

Developing Green Waqf Model for Environmental Issues

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The discussion on strengthening environmental issues for sustainable development is summarized in SDGs goal fifteen. On the other hand, waqf is an Islamic social fund instrument that has a sustainable nature and has relevance to SDGs, so it has the potential to be developed in its role in maintaining a more sustainable environment. This research seeks to look at waqf models that are relevant to the SDGs by prioritizing waqf models that can be implemented in Indonesia in line with SDGs goal 15 from the Maqasid al-Shariah perspective. Furthermore, this research proposes a model for realizing the 15th SDG goal, namely the preservation of terrestrial ecosystems based on waqf through a modified Green Waqf scheme.

Keywords: Green Waqf, SDGs, Islamic social finance, SDG-15

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INTRODUCTION

Indonesia is one of the three main regions where tropical rainforests cover about 10% of the world's surface area. Data from the Directorate General of Forestry Planning and Environmental Governance (PKTL) of the Ministry of Environment and Forestry (MoEF), reveals that the total forested land area of Indonesia is 50.1% of the total land area or equivalent to 94.1 million hectares of forest land. This makes Indonesia the third largest tropical rainforest area in the world. Tropical rainforests are a very significant factor in influencing climate change (Baker and Randall, 1993). Therefore, Indonesian forests play an important role in climate change so they must be seriously preserved to maintain the balance of the world environment.

Forests are critical to global sustainable development, affecting not only the environment but also economic prosperity. About 1.6 billion people depend on forests for food and medicinal plants. While 10 million people work in the forestry sector worldwide (CDP, 2022). Rising global demand for food to feed the 9 billion people who will populate the planet by 2050 combined with continued environmental and land degradation underscores the urgency of achieving a transformation towards sustainable land use as a concern of SDG 15. Issue Brief SDGs 15 include: 1) every minute, around 23 hectares of agricultural land is lost to drought and desertification. 2) over the past two decades, about 20 percent of the Earth's vegetated surface has shown a persistent downward trend in productivity, mainly due to unsustainable land and water use and management practices. 3) every year, 13 million hectares of forests are lost that are home to more than 80 percent of all land-based species and that provide livelihoods for 1.6 billion people. 4) increased vulnerability to environmental stress, especially of the poor, women and children, can lead to intensified competition for scarce natural resources and result in migration, instability and conflict. 5) women and girls are disproportionately and differently affected by environmental degradation, pollution and natural and man-made disasters. So the goal of SDGs no 15 is to protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss. These problems need to be addressed with the right instruments so that the goals of SDGs no 15 can be achieved.

Throughout Islamic history, social financial institutions such as waqf have become one of the largest

financial institutions in the Islamic world (Cizakca, 2000). Waqf is an instrument in Islam that can solve people's problems, one of which is environmental problems related to sustainable development and justice for future generations (Setyorini et al. 2019). According to Obaidullah (2018), waqf-based development is in line with the goals of SDGs and is compatible with maqasid sharia. Waqf is also one of the financial solutions for biodiversity in contributing to economic development in Indonesia (Oktaviani et al. 2018).

Efforts towards a model waqf approach for SDGs 15 have intensified. There are many studies and papers published in line with the purpose of this article. These studies show the advantages and benefits of waqf in SDGs 15 such as Onny (2017), Oktaviani et al. (2018), Obaidullah (2018), and Khan and Hasan (2019). There are some studies that focus on forest waqf, such as Yakoob et al. (2017), proposing waqf as an alternative forest preservation for Malaysia. Ali and Kasim (2020, 2021) discussed 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. Then continued the development of waqf forests by Jannah et al. (2021) with a discussion on improving the sustainability of waqf forests through agroforestry. Unfortunately, there are still limited studies that discuss the design of suitable models for Islamic commercial financial institutions and Islamic social financial institutions to implement the waqf model for SDGs goal no.15 Life on Land, especially in Indonesia. The waqf and zakat model, waqf and bank model are alternative developments in Indonesia. Other waqf models for SDGs goal 15 still need to be explored and evaluated.

Therefore, this research aims to design and propose a waqf model for SDGs goal no.15 Life On Land in Indonesia by combining the concept of waqf with the activities of commercial (for-profit) financial institutions as institutions that provide services to customers and Islamic social financial institutions (non-profit), as social institutions that provide social and public services to the community, especially the poor.

Using the ANP method to obtain expert opinions, various waqf models for SDGs 15 were designed and evaluated. Five waqf models for SDGs 15 are created to find the right waqf model from the five proposed models and then propose the best model that can be applied for SDGs 15 in Indonesia.

This study contributes to the body of knowledge by providing various waqf models for SDGs goal 15 life on land that can be adopted by Islamic commercial

financial institutions and Islamic social institutions. Although, this study takes the case of Indonesia, the general framework can be applied to Islamic commercial financial institutions and Islamic financial institutions in other countries, subject to applicable rules and regulations.

This paper will discuss the literature review related to the topic in Section 2, followed by discussing the methods and data used, as well as model development in Section 3. Furthermore, the results and discussion of the research will be presented in Section 4, while in Section 5 the research conclusions and recommendations for stakeholders, especially practitioners and regulators, as well as for future research will be presented.

LITERATURE REVIEW

Theoretical Background

Waqf is one of the sources of IGE (Islamic Gift Economy) as national income used for economic distribution purposes in addition to zakat, sadaqah (voluntary charity), ghanimah (war booty), fai (property obtained in war without fighting), fidth (part of fai whose distribution pattern is similar to zakat), kharaj (tax on land conquered during the war) and 'ushr (zakat on crops) (Robani and Shalih, 2018). According to Antonio (2010) Waqf has long played an important role in Islamic civilization.

