Proposing Green Waqf Development Strategy in Protecting Land Ecosystems in Indonesia: An Interpretive Structural Modeling Approach

Mohammad Iqbal Irfany[1], Sri Rahayu Ningsih[2], Qoriatul Hasanah[3], Aam Slamet Rusydiana[4]

[1,2,3] *IPB University, Bogor, Indonesia*
[4] *Tazkia Islamic University College, Bogor, Indonesia*

Climate change and terrestrial ecosystems are one of the important things in sustainable development goals (SDGs). In Indonesia, there are about 14 million critical lands (The Ministry of Environment and Forestry, 2018) that motivated the formation of several innovative financing to utilize critical lands, including the Green Waqf Movement since August 2021. This study aims to describe, identify key sub-elements, and analyze the Green Waqf development strategy in maintaining terrestrial ecosystems in Indonesia through the Interpretive Structural Modeling (ISM) approach. The results show that several key aspects in the constraint element are the lack of professionalism of nazhir, the lack of low public literacy and the lack of education and socialization of Green Waqf in the development of Green Waqf. The main goal that needs to be achieved is the existence of legal support for Green Waqf. This study recommends Green Waqf development strategies by coordinating the Indonesian Waqf Board, WaCIDS, nazhir, The Ministry of Environment and Forestry, local governments and other related stakeholders to encourage the Green Waqf program. In addition, approaching and fostering good relationship between wakif, nazhir, and business (including SMEs) as well as developing a number of green product development programs are also important.

Keywords: Green waqf, ecosystem, SDGs, Climate change, Indonesia, ISM

OPEN ACCESS

*Correspondence:
Mohammad Iqbal Irfany
iqbal.irfany@apps.ipb.ac.id

Received: 15 July 2023
Accepted: 29 August 2023
Published: 14 September 2023

Citation:
(2023) Proposing Green Waqf Development Strategy in Protecting Land Ecosystems in Indonesia: An Interpretive Structural Modeling Approach.
Ekonomi Islam Indonesia, 5.1.

INTRODUCTION

In the past 25 years, Indonesia has lost nearly a quarter of its forest land. The areas with the highest degradation are Kalimantan and Sumatra which in 2016-2017 lost 68% and 51% of their forest area. This deforestation is mainly caused by the conversion of forest functions into industrial areas (Ministry of National Development Planning, 2017) . Based on the Ministry of Forests and Environment (2018), another problem with land ecosystems in Indonesia is that there are 14 million critical lands caused by degradation, which reduces production capacity. The reduction of wetlands such as mangroves which has an area of 3.4 million ha, as many as 1.8 million ha are in critical condition. Meanwhile, the ability to rehabilitate this mangrove area is only 1,000 ha per year. Likewise, the condition of the expansion of subsistence agricultural land which resulted in an increase of 18.7 percent of agricultural land, and a decrease in soil organic matter and 80 percent of agricultural land experiencing erosion. Meanwhile, the expansion of production of palm oil, plywood, pulp-paper industry and vacant land also contributed to land degradation. As a result of land degradation, various issues must be faced, including the long dry season or drought, lack of water infiltration into the soil and lack of water resources.

Addressing SDGs requires sustainable funding. According to Obaidullah (2018) waqf-based development is in line with the goals of the SDGs and are compatible with sharia maqasid. Waqf is one of the social funding mechanisms in Islam that contributes in various fields, from infrastructure development to the socio-economic community (Asni et al., 2020). Of the many programs run by waqf management organizations, it can be seen that waqf has relevance to the goals of the SDGs to be achieved, such as alleviating poverty and improving education, health, and others (Abdullah, 2018; Akhtar, 1996; Al-Khouli, 2005; Budiman, 2011; Hasan, 2006; Marsuki, 2009; Thajudeen, 2018). The use of waqf instruments is no exception for climate change action and the maintenance of terrestrial ecosystems and the development of renewable energy (Ali & Kassim, 2020a; Budiman, 2011; Jaelani et al., 2020). In line with that, developments related to waqf to protect land ecosystems are also carried out by the Indonesian Waqf Fund Foundation (initiator) and the Waqf Center for Indonesian Development and Studies (WaCIDS) (coordinator) through the Green Waqf Movement. This movement was inaugurated on August 23, 2021 by the Indonesian Waqf Board (BWI).

The Green Waqf Movement has a mission to save 14 million ha critical lands by planting trees with a vision of renewable energy for Indonesia. The main focus of the program is the planting of Tamanu on critical lands in Indonesia. The existence of the Green Waqf Movement is expected to reduce the area of critical land in Indonesia and focus on the use of Tamanu plants as materials for the energy, health and industrial industries, which are expected to have an impact on carbon trading, net zero instruments, and social empowerment. So that the Green Waqf Movement is in line with the goals of SDGs 13 (Climate Action), SDGs 15 (Life on Land), and in the long term can realize SDGs 7 (Renewable Energy) in Indonesia.

Regarding waqf, the waqf instrument in Indonesia in its development has experienced several problems, both from the lack of public literacy, the lack of the National Waqf Index (BWI, 2021) and research on green waqf development strategies is still little done. This is a challenge in the development of the Green Waqf which was just launched in 2021. So that a strategy is needed in the development of the Green Waqf in Indonesia to realize climate action and safeguard terrestrial ecosystems which are the goals of sustainable development (SDGs).

Therefore, this study aims to design and propose strategies in the development of Green Waqf to protect terrestrial ecosystems in Indonesia. Using the ISM method to obtain expert opinion, design strategies and evaluate them. This study contributes to knowledge by providing waqf innovations for the purposes of SDGs 15 (Life on Land) and SDGs 13 (Climate Action) which can be adopted by related institutions. Although this study takes the case of Indonesia, the general framework can be applied to relevant institutions in other countries, subject to applicable regulations.

