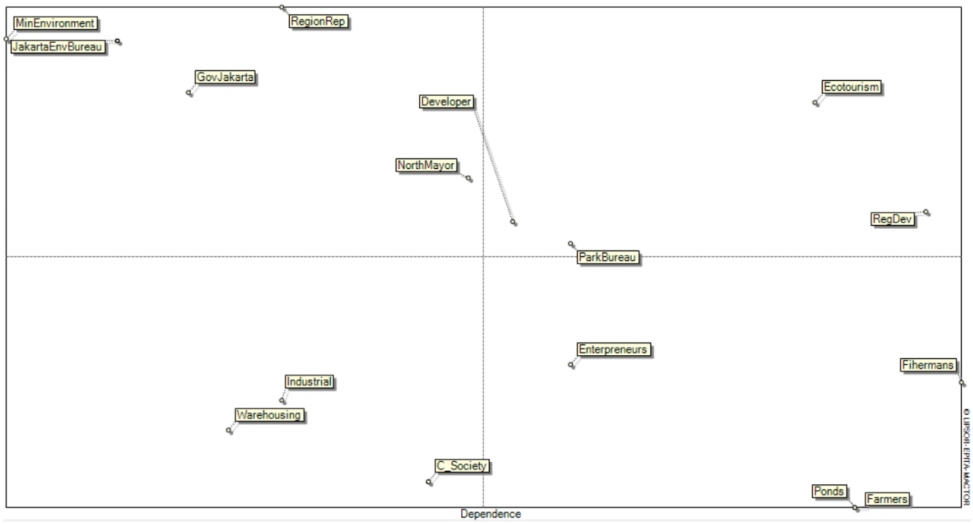

Fig. 2. Matrix of influences and dependencies between actors.

The stakeholders with the highest mobilization scores are the Bureau of Development and Environment of DKI Jakarta Province, the Regional House of Representatives of DKI Jakarta, and the Government of DKI Jakarta Province (**Table 4**). It means that regarding the development of mangrove areas, these three stakeholders will be active in developing mangrove areas in DKI Jakarta. The degree of mobilization (bottom row) indicates which objectives are expected to be the main issues that provoke stakeholder reactions. In this case, the goal of utilizing potential areas for national strategic interests is a goal that is considered important by the actors, followed by the development of some potential areas for planting mangroves.

The competitiveness of actors is indicated by the level of direct and indirect influence of these actors on other actors (**Fig. 3**). The results showed that the actors who play an important role, both directly and indirectly, are the Ministry of Environment and Forestry of the Republic of Indonesia, Bureau of Development and Environment of DKI Jakarta Province, and Regional House of Representatives of DKI Jakarta with a competitiveness score of 2.2, 2.1, and 2.0, respectively. Meanwhile, the actors with weak competitiveness are farmers, farmers, and fishermen, scoring 0.1 each. It could be caused by the position of farmers, ponds, fishermen, and coastal society who tend to be in Quadrant 3 (bottom right), namely the position as actors affected by the policy (Rees and MacDonell 2017).

Table 4. The degree of mobilization between stakeholders with objective goals

3MAO	Business	Property	Total	Partially	National	Mobilization
C_Society	0.6	0.6	0.3	0.3	0	1.7
RegionRep	2	2	4	6	8	22.1
GovJakarta	1.8	1.8	3.6	5.3	7.1	19.6
NorthMayor	1.2	1.2	2.4	3.7	4.9	13.4
ParkBureau	0.9	0.9	3.8	2.8	3.8	12.3
RegDev	1.7	1.7	1.7	1.7	1.7	8.4
MinEnvironment	2.2	2.2	8.8	8.8	8.8	31
JakartaEnvBureau	2.1	2.1	8.3	8.3	8.3	28.9
Fisherman	-0.8	-1.2	-0.4	0.4	0	2.8
Farmers	-0.3	-0.5	-0.2	0.2	0	1.2
Ponds	-0.3	-0.5	-0.2	0.2	0	1.2
Entrepreneurs	2.3	2.3	-1.7	0.6	0	6.8
Developer	4.2	4.2	-4.2	1	1	14.5
Industrial	1.7	1.7	-2.3	-0.6	1.1	7.4
Warehousing	1.5	1.5	-2	-0.5	1	6.4
Ecotourism	3.7	3.7	-4.9	-1.2	0	13.6
Number of agreements	25.8	25.8	32.9	39.3	45.8	
Number of disagreements	-1.5	-2.2	-15.8	-2.3	0	
Degree of Mobilization	27.3	28	48.7	41.6	45.8	