In Indonesia, waqf policy is regulated in Law No.41 of 2004. According to Law No.14 of 2004, waqf is a waqif's legal action to separate or transfer part of his property to be utilized forever or for a certain period of time in accordance with the interests of worship or public welfare according to sharia. Thus, waqf assets have long-lasting permanence or long-term benefits. This means that the concept of perpetuity of waqf assets is present as long as the assets are still there. As long as the waqf operates and benefits the recipients, the rewards will continue to flow even if the waqif (the person with the waqf) dies (Budiman, 2011). One of the important purposes of waqf is to cover the needs of certain layers of society such as the poor, travelers, widows, and students, in addition to creating jobs. Thus, waqf can encourage development in various sectors, such as the local economic sector, 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)

The Sustainable Development Goals (SDGs), also known as global goals, were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity. There are 17 integrated SDGs points where every action in one area will affect outcomes in other areas, and development must balance social, economic and environmental sustainability (UNDP, 2022). Indonesia's commitment to achieving the SDGs is contained in the SDGs Indonesia Towards 2030 Roadmap, which focuses on the goals and targets of Indonesia's development, tapering down to issues in the sectors of health, education, social protection, food security and sustainable agriculture, infrastructure - including basic infrastructure such as water and sanitation, telecommunications, and green energy - ecosystem services and biodiversity, as well as financing government administration.

According to Obaidullah (2018), waqf-based development is in line with the goals of the SDGs and is compatible with maqasid sharia. Furthermore, waqf is crucial in funding development and social welfare schemes. The success of the SDGs relies heavily on the contribution of the philanthropic sector such as the active involvement of the private and public sectors. The indispensable role of the philanthropic sector in realizing development sustainability has been repeatedly emphasized (UNSDSN, 2012). Meanwhile, the importance of waqf, which is the philanthropic sector, is the backbone of an ideal Islamic economic sector, especially in the context of Muslim countries. Furthermore, waqf institutions as intermediaries play an important role in actualizing the common targets of both SDGs and Maqasid sharia (Khan, 2015).

Previous Studies

There is some research on waqf models in line with the SDGs goals. Some proposals are suggested and some have provided evidence of success stories of waqf models with SDGs objectives. The waqf models that are in line with SDG points 1 and 2 include; Haneef et al. (2015) waqf-Islamic microfinance model shows that poverty alleviation is possible through the integration of this model. Iman and Mohammad (2017) with a waqf-based entrepreneurship model as an alternative socio-economic framework for community welfare. Thaker and thaker (2015) and Tutukoa et al. (2017) on the concept of productive cash waqf in a multinational company that develops corporate waqf. Hossain (2019) designed a conceptual model of Islamic microfinance

using waqf funds for slum dwellers. [Susilistiani et al. \(2019\)](#) discussed the role of Micro Waqf Banks in Islamic boarding school-based poverty alleviation in Indonesia. [\(2020\)](#) proposed a link between the pension gap problem and waqf through a waqf-based pension model.

The proposed models that are in line with SDGs point 4 include [Shamsudin et al. \(2015\)](#) through the concept model of waqf corporate inter-country financing in the field of education. [Ahmad \(2020\)](#) combines waqf and zakat donations as a financial source in the development of Islamic Higher Education Institutions (HEIs). Then [Pitchay et al. \(2020\)](#) propose a waqf presentation model (WPM) in the context of higher education, where WPM is an improved version of the compulsory cash waqf scheme (CCWS).

[Mohsin \(2013\)](#) and [\(Mohammad, 2015\)](#) revealed that the potential of waqf in financing is not only in the field of religion but also in financing various goods and services needed globally, such as education, health, social and commercial care, basic infrastructure, and providing employment for some people. The development of waqf assets can be done through the use of Islamic real estate investment trusts (I-REITs) [Hasan and Sulaiman \(2016\)](#). [Thaker et al. \(2017\)](#) offer a model of sustainable financing sources in developing waqf land, namely CWM (crowdfunding waqf model). [Pitchay et al. \(2018\)](#) and [Zabri and Muhammad \(2018\)](#) through a cooperative-waqf model in waqf land development and housing finance. Furthermore, [Thaker et al. \(2019\)](#) proposed a crowdfunding and waqf financing model to utilize land potential known as the Islamic Economy Crowdfunding Waqf Model (IECWM). [Kamal and Ating \(2020\)](#) also proposed a waqf model for affordable housing mechanism in Malaysia. The impact of the waqf model on low-middle income people will be empowered by an affordable model without being guided by large-scale financing. This will promote economic growth by increasing wealth, consumption, lifestyle and welfare of the underprivileged in accordance with SDGs point 11.

Waqf models that are in line with SDGs point 8 include [Kachkar \(2017\)](#); [Hamber and Hanif \(2017\)](#); [Rahman and Soheli \(2019\)](#); proposing the establishment of a waqf-based social microenterprise fund that promotes inclusive financial development for micro-entrepreneurs. This model aims to reduce poverty, improve material welfare and empower the poor. The utilization of cash waqf proceeds will be a catalyst for Islamic microfinance in the fight against poverty and institutions as waqf fund managers have the potential to utilize waqf proceeds for the socio-economic

development of the poor. Then [Zakaria and Samad \(2013\)](#) and [Tanjung \(2018\)](#) integrated waqf and venture capital Waqf-Venture Capital Syariah (WVCS) which integrates social finance (waqf) and commercial finance (venture capital).