LITERATURE REVIEW

In Indonesia, the policy regarding waqf is regulated in Law No. 41 of 2004. Where waqf is a legal act of wakif to separate or surrender part of his property to be used forever or for a certain period of time in accordance with the interests of worship or public welfare according to sharia. So that the waqf property has long-lasting immortality or long-term benefits. This means that as long as the waqf operates and benefits the recipient, the reward will continue to flow (Budiman, 2011). Waqf can encourage development in various sectors, such as the local economic sector, the industrial sector, and other financial sectors. Historical experience explains how waqf can contribute to the welfare and

sustainable development of society (Alam et al., 2018). Waqf management has undergone a renewal where waqf property is no longer limited to immovable property, but waqf property is expanded into movable property. Many new and modern instruments have been innovated to develop productive waqf assets, such as being invested in shares, corporations, istisna, musyarakah mutanaqisah, Tawarruq, sukuk, waqf accounting, entrepreneurship, waqf higher education, and waqf banks. This progress can be made through a fatwa mechanism which is then stipulated in the form of legal regulations that recognize waqf innovations in various countries (Iman & Mohammad, 2017).

Green Waqf is one of the waqf innovations where the use of waqf is intended to maintain land ecosystems for sustainable development. According to Obaidullah (2018), waqf-based development is in line with the goals of the SDGs and is compatible with sharia maqasid. The Green Waqf program carried out in this case focuses on saving critical land in Indonesia by planting Tamanu plants for the vision of renewable energy which will have an impact on the benefit of the people (Iqbal, 2021). The concept of Green Waqf is in line with how Islam protects the environment through two important roles for mankind; first, responsibility for the perfection of religion and validation of the existence of Allah SWT, and second for building a good relationship with all of Allah's creation. According to Shari'a law, environmental preservation is a religious obligation that is required by Allah SWT as contained in Surah Al-Qasas verse 77, "Do good as Allah has done good to you, and do not do mischief on this earth". Furthermore, in Surah Al-A'raf verse 56, " And do not do mischief on the earth, after Allah has repaired it...". According to environmental (Dien, 1997) ethics in Islam, it is based on the concepts of justice ('adl) and equity (ihsan). Humans as caliphs on earth (Al Baqarah 2:30) are responsible for managing the earth properly according to the guidance of the Qur'an and Al-Hadith. This is also in line with Article 2 of Law no. 32 years 2009 which states that the protection and management of the environment is the principle of sustainability and sustainability and the principle of justice. Where that everyone has an obligation and is responsible for future generations and for each other in one generation by making efforts to preserve the carrying capacity of the ecosystem and improve the quality of the environment (Setyorini & Wirdyaningsih, 2020)

Efforts to develop waqf for the purpose of protecting terrestrial ecosystems have begun to be intensified. Studies show the advantages and benefits of waqf in the purpose of protecting terrestrial ecosystems such as Medaline (2017), Oktaviani et al. (2018), Obaidullah (2018) and Khan and Hassan (2019). Several studies that focus on waqf forests, such as Yaakob et al. (2017) proposes waqf as forest conservation, then (Ali & Kassim 2020; Ali & Kassim 2021) discusses how waqf can play a role in forest conservation and the achievement of SDGs and the development of waqf forests in Indonesia through a SWOT-ANP analysis approach in Bogor Waqf Forest. Continued development of waqf forests by (Ali et al., 2021) by increasing the sustainability of waqf forests through agroforestry. Research related to waqf forests began to appear since 1986 and began to experience a trend from 2005 to the present (Ningsih, 2021).

Iskandar et al. (2021) in their research shows that the synergy scheme between renewable energy programs and Islamic financial economic practices can be carried out in the form of: (i) the Islamic finance sector can be an instrument for financing EBT investments; (ii) the use of NRE can be a supporter and spearhead of the halal industry, such as halal food and beverages, Muslim fashion, halal tourism, halal pharmaceuticals and cosmetics to halal media and recreation; and (iii) in the context of social and religious NRE financing, NRE can be carried out with the concept of ta'awun and alms Jariyah through crowdfunding and waqf. In line with that, the results of research conducted by (Anam & Fauzi, 2021) show that waqf and renewable energy have enormous potential in Indonesia. The integration of waqf as a fund to finance the use of renewable energy has a positive role in reducing the impact of climate change.

Research conducted (Ministry of National Development Planning, 2017) in Indonesia's SDGs Roadmap Towards 2030 analyzes the interrelationship of Indonesia's SDGs goals and targets using a study from IGES as a further analysis for the case of Indonesia. Furthermore, using ISM as a methodology in research. The results show that policies need to focus on targets at the main level that are able to encourage the achievement of other targets effectively. The recommendations for the main SDGs targets are 1) Free primary and secondary education 2) Dual energy efficiency 3) Universal health coverage and 4) increasing renewable energy.

RESEARCH METHOD

Sources and Methods of Data Collection

The data used in this study is primary data obtained from interviews and filling out questionnaires

with expert practitioners and regulators. The selected respondents were those who were considered to have a good understanding of the development of waqf in Indonesia (academics), then those who worked in the field of waqf (practitioners) and waqf regulators (BWI). In this study, nine respondents were selected according to the criteria. There is no maximum or minimum requirement in selecting respondents, what needs to be considered is that the respondent must have expertise in the topic discussed.

In addition to interviews and filling out questionnaires, researchers also studied literature related to the problems faced in the development of GreenWaqf in Indonesia. Several sub-elements of the Green Waqf Development Strategy in Maintaining Land Ecosystems in Indonesia were obtained from the literature and the strategy will be written in the form of a questionnaire using the Interpretive Structural Modeling (ISM) approach, referring to (Saxena et al., 1992) in this study there are 3 elements, namely constraints or problems, goals, and activities or activities required.