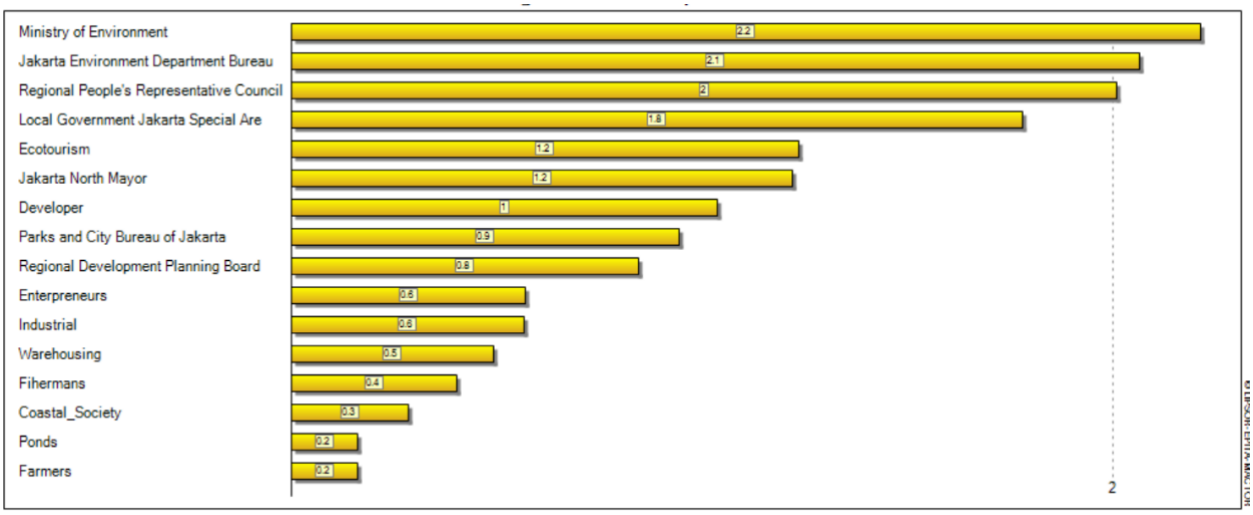

Fig. 3. Histogram of MMDII's competitiveness.

Table 5 shows the degree of convergence between stakeholders. The highest degree was a convergence between the Regional House of Representatives of DKI Jakarta. This convergence table shows how strong the convergence situation is between these stakeholders. This trend of convergence is shown in **Fig. 4**.

Table 6 shows a high degree of divergence, particularly the farmers, fishermen, and ponds. This means that farmers and fish farmers have very different interests from other stakeholders. In contrast, most government stakeholders tend to have low divergence scores, which means there is a tendency for conflict between these institutions to be relatively small. **Table 6** also shows the magnitude of the divergence or discrepancy between the actors.

Table 5. Convergence matrix between actors

1CAA	C_Society	RegionRep	GovJakarta	NorthMayor	ParkBureau	RegDev	MinEnvironment	JakartaEnvBureau	Fisherman	Farmers	Ponds	Entrepreneurs	Developer	Industrial	Warehousing	Ecotourism
C_Society	0	4	4	4	4	4	4	4	1	1	1	3	3	2	2	2
RegionRep	4	0	5	5	5	5	5	5	1	1	1	3	4	3	3	2
GovJakarta	4	5	0	5	5	5	5	5	1	1	1	3	4	3	3	2
NorthMayor	4	5	5	0	5	5	5	5	1	1	1	3	4	3	3	2
ParkBureau	4	5	5	5	0	5	5	5	1	1	1	3	4	3	3	2
RegDev	4	5	5	5	5	0	5	5	1	1	1	3	4	3	3	2
MinEnvironment	4	5	5	5	5	5	0	5	1	1	1	3	4	3	3	2
JakartaEnvBureau	4	5	5	5	5	5	5	0	1	1	1	3	4	3	3	2
Fisherman	1	1	1	1	1	1	1	1	0	4	4	2	2	1	1	1
Farmers	1	1	1	1	1	1	1	1	4	0	4	2	2	1	1	1
Ponds	1	1	1	1	1	1	1	1	4	4	0	2	2	1	1	1
Entrepreneurs	3	3	3	3	3	3	3	3	2	2	2	0	4	3	3	3
Developer	3	4	4	4	4	4	4	4	2	2	2	4	0	4	4	3
Industrial	2	3	3	3	3	3	3	3	1	1	1	3	4	0	5	4
Warehousing	2	3	3	3	3	3	3	3	1	1	1	3	4	5	0	4
Ecotourism	2	2	2	2	2	2	2	2	1	1	1	3	3	4	4	0
Number of convergences	43	52	52	52	52	52	52	52	23	23	23	43	52	42	42	33