The next proposed waqf model related to SDGs points 13 and 15 from [Afroz et al. \(2019\)](#) proposed an integrated waqf environmental protection model (IWEPM). [Sulistiyowati \(2018\)](#) proposed an integrated zakat-waqf model for disaster management (IZWDM) that involves social and commercial aspects by providing three alternative models in accordance with disaster management measures. This waqf-Muzara'ah supply chain model (WMSCM) is used to provide financial facilities for farmers in Nigeria. [\(Olaniyi, 2014\)](#)

Then SDGs points 16 and 17 are in line with Suhali's research (2018) on the Waqf CSR model in a Malaysian case study. This research is about how waqf is harmoniously operationalized into a legal framework using collaborative governance mechanisms. [Ambrose \(2018\)](#) and [Sulaiman et al. \(2019\)](#) proposed a waqf model with sustainable collection, spending impact and financing mechanisms.

In conclusion, the waqf model and SDGs can provide many benefits to various fields at both the micro and macro levels, for sustainable economic development, as well as the welfare of society. Unfortunately, the waqf model for SDGs purposes has not been widely applied to environmental preservation, while the studies are also still limited. From the entire development of waqf models, it can be concluded that in general five models can be formed, namely (1) ZIS Waqf Model; (2) Takaful Waqf Model; (3) Microfinance Waqf Model; (4) Bank Waqf Model; and (5) Sukuk Waqf Model. Beyond that in terms of the function of the development model can be divided into 3 namely as a social function, commercial function, and social and commercial functions.

METHOD

The selection of methods carried out in the study of Waqf Model for SDGs point 15, namely terrestrial ecosystems, considers the objectives, characteristics of waqf and data availability. Because the purpose of this research is to analyze waqf modeling that can be applied by having relevance to SDGs, especially the fifteenth point, namely terrestrial ecosystems. Therefore, a method is needed that is able to provide the best results in decision making.

At the same time, the practice of waqf models and SDGs has the criteria of developing social funds in collaboration with environmental preservation, which has the potential to provide sustainable benefits. Based on these considerations, this study uses the *Analytic Network Process* (ANP) method to propose a waqf model that is relevant to the SDGs and evaluate the best waqf model among the proposed models.

Furthermore, this research seeks to analyze the criteria for a waqf model to help achieve the SDGs from a *Maqasid Sharia* perspective. This research also seeks to determine the criteria of the five elements of *Maqasid Sharia* and the proposed waqf model that has the most prioritized impact. Therefore, an analytical tool is needed in decision-making that is able to provide a measurement of the prioritization of the criteria and the proposed model. The prioritization is intended to rank the criteria that affect the proposed waqf model. So that in this study the method used is ANP (Saaty, 2005).

ANP is a general theory used to measure a relatively composite priority ratio from a given individual ratio scale. The results reflect the relative measurement of the effects of interacting or interconnected elements. In research aimed at

identifying good decision-making methods, the ANP method is relatively superior to other decision-making methods based on several different criteria, such as problem abstraction, width of structure, depth of structure, scientific basis, and validity of results (Saaty, 1996; Saaty & Vargas, 2006).

ANP requires that respondents must be consistent in answering the pairwise comparison questionnaire with a maximum allowable inconsistency of 10% (Ascarya & Yumanita, 2011; Rusydiana & Devi, 2013a). However, ANP does not require significant consensus (Kendall's scoring agreement) among respondents when they fill out the questionnaire individually. However, this study will calculate Kendall's rater agreement to understand different groups of respondents on this topic.

According to Azis (2003) and Sipahi & Timor (2010), ANP is a development of the Analytic Hierarchy Process (AHP) where levels have a hierarchy. In the AHP network there are levels of objectives, criteria, sub-criteria, and alternatives, where each level has elements. Meanwhile, in the ANP network, the levels in AHP are called clusters that can have criteria and alternatives in them, which are now called nodes.