General Description of Interpretive Structural Modeling

According to Marimin (2004) Interpretive Structural Modeling (ISM) is a modeling technique developed for strategic policy planning. The concept of ISM was first introduced by J. Warfield in 1973, where Warfield defined ISM as a computer-assisted learning process that enables individuals or groups to develop complex maps of relationships between the various elements involved in complex situations. ISM is a planning methodology used to identify and conclude various kinds of relationships between factors in a particular problem or issue (Sage, 1997). ISM analyzes system elements and solves them in graphical form of direct relationships between elements and hierarchical levels. Aspects that are bound in the implementation of the model are divided into elements, where each element is broken down into a number of sub-elements (Eriyatno, 2003). Accordingly, Interpretive Structural Modeling (ISM) (Bhattacharya & Momaya, 2009) is a sophisticated interactive planning methodology that allows a group of people, working together as a team to develop a structure that defines the relationships between elements in a set. The structure is obtained by answering simple questions. The elements to be compiled (such as goals, obstacles, problems and so on) are determined at the beginning of the ISM planning session. The ISM process starts with system modeling and ends with model validation. Through the ISM technique, the raw, unclear model will be converted into a visible system model (Rusydiana, 2018; Rusydiana & Irfany, 2021).

The overall process of ISM technique can be seen in Figure 1. The existing data is then processed using ISM software, in order to get accurate results for research based on the perspectives of the respondents.

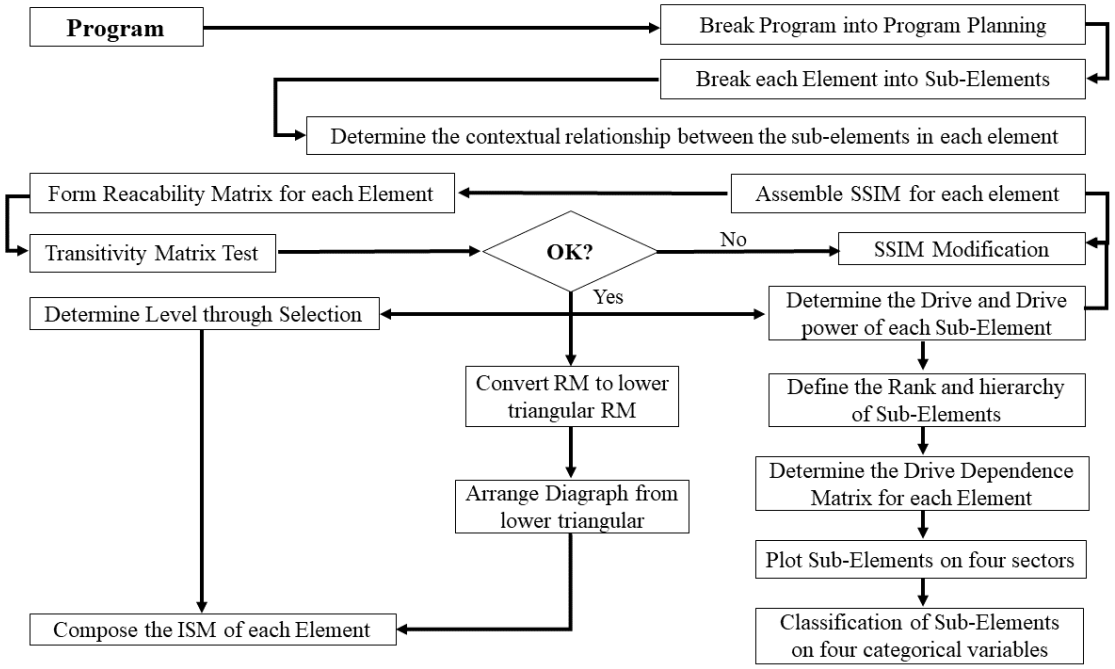

Figure 1: Stages of ISM (Marimin, 2004)

RESULTS AND DISCUSSION

ISM processing will classify the sub-elements into four sectors presented in a graphical form where the x-axis *is dependence* and the y-axis is *driver power*, namely:

- *Autonomous* (I): This section consists of variables that have low *driver power* values and low dependence values (≤ 0.5). Changes in this sector are generally not related to the system, and may have a small relationship, although the relationship can be strong.
- *Dependent* (II): This part is a variable that has a low value of driver power (≤ 0.5) but has a high dependence value (> 0.5). Generally, elements that enter this sector are elements that are not free in the system and are highly dependent on other elements.
- *Linkage* (III): This section consists of variables that have a high value of driver power and dependence (≥ 0.5). The variables in this sector must be studied carefully because the relationship between variables is unstable.
- *Independent* (IV): This section consists of variables that have a value of driver power. The variable in this sector is the remaining part of the system and is called an independent element. Any changes in this element will have an impact on other elements so elements in this sector should be studied carefully.

Elements of Constraint or Problems

The results of ISM processing on the elements of constraints or problems can be seen in Figure 2. None of the ten sub-elements is in the autonomous group. Hence, it is known that there is no element that has low *driver power* and *dependence*, meaning that all elements are related to the system. The dependent group is known to consist of 4 sub-elements, namely (C2) lack of public trust in the Nazhir institution, (C9) lack of community participation in maintaining terrestrial ecosystems, (C6) lack of optimization of waqf for the *Green Waqf program*, (C8) not yet created *supply- chain green product* from the results of the *Green Waqf program* . This group has close relationships with other elements but is not the main driver of the system. Furthermore, the linkage group consists of 5 sub elements, namely (C10) Lack of transparent publication of the *Green Waqf program* , (C1) lack of optimization of fintech in raising waqf funds, (C5) lack of education and socialization of *Green Waqf* (C3) literacy of community waqf that is still low, and (C7) lack of legal support for *Green Waqf* . The five sub-elements have a strong driving force and can provide feedback to the system. Meanwhile, as a key sub-element in the constraint element, namely (C4), Nazhir's lack of professionalism.