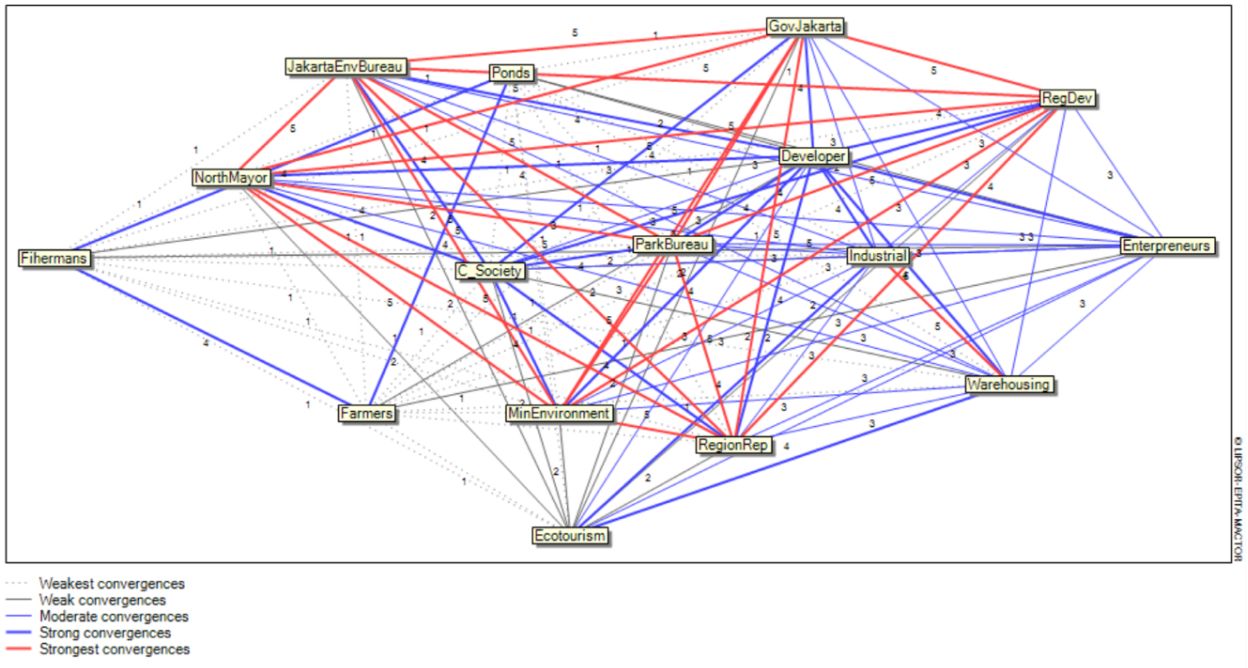

Fig. 4. Map of Order 1 convergences between actors.

Fig. 5 shows the direction and magnitude of divergence between actors and presents the "distance" between actors to other actors, illustrating how far or close these actors can collaborate (Villegas and Alejandro 2011). These conditions show the magnitudes of distance, the cluster of the same interest between the stakeholders.