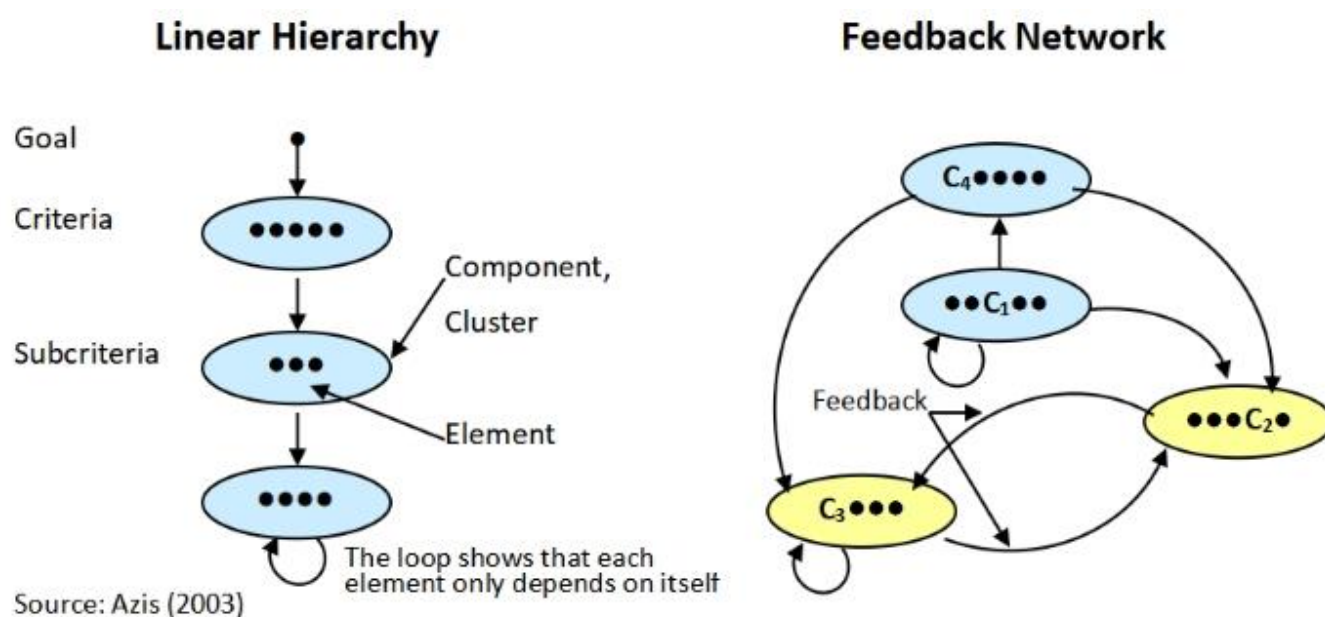


Figure 1. Comparison of Hierarchy and Network

Data

The ANP method requires a focus group discussion (FGD) of knowledgeable respondents, while each FGD can consist of 6-12 respondents (Ascarya et al., 2022). To understand the differences in respondents'

views, a group of 8 (eight) practitioners and a group of 8 (eight) experts including 4 (four) academics and 4 (four) regulators were selected for the ANP method, using purposive sampling, as the respondents must be knowledgeable/experts in the topic of waqf and SDGs.

Table 1. List of Respondents by Research Stage

	Practitioner		Expert		
		Total	Academics	Regulator	Total
Quantification of ANP model	8	8	4	4	8

The respondents selected come from various backgrounds, including waqf institutions in Indonesia, waqf regulators, the Indonesian Waqf Board, the Indonesian Ministry of Religious Affairs, DEKS Bank Indonesia, and academics who focus on waqf topic research. In addition, respondents will be involved in various stages of ANP, starting with the construction of the ANP model through in-depth interviews and/or *focus group discussions* (FGDs), followed by the quantification of the ANP model through interrelated questionnaire surveys.

The software used in this research is *Super Decision* 2.10 and *Microsoft Excel* 2013 in processing and analyzing data. ANP is a mathematical theory that is able to analyze influences with an assumption approach to solve the form of the problem (Rusydiana & Devi, 2017). This method is used in the form of a solution with consideration of the adjustment of the complexity of the problem in a synthetic decomposition accompanied by a priority scale that produces the greatest priority influence (Rusydiana, 2016; Rusydiana & Devi, 2013b).

Model Development

The ANP method is used in the form of a solution with consideration of the adjustment of the

complexity of the problem in a synthesized decomposition accompanied by a priority scale that produces the greatest priority effect. (Rusydiana & Devi, 2013a). ANP allows interaction and *feedback* from elements within clusters (*inner dependence*) and between clusters (*outer dependence*) (Chen et al., 2019; Saaty, 1996).

Focus group interview is one part of ANP which is a qualitative technique for data collection. A *focus group* is a group of individuals with certain characteristics who focus discussion on a particular issue or topic, or a focus group consists of a small group of people, usually numbering between six and nine, who are brought together by a trained moderator (researcher) to explore attitudes and perceptions, feelings and ideas about a topic. A focus group interview provides a setting for a relatively homogeneous group to understand the questions asked by the interviewer (Dilshad & Latif, 2013).

As in a hierarchy, ANP provides a general framework for handling decisions without making assumptions about the independence of higher-level elements from lower-level elements and about element independence (Ascarya et al., 2018).