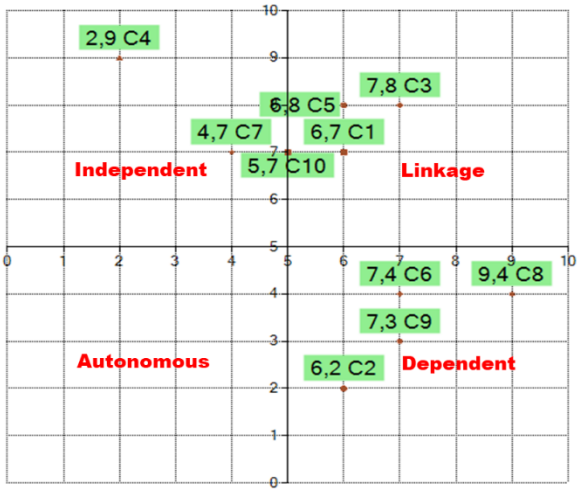

Figure 2: Driver-Power Matrix of Constraint Elements

Figure 3 depicts a structural model of the constraint or problem element which is a tiered structure to facilitate understanding of the substance. It shows the sequence of stages of needs in implementing the *Green Waqf* development strategy in maintaining terrestrial ecosystems in Indonesia. Level 1 is the key element of need, which means that the lack of professionalism of Nazhir has the highest impact on the development of *Green Waqf* in Indonesia. Nazhir's professionalism plays an important role in the management and distribution of waqf assets so that in the development of *Green Waqf* a professional Nazhir is needed. Relevant to the results of research conducted (Khairunisa et al., 2017; A. Rusydiana & Rahayu, 2019) shows the main obstacle in developing waqf in Indonesia is the lack of professional Nazhir resources. Hence it is necessary to provide guidance and assistance to Nazhir in improving Nazhir's professionalism (Fitri & Wilantoro, 2018; Hasanah et al., 2021) .

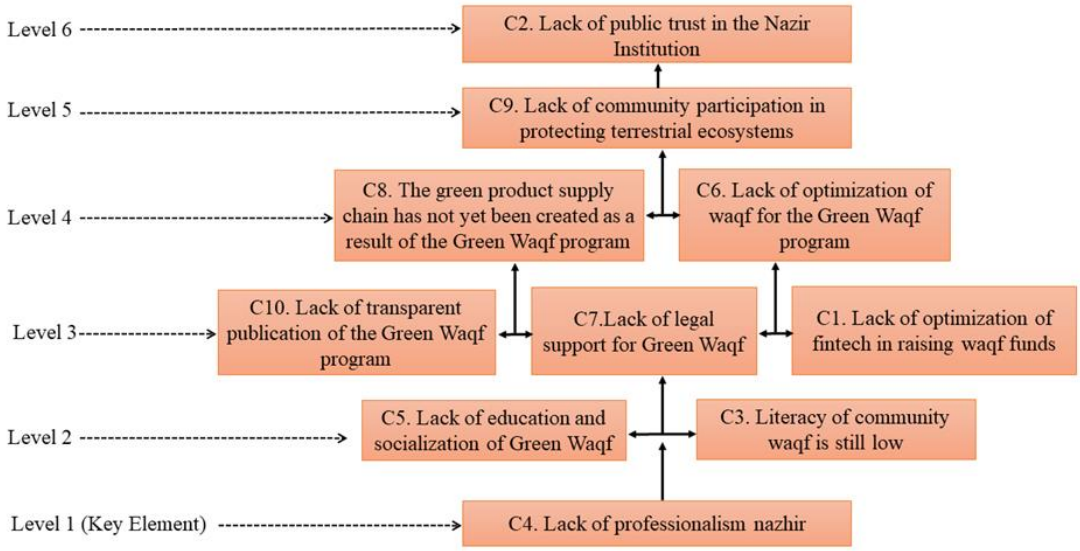

Figure 3: Structural Model for Constraint Element

At level 2 the sub-element of the important obstacle is the lack of low public literacy and the lack of education and socialization of *Green Waqf*. If education and socialization of *Green Waqf* is intensified, it can increase public literacy not only related to waqf but also the use of waqf in maintaining environmental ecosystems. In line with the results of research (Abdullah et al., 2018; Ghanny & Fatwa; AS Rusydiana, 2019) showing that socialization and education of waqf can be done from a religious perspective, then the importance of waqf institutions to disseminate basic knowledge related to waqf and strategies specifically to inform about advanced knowledge of waqf in a unique way according to the characteristics of prospective waqf so as to improve waqf literacy. Then also socialization of waqf through digital media needs to be intensified.

Element of Purpose

The results of the ISM process for the destination element can be seen in Figure 4. None of the eight sub-elements is in the autonomous group. Hence it is known that there is no element that has low *driver power* and *dependence,* which means that all elements are related to the system. The dependent group is known to consist of 2 sub-elements, namely (G7) the community participating in the *Green Waqf program,* (G8) The creation of a green product supply chain from the results of the *Green Waqf program*. Where this group has close relationships with other elements but is not the main driver of the system. Furthermore, the linkage group consists of 5 sub elements, namely (G1) fintech optimization in fundraising for the *Green Waqf program* (G2) the availability of an effective education, socialization, and communication system, (G4) the availability of professional Nazhir, (G5) the availability of publications. transparent *Green Waqf* program, (G6) Optimization of waqf instruments for the *Green Waqf program*. The five sub-elements have a strong driving force and can provide feedback to the system. Meanwhile, as a key sub-element in the objective element, namely (G3), the existence of legal support for *Green Waqf*.