Table 6. Divergence matrix between actors

1DAA	C_Society	RegionRep	GovJakarta	NorthMayor	ParkBureau	RegDev	MinEnvironment	JakartaEnvBureau	Fisherman	Farmers	Ponds	Entrepreneurs	Developer	Industrial	Warehousing	Ecotourism
C_Society	0	0	0	0	0	0	0	0	3	3	3	1	1	2	2	2
RegionRep	0	0	0	0	0	0	0	0	3	3	3	1	1	2	2	2
GovJakarta	0	0	0	0	0	0	0	0	3	3	3	1	1	2	2	2
NorthMayor	0	0	0	0	0	0	0	0	3	3	3	1	1	2	2	2
ParkBureau	0	0	0	0	0	0	0	0	3	3	3	1	1	2	2	2
RegDev	0	0	0	0	0	0	0	0	3	3	3	1	1	2	2	2
MinEnvironment	0	0	0	0	0	0	0	0	3	3	3	1	1	2	2	2
JakartaEnvBureau	0	0	0	0	0	0	0	0	3	3	3	1	1	2	2	2
Fisherman	3	3	3	3	3	3	3	3	0	0	0	2	2	3	3	3
Farmers	3	3	3	3	3	3	3	3	0	0	0	2	2	3	3	3
Ponds	3	3	3	3	3	3	3	3	0	0	0	2	2	3	3	3
Entrepreneurs	1	1	1	1	1	1	1	1	2	2	2	0	0	1	1	1
Developer	1	1	1	1	1	1	1	1	2	2	2	0	0	1	1	1
Industrial	2	2	2	2	2	2	2	2	3	3	3	1	1	0	0	0
Warehousing	2	2	2	2	2	2	2	2	3	3	3	1	1	0	0	0
Ecotourism	2	2	2	2	2	2	2	2	3	3	3	1	1	0	0	0
Number of divergences	17	17	17	17	17	17	17	17	37	37	37	17	17	27	27	27

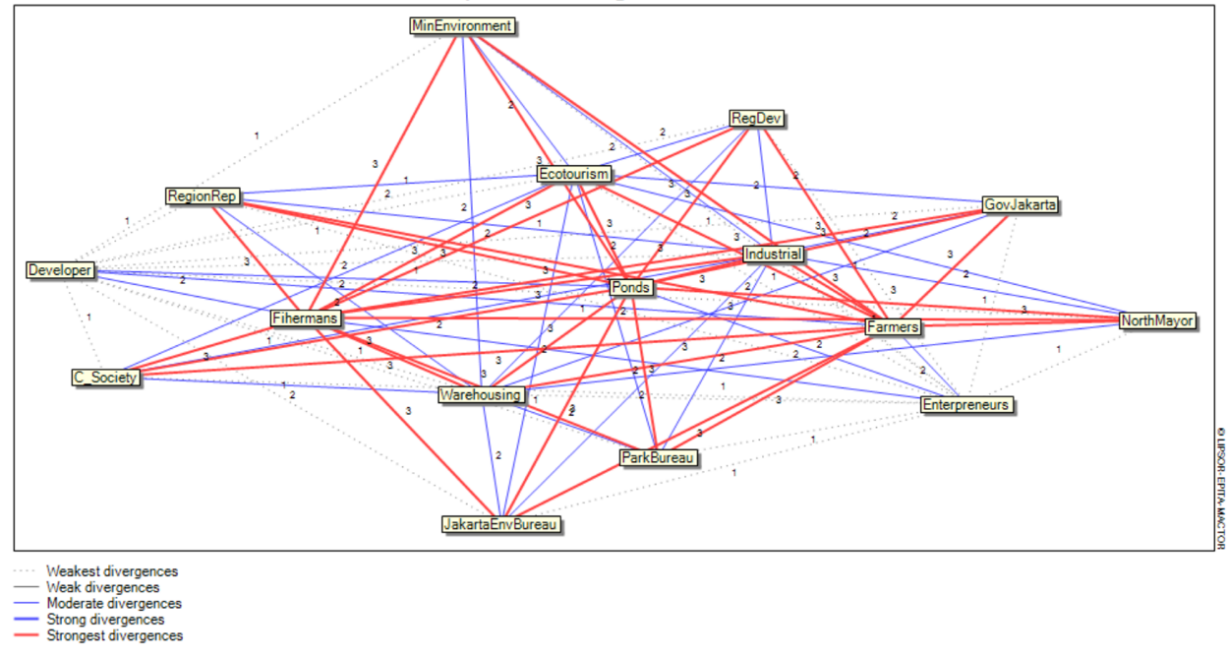

Fig. 5. Map of Order 1 divergences between actors.