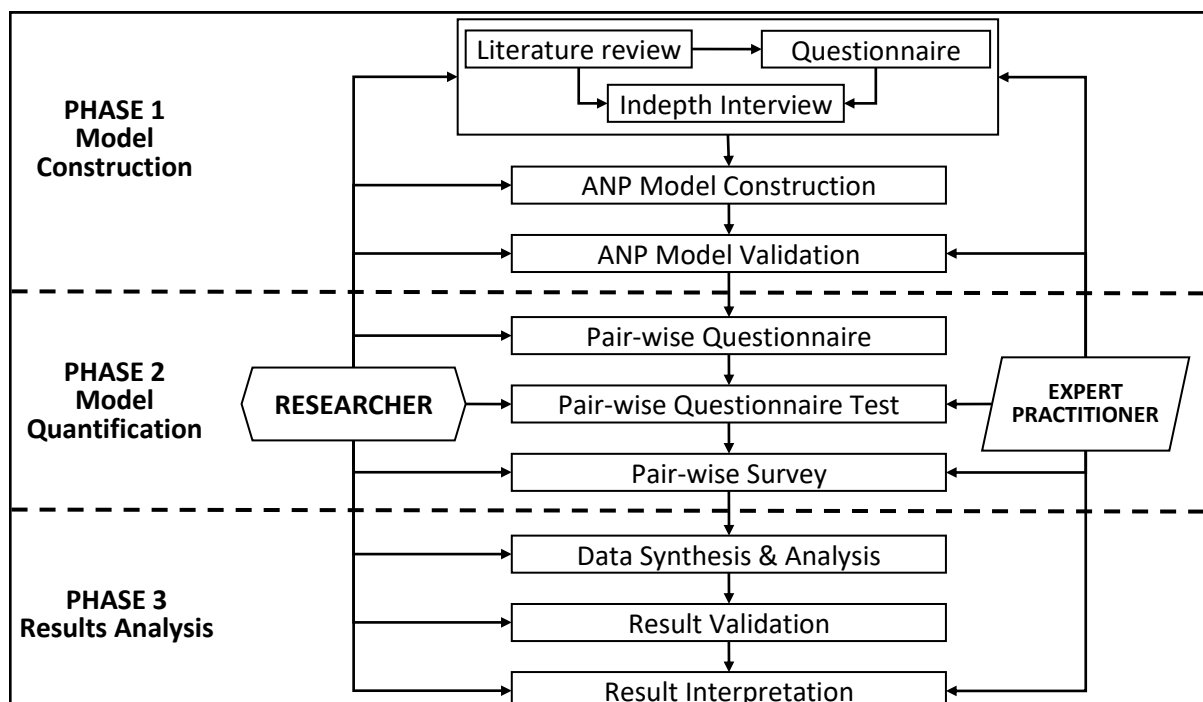


Figure 2. ANP stages

In this empirical study, the steps to be carried out follow three stages, namely model construction, model quantification and result analysis. Stage 1 is model construction or decomposition to identify, analyze and structure the complexity of the problem into an appropriate ANP network. Stage 2 is model quantification or pairwise comparison, and stage 3 is result analysis (Kheybari et al., 2020).

waqf model, there are three criteria that will be taken into account, namely economic, social and environmental. Then the three criteria have sub-criteria, where economic criteria have five sub-criteria or objectives, social and environmental criteria have six sub-criteria or objectives. Then the three criteria with each sub-criterias are associated with the Maqasid Sharia perspective, which consists of six elements. Finally, five waqf models are proposed.

RESULT AND DISCUSSION

The ANP Model Framework in SuperDecision 2.10 shows that for the purpose of developing the SDGs

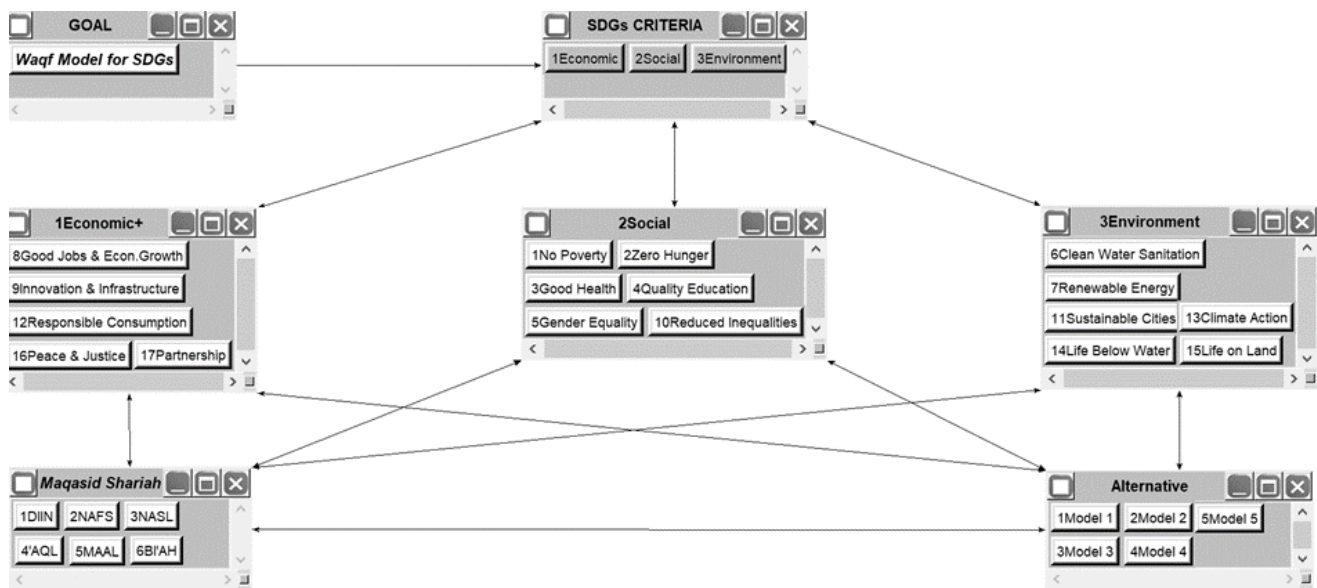


Figure 3. ANP Model Framework in SuperDecision 2.10

Consistency is a requirement of ANP results, where the level of inconsistency is still allowed a

maximum of 10%. (Saaty, 2005) While convergence is not a requirement for rater agreement (Kendall W). The ANP results on the main strategic criteria to select the best SDG criteria model can be seen in Table 2.

Table 2. ANP Result on SDGs Criteria

SDG criteria	Respondent			Rank
	Practitioner	Expert	All	
1.Economic	0.328	0.317	0.323	2
2.Social	0.361	0.368	0.364	1
3.Environment	0.302	0.308	0.305	3
Consistency	0.000***	0.000***	0.000***	
Kendall's W	0.328	0.203	0.250	
P-value	0.072*	0.196	0.018**	

***Significant at 1% level; **significant at 5% level; significant at 10% level

In Table 5. ANP Result on SDGs Criteria shows the priority ranking of SDGs criteria consisting of three criteria, namely economic, social, and environmental. There are two criteria for respondents, namely experts and practitioners, which are then accumulated in

determining the weight value of each criterion. According to all respondents, the most important SDGs criteria are Social (0.364), Economics (0.323), and Environment (0.305). Both practitioners and experts have the same priority order for the SDGs criteria.

The social criterion is the most important criterion in line with its critical role in accelerating progress towards achieving the SDGs by 2030. A key element of the national strategy is social to support human capital development, political stability and inclusive growth. The second SDG criterion is economic, which relates to poverty alleviation and promoting sustainable economic growth by achieving higher levels of productivity. As for the environmental criteria, it is an important supporting factor in implementing the SDGs and ensuring the health of the planet by paying attention to environmental sustainability.