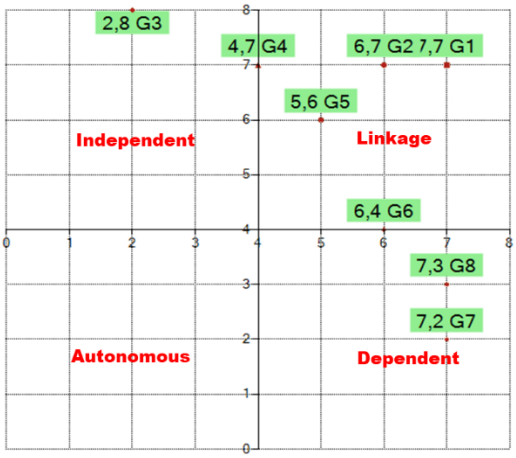

Figure 4: Driver-Power Matrix for Destination Elements

Figure 5 depicts structural model of the objective element which is a tiered structure to facilitate understanding of the substance. It shows the sequence of objectives in implementing the *Green Waqf* development strategy in protecting terrestrial ecosystems in Indonesia. The key objective sub-elements from the research results show that legal support for Green Waqf is a top priority. There is legal support for *Green Waqf* which is clearly the legality of developing Green Waqf in Indonesia which will only be inaugurated in 2021. Relevant to research conducted by (Z. Abdullah et al., 2018; Jannah et al., 2020; Wulandari et al., 2019). Waqf has been practiced for quite a long time and new legal rules were enacted after the Waqf Law in 2004, but it has not been implemented optimally, so it is necessary to strengthen the law on waqf innovation and its use. In addition, national laws governing waqf law in Indonesia are also needed to support waqf innovation, including legal support through MUI fatwas on *Green Waqf*. Furthermore, the important sub-elements in the goal of developing *Green Waqf* in Indonesia are professional Nazhir, the availability of effective education and communication, and optimization of fintech in collecting waqf funds for the *Green Waqf* program (Z. Abdullah et al., 2018; Ghanny & Fatwa, 2021; Niswah & Mutmainah, 2020; Wulandari et al., 2019) .

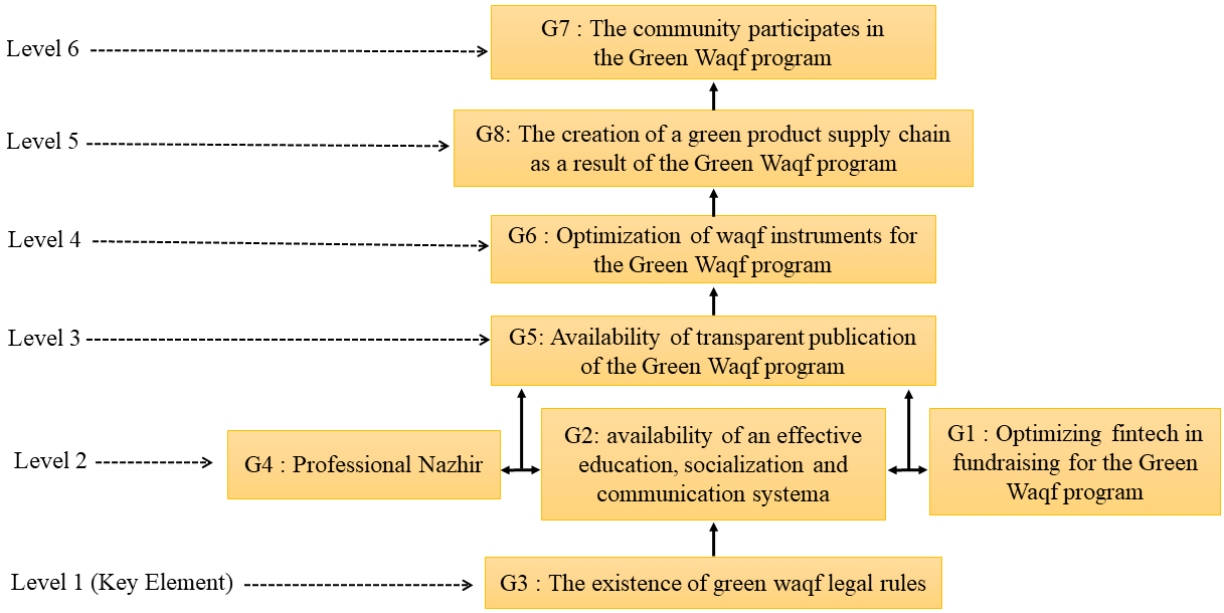

Figure 5: Structural Model for Purpose Elements

Element of Activities

The processing results can be seen in Figure 6. Of the nine sub-elements, none is in the autonomous group. Hence it is known that there is no element that has low *driver power* and *dependence*, which means that all elements are related to the system. The dependent group is known to consist of 2 sub-elements, namely (G7) the community participating in the *Green Waqf program*, (G8) The creation of *a green product supply chain* from the results of the *Green Waqf program*. Where this group has close relationships with other elements but is not the main driver of the system. Furthermore, the linkage group consists of 5 sub elements, namely (G1) fintech optimization in fundraising for the *Green Waqf program,* (G2) the availability of an effective education, socialization, and communication system, (G4) the availability of professional Nazhir, (G5) the availability of publications. transparent *Green Waqf* program, (G6) Optimization of waqf instruments for the *Green Waqf program.* The five sub-elements have a strong driving force and can provide feedback to the system. Meanwhile, as a key sub-element in the activity or program element, namely (P1) Coordination of Indonesian Waqf Board, WaCIDS, Nazhir, the Ministry of Forests and Environment, regional governments and related institutions to encourage the *Green Waqf* program, (P3) Approaching and fostering good relations between wakif, Nazhir, companies and MSMEs, and (P4) Develop green product development from the *Green Waqf* program.