Fig. 6 presents the "distance" between actors and other actors, illustrating how far or close these actors can collaborate. **Fig. 6** shows that the government stakeholders such as the Regional House of Representatives of DKI Jakarta, the Ministry of Environment and Forestry of the Republic of Indonesia, the Bureau of Development and Environment of DKI Jakarta Province, the Government of DKI Jakarta, and the Mayor of North Jakarta have a close range of interests, which means that the possibility of cooperation between these institutions is very strong. Other

stakeholders also have close proximity except for developers, entrepreneurs, and ecotourism, who tend to have different interests (Villegas and Alejandro 2011).

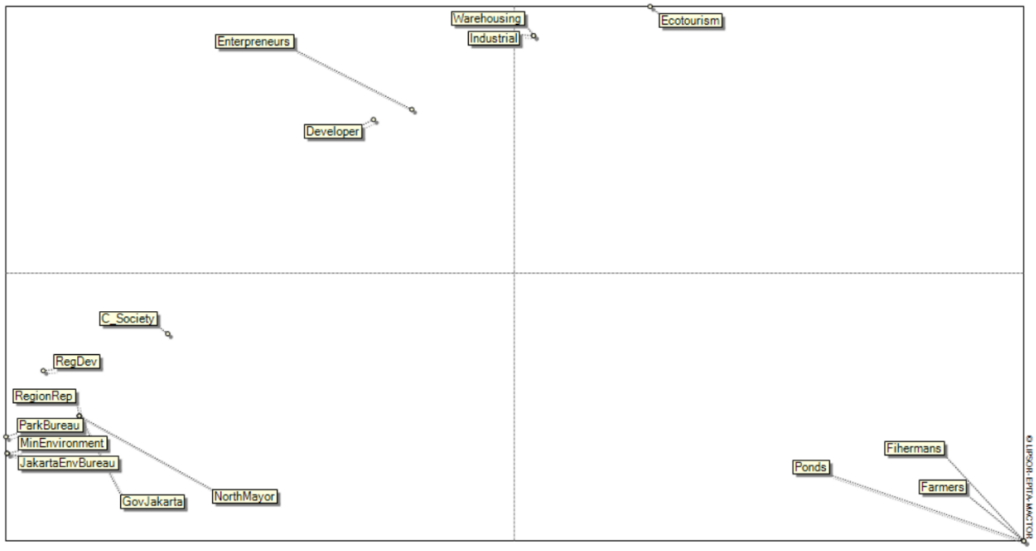

Fig. 6. The net distance between actors.

Fig. 7 illustrates how far or close the actors (stakeholders) are to the objective (Rees and MacDonell 2017). **Fig. 7** shows a cluster of actors aiming to use potential areas for national strategic interest and partly for mangrove areas like the Regional House of Representatives of DKI Jakarta, the Ministry of Environment and Forestry of the Republic of Indonesia, and the Government of DKI Jakarta Province. Development partially of the mangrove area scenario was closed with the support of the Bureau of Development and Environment of DKI Jakarta Province, the Mayor of North Jakarta City, and the Ministry of Environment and Forestry of the Republic of Indonesia. The development of the area for business and property interests was entrepreneurs.

Fig. 7. Map of actors /objectives relationship.

4. Conclusions

The potential key stakeholders to affect the success of mangroves plantation in DKI Jakarta are the Ministry of Environment and Forestry of the Republic of Indonesia, the Bureau of Development and Environment of DKI Jakarta Province, the Regional House of Representatives of DKI Jakarta, the Mayor of North Jakarta City and Government of DKI Jakarta Province. By

understanding the results of this research, all key stakeholders can be involved in decision-making through a good governance system supported by a balanced economic policy, social policy, forest use policy, reservoir conservation, and environmental policy. The results of this study are based on an institutional perspective. It is expected that the results can be used as a basis for managing the structure, resources, authority, and relationships between the Regional House of Representatives, local governments, related agencies, developers, the business community, mangrove planting communities, and communities that have been one of the pillars of the successful development area.

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