When viewed at the consistency level where the consistency value in *Table 2. ANP Result on SDGs Criteria* shows a value of 0.000, all results are consistent according to the experts. In addition, Kendall's W follows the P-Value which shows the level of significance. The P-Value shows how significant the priority ranking order of the SDG criteria is. If the results found are not significant, then the priority ranking is considered still under debate, whereas if the results are significant, then the ranking order is correct and agreed upon by the respondents as the ANP results for the SDG criteria above, where the results are found to be significant.

Table 3. ANP Result on SDGs Detail

SDGs Details	Respondent			Rank All
	Practitioner	Expert	All	
ECONOMICS				
8Good Jobs & Econ.Growth	0.227	0.216	0.221	1
9Innovation & Infrastructure	0.188	0.180	0.184	5
12Responsible Consumption	0.194	0.201	0.197	3
16Peace & Justice	0.190	0.207	0.198	2
17Partnership	0.191	0.183	0.187	4
Consistency	0.000***	0.000***	0.000***	
Kendall's W	0.293	0.115	0.161	
P-value	0.051*	0.448	0.034**	
SOCIAL				
1No Poverty	0.157	0.154	0.155	5
2Zero Hunger	0.173	0.167	0.170	4
3Good Health	0.178	0.178	0.178	1
4Quality Education	0.175	0.177	0.176	2
5Gender Equality	0.127	0.137	0.132	6
10Reduced Inequalities	0.174	0.176	0.175	3
Consistency	0.000***	0.000***	0.000***	
Kendall's W	0.207	0.248	0.190	
P-value	0.140	0.077*	0.009***	
ENVIRONMENT				
6Clean Water Sanitation	0.181	0.180	0.181	1
7Renewable Energy	0.160	0.168	0.164	4
11Sustainable Cities	0.173	0.170	0.171	3
13Climate Action	0.154	0.154	0.154	5
14Life Below Water	0.146	0.149	0.147	6
15Life on Land	0.178	0.168	0.173	2
Consistency	0.000***	0.000***	0.000***	
Kendall's W	0.396	0.157	0.251	
P-value	0.007***	0.279	0.001***	

***Significant at 1% level; **significant at 5% level; significant at 10% level

In *Table 3. ANP Result on SDGs Detail* shows the ANP result on the detail of each SDGs goal in the three criteria of economic, social and environmental. This research ranks the priority of each of these criteria. In the economic criteria, the five goals included in this criterion are goal 8, goal 9, goal 12, goal 16, and goal 17. The goal with the highest weight value is goal 8, namely

Decent work and *economic growth* with a value of 0.221. This goal seeks to support inclusive and sustainable economic growth, a full and productive workforce and decent work for all.

The next SDGs criteria is social with six goals, namely goal 1, goal 2, goal 3, goal 4, goal 5, and goal 10. The goal with the highest weight value is the third goal,

Good health and well-being. This goal seeks to ensure healthy lives and support well-being for all ages. Finally, the environmental SDGs criteria with six goals, namely goal 6, goal 7, goal 11, goal 13, goal 14, and goal 15. In this criterion, the goal with the highest weight value is goal 6, Clean *water* and sanitation. This goal seeks to

ensure the availability and sustainable management of clean water and sanitation for all.

Furthermore, in this study, the determination of the ranking for the priority level of the Maqasid Syariah criteria was also carried out, the results of the ANP weight value are as follows:

Table 4. ANP result on Maqasid Criteria

Maqasid criteria	Respondent			Rank All
	Practitioner	Expert	All	
1DIIN	0.157	0.194	0.175	1
2NAFS	0.167	0.173	0.170	2
3NASL	0.163	0.166	0.165	4
4'AQL	0.152	0.125	0.138	6
5MAAL	0.170	0.167	0.168	3
6BI'AH	0.167	0.155	0.161	5
Consistency	0.000***	0.000***	0.000***	
Kendall's W	0.044	0.226	0.087	
P-value	0.877	0.106	0.217	

***Significant at 1% level; **significant at 5% level; significant at 10% level

The Maqasid Syariah criteria used in this research consist of six elements, namely the preservation of religion (*diin*), the preservation of the soul (*nafs*), the preservation of offspring (*nasl*), the preservation of reason (*'aql*), the preservation of wealth (*maal*) and the preservation of the environment (*bi'ah*). These six elements play an important role in formulating a waqf model that can support the Sustainable Development Goals to generate the most impactful *maslahat* (goodness and benefit). In addition, to ensure that the objectives and processes remain sharia-compliant, especially in the evolving waqf models.

Based on Table 4. ANP results on Maqasid Criteria found that the Maqasid Syariah criteria with the highest weight value is the preservation of religion (*in*) with a zero value of 0.175 so that it becomes a criterion with the first priority ranking. Furthermore, the second priority rank is occupied by the preservation of the soul (*nafs*) with a weight value of 0.170. In the third priority rank, there is the preservation of property (*maal*) with a weight value of 0.168. The fourth priority rank is the preservation of offspring (*nasl*) with a weight value of 0.165. Then the fifth priority rank is the preservation of the environment (*hifdzul bi'ah*) with a weight value of 0.160. Finally, the sixth priority ranking is the preservation of the mind (*hifdzul 'aql*) with a weight value of 1.138.