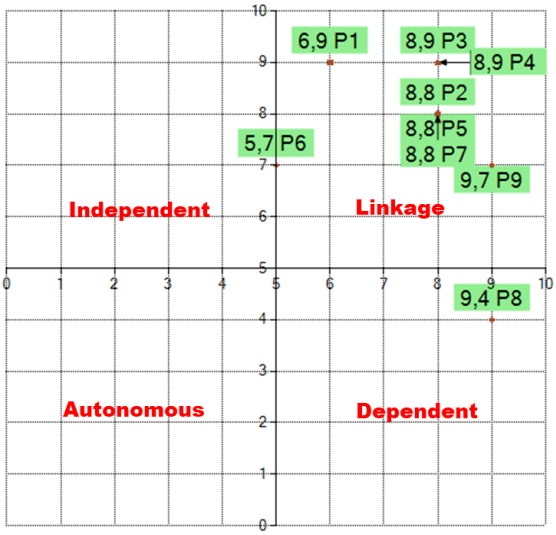

Figure 6: Driver-Power Matrix for Program Elements

Figure 7 depicts a structural model of activity or program elements which is a tiered structure to facilitate understanding of the substance. It shows the sequence of activities or activities in implementing the Green Waqf development strategy in maintaining terrestrial ecosystems in Indonesia. It can be seen that the Coordination of Indonesian Waqf Board, WaCIDS, Nazhir, the Ministry of Forests and Environment, local governments and related institutions to encourage the Green Waqf program, approach and foster good relations between wakif, Nazhir, Companies and MSMEs, and develop green product development from the Green Waqf program are elements key in the activity element. This finding supports other studies (Fitri & Wilantoro, 2018; Jaelani et al., 2020; Kurnia et al., 2010; Rusydiana & Irfany, 2021) which suggested that coordination of agencies and related parties is needed to facilitate program implementation which includes planning, management, and monitoring. Good coordination will facilitate the provision of program needs. Then, the preparation of product development programs needs also to be done for the sustainability of the program. In this case, the coordination of agencies in fostering good relations with related parties and the preparation of green product development from the *Green Waqf* program is a priority activity in developing *Green Waqf* in Indonesia.

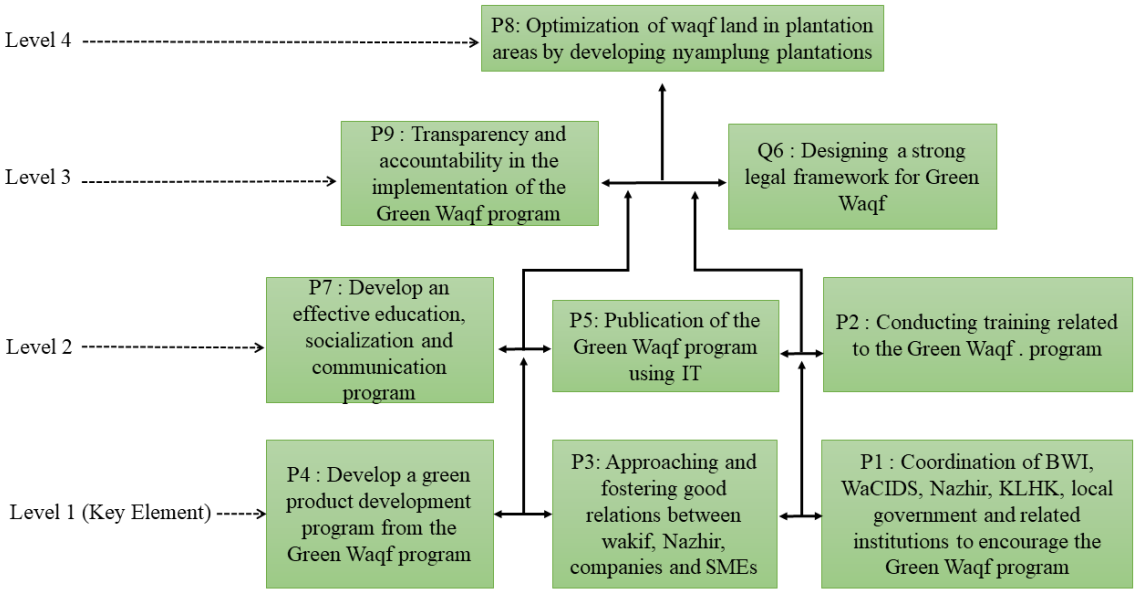

Figure 7: Structural Model for Activity Elements

CONCLUSION

In general, Green Waqf can be a solution to environmental problems. Based on the results of the analysis, the development of Green Waqf in Indonesia using the ISM method can be divided into 3 criteria: (1) Constraints or problems faced in developing Green Waqf, (2) Objectives of developing *Green Waqf* in Indonesia, and (3) Activities or programs that can be carried out in the context of developing *Green Waqf* in Indonesia..

In the constraint or problem element, there are five sub-elements that have a strong driving force and can provide feedback on the system, namely 1) lack of transparent publication of the *Green Waqf program* , 2) lack of optimization of fintech in raising waqf funds, 3) lack of education and socialization. *Green Waqf*, 4) literacy of community waqf is still low, 5) lack of legal support for *Green Waqf*. The main obstacles or problems faced in the development of *Green Waqf* in Indonesia are the following: the lack of professionalism of Nazhir, education and socialization of Green Waqf, and the lack of public literacy on waqf in Indonesia. Nazhir's professionalism plays an important role in the management and distribution of waqf assets so that in the development of Green Waqf a professional Nazhir is needed.

In the objective element, five sub-elements that have a strong driving force and can provide feedback to the system are 1) optimizing fintech in fundraising for the *Green Waqf program*, 2) providing an effective education, socialization, and communication system, 3) the availability of Nazhir who professional, 4) the availability of transparent publications of the *Green Waqf program* , 5) Optimization of the waqf instrument for the *Green Waqf program*. The main objectives that need to be achieved in the Green Waqf development strategy in Indonesia are the availability of legal support for Green Waqf, the existence of a professional Nazhir and optimization of the waqf instrument for the Green Waqf program. The strengthening of waqf law in the Act needs to be achieved to support waqf innovation and its utilization. In addition, national laws governing waqf law in Indonesia are also needed to support waqf innovation, including legal support through MUI fatwas on Green Waqf. Furthermore, the important sub-elements in the goal of developing Green Waqf in Indonesia are professional Nazhir, the availability of effective education and communication, and optimization of fintech in collecting waqf funds for programs.

Similar to the previous two elements, the activity element has 5 sub-elements driving the system, namely 1) optimizing fintech in fundraising for the Green Waqf program, 2) providing an effective education, socialization, and communication system, 3) the availability of professional Nazhir, 4) availability of transparent publication of the Green Waqf program, 5) by coordinating the Indonesian Waqf Board,WaCIDS, Nazhir, The Ministry of Environment and Forestry, local governments and related institutions to encourage the *Green Waqf* program, approach and foster good relations between wakif, Nazhir, companies and SMEs, and develop a green product development programs from the *Green Waqf* program. Good coordination will facilitate the provision of program needs. Then also the preparation of product development programs needs to be done for the sustainability of the program. In this case the coordination of agencies in fostering good relations with related parties and the preparation of green product development from the Green Waqf program is a priority activity in developing Green Waqf in Indonesia.