The preservation of religion (*in*), which is ranked first, is important to be prioritized by a Muslim considering that waqf is a form of worship in addition to its role as an economic and social instrument. In addition, the preservation of religion means preserving and maintaining one's Islamic faith in implementing waqf or realizing SDGs, so that every process and stage carried out must be ensured to meet the provisions of sharia compliance. Furthermore, the second priority is preserving the soul (*nafs*), where a person must try to prevent bad things that might happen in life and ensure that they survive. Such is the waqf model and the SDGs criteria.

Respondents' views from Table 4. ANP results on Maqasid Criteria show different views on Maqasid Syariah criteria. This is indicated by the P-value which is not significant, so it can be concluded that the priority order has not been agreed upon by the respondents. The ranking order is also still causing debate among experts, where they consider that all elements of maqasid sharia are equally important, making it difficult to rank the priority level. Therefore, although there is a ranking that shows priority, the significance of the ranking is not very valid. On the other hand, the level of consistency is very good with a weight value of 0.000.

The next table shows the alternative waqf models proposed from various literature reviews. There are five main waqf models ranked.

Table 5 ANP Result on Alternative Waqf Model for SDG15

Waqf Model for SDG15	Respondent			Rank All
	Expert	Practitioner	All	
1Waqf & ZIS	0.212	0.181	0.197	3
2Waqf & Takaful	0.114	0.137	0.126	5
3Waqf & Microfinance	0.134	0.191	0.163	4
4Waqf & Bank	0.236	0.221	0.228	2
5Waqf & Sukuk	0.301	0.267	0.284	1
Consistency	0.000***	0.000***	0.000***	
Kendall's W	0.381	0.275	0.310	
χ^2	12.200	8.800	19.850	
P-value	0.015**	0.066*	0.0005***	

***Significant at 1% level; **significant at 5% level; significant at 10% level

Table 5 ANP Result on Alternative Waqf Model for SDG15 shows the ANP weighting result on alternative waqf models with five alternatives. The waqf model starts from the one with the higher social ratio and commercial ratio to the lowest, namely Waqf & Sukuk, Waqf & Bank, Waqf & ZIS, Waqf & Microfinance, Waqf & Takaful. Each of the five models has a different weight value.

The first rank based on the ANP weight assessment which is the top priority in implementing the waqf model is the Waqf & Sukuk Model with a weight value of 0.284. In second place is the Waqf & Bank model with a weight value of 0.228. Furthermore, in the third rank is Waqf & ZIS with a weight value of 0.197. The fourth rank is Waqf & Microfinance with a weight value of 0.163, and the last rank is Waqf & Takaful with a weight value of 0.126.

The purpose of the waqf model that is prioritized in SDGs point 15 is the Waqf & Sukuk model which is a fully commercial instrument where waqf is collaborated with sukuk for various infrastructure developments. This collaboration allows contribution to the economy of the community and the country through development using sukuk instruments.

DISCUSSION

Currently, the waqf instrument does not only play a role in religious purposes but also in maintaining the land ecosystem. Through waqf, the community can play a role by collaborating and coordinating in efforts to achieve the SDGs. The focal point of Maqasid Sharia and SDGs is sustainable and inclusive development (Amin et al. 2015). In the context of maqasid sharia, this paradigm requires the waqf model to evolve into an inclusive institution that covers issues capable of maintaining human dignity as one of its main objectives. In other words, an integrated approach requires the

evolution of waqf in a comprehensive global context. In this mission, the potential contribution of waqf can be significant. Given the importance of waqf in the preservation of terrestrial ecosystems, various waqf models can adopt the objective of achieving targets related to terrestrial ecosystems, including protecting, restoring, supporting the sustainable use of terrestrial ecosystems, managing forests sustainably, combating desertification, inhibiting and reversing land degradation, and inhibiting biodiversity loss. This suggests that the role of waqf is crucial in funding terrestrial ecosystem preservation schemes, in line with SDGs goal number 15 of preserving terrestrial ecosystems (Seymour and Bush, 2017; Ali and Kassim, 2020).

Forests cover nearly 31 percent of the planet and are home to 80 percent of terrestrial animal, plant and insect species. Globally one-fifth of the Earth's land area or more than 2 billion hectares is degraded. This is driving species extinction and intensifying climate change. Forest loss means reduced biodiversity, increased carbon emissions and reduced soil radiation levels. The implications of this are increased demand for animal protein, increased use of wildlife exploitation, unsustainable agriculture and the climate crisis driving the emergence of zoonotic diseases such as COVID-19. Every year about two million people in the lower and middle classes in developing countries die from these zoonotic diseases. The same outbreak will cause severe disease and loss of productivity among the poorest populations in developing countries, leaving hundreds of millions of small-scale farmers in severe poverty. In the last two decades, zoonotic diseases have caused more than \$100 billion in economic losses including the cost of the COVID-19 pandemic which is expected to reach \$9 trillion over the next few years. Therefore, safeguarding SDG 15, the preservation of terrestrial

ecosystems, is important to achieve by 2030. In achieving this goal, it is important that forests and land are managed sustainably and not left to waste (Yakoob et al, 2017).

In protecting the environment, Islam sees two important roles for mankind; firstly, to be responsible for the perfection of religion and validation of the existence of Allah SWT, and secondly to establish a good relationship with all of Allah's creations. According to sharia law, environmental conservation is a religious obligation required by Allah SWT as found in Surah Al-Qasas verse 77. This includes the terrestrial ecosystem. This is in line with Article 2 of Law no. 32 of 2009 which states that environmental protection and management is the principle of sustainability and sustainability and the principle of justice. Where that everyone bears the obligation and responsibility towards future generations and towards their neighbors in one generation by making efforts to preserve the carrying capacity of the ecosystem and improve the quality of the environment (Setyorini Et al. 2019).