Regulators, practicioners, academics as well as related parties must start seriously managing terrestrial ecosystems in Indonesia, including by supporting the Green Waqf movement. The relevant government must start to support the management of terrestrial ecosystems with Green Waqf which is integrated with the SDGs. Regulators must encourage and provide support in the form of regulations and incentives needed to support the development of Green Waqf in Indonesia. Further research is needed to refine strategies for developing Green Waqf in Indonesia, especially with different methods of Structural Equation Modeling (SEM), Strategic Assumption Surfacing and Testing (SAST) and Analytic Network Process (ANP) or improving the ISM model.

REFERENCES

Abdullah, M. (2018). Waqf, Sustainable Development Goals (SDGs) and maqasid al-shariah. *International Journal of Social Economics*, 45(1), 158–172. https://doi.org/10.1108/IJSE-10-2016-0295

Abdullah, Z., Ali, K. M., & Yuliani, M. (2018). Priority Aspects of Waqf Management in Indonesia. *AL-FALAH: Journal of Islamic Economics*, 3(1), 1. https://doi.org/10.29240/jie.v3i1.345

Akhtar, M. R. (1996). Towards an Islamic Approach for Environmental Balance. *Islamic Economic Studies*, 3(2), 57–76.

Al-Khouli, S.F. (2005). On Islam's Attitude towards Sustainable Development. *Journal of King*

Abdulaziz University, Islamic Economics, 18(1), 35–40.

Alam, M. M., Shahriar, S. M., Said, J., & Monzur-E-Elahi, M. (2018). Waqf as a Tool for Rendering Social Welfare Services in the Social Entrepreneurship Context. *Global Journal Al-Thaqafah*, 8(1), 1–12. https://doi.org/10.31235/OSF.IO/8BFJY

Ali, KM, & Kassim, S. (2021). Development of Waqf Forest in Indonesia: The SWOT-ANP Analysis of Bogor Waqf Forest Program by Bogor Waqf Forest Foundation. *Journal of Tropical Forest Management,* 27(2), 89–99. https://doi.org/10.7226/jtfm.27.2.89

Ali, KM, & Kassim, S. (2020a). Waqf Forest: How Waqf Can Play a Role In Forest Preservation and SDGs Achievement? *Ethics*, 19(2). https://doi.org/10.15408/etk.v19i2.16310

Ali, KM, & Kassim, S. (2020b). Waqf Forest: How Waqf Can Play a Role In Forest Preservation and SDGs Achievement? *Ethics*, 19(2), 349–364. https://doi.org/10.15408/etk.v19i2.16310

Anam, S., & Fauzi, R. A. (2021). Waqf and Renewable Energy: Analysis of the Potential of Energy Waqf in Reducing the Impact of Climate Change Syaiful. *Al-Waqf,* 14(2), 123–138.

Asni, F., Mahamud, M. A., & Sulong, J. (2020). Socio-economics and management of Muslim cemetery waqf using istibdal and GIS method in Penang state. *Journal of Islamic Accounting and Business Research*, 11(7), 1343–1362. https://doi.org/10.1108/JIABR-01-2019-0026

Bhattacharya, S., & Momaya, K. (2009). Interpretive Structural Modeling of Growth Enablers in Construction Companies. *Singapore Management Review*, Vol.31, No.1, pp. 73-97.

Budiman, M. A. (2011). The Role of Waqf for Environmental Protection in Indonesia. *Aceh Development International Conference 2011, March*, 880–889.

BWI. (2021). 2021 *National Waqf Index Report. Indonesian Waqf Board.* https://www.bwi.go.id/wp-content/uploads/2022/03/Laporan-Index-Wakaf-Nasional-2021.pdf

Dien. (1997). Islam and the Environment, Theory, and Practice. *Journal of Beliefs and Values, 1, Islamic Environmental Ethics, Law, and Society*

Eriyatno. (2003). System Science Improves Management Quality And Effectiveness. IPB Press

Fitri, R., & Wilantoro, H. P. (2018). Analysis of Priority Solutions to Productive Waqf Management Problems (Case Study of Banjarnegara Regency). *Al-Muzara'ah*, 6(1), 41–59. https://doi.org/10.29244/jam.6.1.41-59

Ghanny, A. R., & Fatwa, N. (2021). Millennial generation waqf literacy index. 4, 253–262.

Hasan, Z. (2006). Sustainable development: Theory and practice for a sustainable future. *Journal of King Abdulaziz University: Islamic Economics*, 19(1), 3–18. https://doi.org/10.1002/sd.3460010306

Hasanah, N., Sulistya, I., & Irfany, M. I. (2021). Money Waqf Management Strategy by the Indonesian Waqf Board (BWI). *Al-Awqaf: Journal of Endowments and Islamic Economics*, 13(1), 39–58. https://doi.org/10.47411/al-awqaf.v13i1.95

Iman, A. H. M., & Mohammad, M. T. S. H. (2017). Waqf as a framework for entrepreneurship. *Humanomics*, 33(4), 419–440. https://doi.org/10.1108/H-01-2017-0015

Indonesia. the Ministry of Forests and Environment. (2018). KLHK Increases Forest and Land Rehabilitation Ten Times In 2019. *http://ppid.menlhk.go.id/siaran_pers/browse/1723#:~:text=Tahun%202018%2C%20Luas%20lahan%20kritis,cepatan%20Rehabilitation%20Forest%20and%20Land.*

Indonesia. Ministry of Finance.(2004). Law of the Republic of Indonesia Number 41 of 2004 concerning Waqf. https://jdih.kemenkeu.go.id/fulltext/2004/41TAHUN2004UU.htm

Indonesia. Ministry of Energy and Mineral Resources. (2009). *https://jdih.esdm.go.id/storage/document/UU%2032%20Tahun%202009%20(PPLH).pdf*

Iqbal, M. (2021). Treatise on Science and Technology for Sustainability. http://sunardi.geraidinar.com/index.php/blog/category-list/81-entrepreneurship/2141-risalah-ilmu-dunia-dan-technology-for-sustainability

Iskandar, A., Aqbar, K., & Herman, S. (2021). Renewable Energy and the Sharia Economy: Synergy Realizing Sustainable Development. *SALAM: Social and Cultural Journal of Syar-I*, 8(3), 711–734. https://doi.org/10.15408/sjsbs.v8i3.20347

Jaelani, A., Layaman, Fatmasari, D., Salikin, A. D., & Dz, A. (2020). Energy conservation and energy management for industry in Indonesia in islamic economic perspective. *International Journal of Energy Economics and Policy*, *10*(3), 239–249. https://doi.org/10.32479/ijeep.9061

Jannah, M., Sarkawi, A. A., & Othman, J. (2020). Legalization of Waqf Forests in Indonesia: the Registration Process. *Indonesia Law Review*, *10*(3), 278–293. https://doi.org/10.15742/ilrev.v10n3.629

Ministry of National Development Planning. (2017). Roadmap for Sustainable Development Goals (SDGs) in Indonesia. *Kementerian PPN/Bappenas*.

Khairunisa, R., Akbar, N., & Devi, A. (2017). Exploring Strategies To Enhance Islamic Banking'S Role To Raise Cash Waqf Funds. *Iqtishadia*, *10*(2), 1. https://doi.org/10.21043/iqtishadia.v10i2.2863

Khan, F., & Hassan, M. K. (2019). Revitalization of Waqf for Socio-Economic Development, Volume II. In *Revitalization of Waqf for Socio-Economic Development, Volume II: Vol. II*. Springer International Publishing. https://doi.org/10.1007/978-3-030-18449-0

Marimin. (2004). *Compound Criteria Decision Making Techniques and Applications*. https://doi.org/10.13140/RG.2.1.3743.2800

Marsuki, M. Z. (2009). Religious Agendas Towards Sustainable Development: an Islamic Perspective. *Malaysian Journal of Science and Technology Studies*, 22–38.

Medaline, O. (2017). The Development of "Waqf" on the "Ulayat" Lands in West Sumatera, Indonesia. *Journal of Social Science Studies*, *5*(1), 108. https://doi.org/10.5296/jsss.v5i1.10419

Ningsih, S. R. (2021). *Researching Waqf Forest Studies*. *1*(1). http://journals.smartinsight.id/index.php/IJW/article/view/75

Niswah, F. M., & Mutmainah, L. (2020). *Do Indonesian Muslims Have Intention to Participate on Cash Waqf Through Do Indonesian Muslims Have Intention to Participate on Cash Waqf Through Fintech ? January*. https://doi.org/10.4108/eai.6-11-2019.2297262

Obaidullah, M. (2018). Managing Climate Change: The Role of Islamic Finance. *SSRN Electronic Journal*, *January*. https://doi.org/10.2139/ssrn.3303687

Oktaviani, Y., Rangkuti, K., Pyan Putro Surya, A. M., & Puspita, A. (2018). Financial solutions for biodiversity in contributing to the economic development in Indonesia. *E3S Web of Conferences*, *74*. https://doi.org/10.1051/e3sconf/20187401007

Rahmah Ghanny, A., & Fatwa, N. (n.d.). MILLENIAL GENERATION WAKF LITERATURE INDEX. *Jurnal Tabarru': Islamic Banking and Finance*, *4*(1), 2021.

Rusydiana, A. S., & Irfany, M. I. (2021). Proposing blue sukuk in Indonesia: an interpretive structural model. *Shirkah: Journal of Economics and Business*, *6*(1), 101-114.

Rusydiana, A., & Rahayu, S. S. (2019). What is the Cash Waqf Development Strategy in Indonesia? *Jurnal Ekonomi Dan Bisnis Islam (Journal of Islamic Economics and Business)*, *5*(1), 15. https://doi.org/10.20473/jebis.v5i1.10416

Rusydiana, A. S. (2019). *APPLICATION OF STRUCTURAL INTERPRETATION MODELING (Interpretive Structural Modeling)*. 1–44.

Rusydiana, A. S. (2018). Analysis of cash waqf development in Indonesia using interpretive structural modeling (ISM). *Journal of Islamic Economics Lariba*, 1-11.

Sage, A. (1977). Interpretive Structural Modeling: Methodology for Large-Scale Systems. McGraw-Hill.

Savitri Nur Setyorini, Wirdyaningsih, C. A. H. (2020). Environmental Waqf in the Framework of Implementing Sustainable Development and Enforcement of Intergenerational Justice. *Journal of Islamic Law Studies, Sharia Journal*, *3*(1), 98–132.

Saxena, J. P., Sushil, & Vrat, P. (1992). Hierarchy and classification of program plan elements using interpretive structural modeling: A case study of energy conservation in the Indian cement industry. *Systems Practice*, *5*(6), 651–670. https://doi.org/10.1007/BF01083616

Thajudeen, K. S. (2018). Financing water infrastructure: waqf as a solution. *International Review of Entrepreneurial Finance*, *1*(1), 18–32. https://revues.imist.ma/index.php/IREF/article/view/12998

Wulandari, S., Effendi, J., & Saptono, I. T. (2019). Selection of Nazhir in Optimizing the Management of Cash Waqf. *Journal of Business and Management Applications, 5*(2), 295–307. https://doi.org/10.17358/jabm.5.2.295

Yaakob, A., Mahzir, N., Supaat, D. I., Zakaria, M. Z., Wook, I., & Mustafa, M. (2017). Waqf as a means of forest conservation: Alternative for Malaysia. *Advanced Science Letters*, *23*(5), 4860–4864. https://doi.org/10.1166/asl.2017.8928

.