An effort that can be made to achieve this is with the waqf instrument that contributes to its management. Especially in forest preservation, waqf can be included in forest protection and regeneration programs in terms of funding (Hasan and Hakin, 2017; Yakoob et al 2017) including conservation and maintenance. The waqf model instruments developed in this research include: First, Waqf-ZIS is a model of a fully social type of waqf, where waqf is collaborated with other social fund instruments such as zakat, infaq and shadaqah. The utilization of this alternative instrument is fully utilized for social purposes, making it suitable for providing short-term benefits (Widiastuti et al., 2018).

Second, Waqf-Takaful: This is a model of a social and commercial type of waqf, where the social dimension is greater than the commercial dimension. The cooperation between waqf and insurance provides social impact while still containing commercial elements. Third, Waqf-Microfinance: is a combined model of commercial and social types of waqf, with the commercial component equal to the social component. The collaboration between waqf and microfinance enhances waqf as a financial institution while maintaining its social mission.

Forth, Waqf-Bank: is a waqf that has both commercial and social objectives, with more emphasis on the business side. While the relationship between waqf and bank institutions helps financial institutions, waqf maintains a social function through various bank products. Fifth, Waqf-Sukuk: This is a model of a fully

commercial type of waqf, where waqf is collaborated with sukuk for various infrastructure developments. This collaboration allows waqf to contribute to the economy of society and the state through various developments using sukuk instruments.

The alternative model from this research that is prioritized in the SDGs point 15 goal, namely the terrestrial ecosystem, is the Waqf-Sukuk model. In line with the opinions of experts in model selection, Indonesia is the first to issue Green Sukuk in the world where the issuance aims to support Indonesia's commitment to reducing greenhouse gas emissions and combating climate change. Green sukuk comes as a sharia financial instrument whose 100% use is devoted to financing green projects that contribute to climate change mitigation and adaptation activities. Then also reported from Indonesia.go.id green sukuk are in demand by millennial investors. That way the waqf-sukuk model is a new thing and can get a positive response if applied properly. Likewise, other alternative models in achieving SDGs point 15.

Furthermore, this research proposes a model to realize SDG goal 15, namely the preservation of terrestrial ecosystems on a waqf basis through the Green Waqf scheme. In order to support the fifteenth goal of the SDGs which is to protect, restore and promote the sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt the loss of biodiversity, waqf can be optimized through collaboration with sukuk, namely CWLS. *Cash Waqf Linked Sukuk* (CWLS) is a State sukuk investment product that is provided as an alternative for Nazir in managing waqf and other social funds in supporting the community's economic empowerment program and social activities. In addition, the optimization of CWLS can also be in the form of utilizing non-productive land for livestock or plantations, which indicates that the CWLS instrument can also be used to maintain the land ecosystem. Based on the model proposed above, there are several steps that can be taken.

The funding phase is based on waqf, both temporary and cash waqf from the waqif as an Islamic social fund instrument that has a sustainable nature that is relevant to the purpose of waqf, including the preservation of the land ecosystem. Furthermore, the Nazir manages the funds through CWLS for the green waqf project which is then used to purchase garden plant seeds. Furthermore, plant seeds will be given to participants who have registered either the community, Nazir or companies that have land and are willing to

plant tamanu plants. After the plants bear fruit, processing of raw materials is then carried out with three processing options, namely to become Virgin Tamanu Oil (VTO), become medicine, and become raw material

for the bio fuel industry. After the processing process, green products are produced, including skincare, VTO, bio fuel and others.

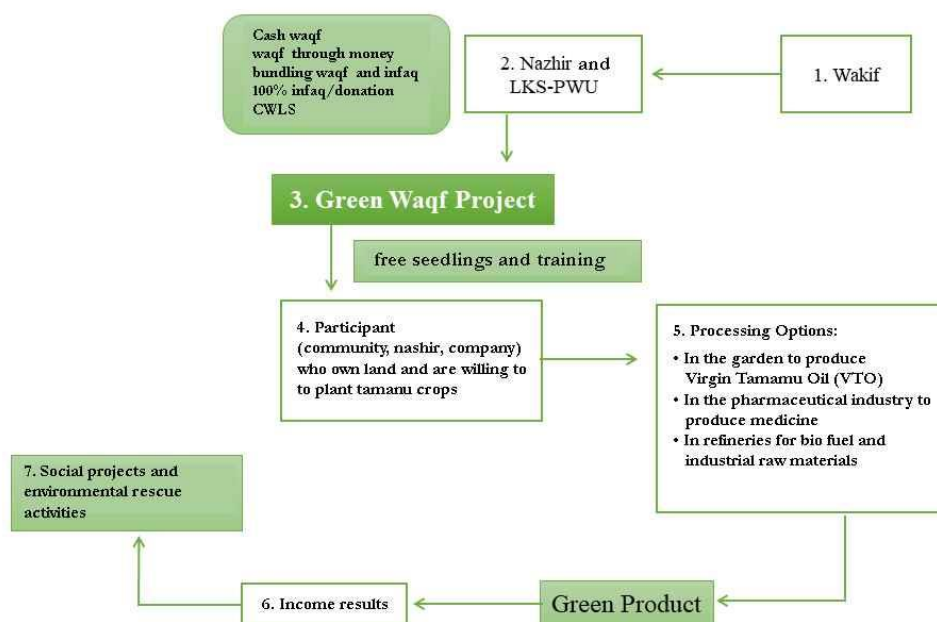


Figure 4 Modified Green Waqf Model

The last stage is the expected benefits in the form of projects that qualify as green waqf, including the development of waqf forests or waqf *tamanu* forests. The development of waqf forests and waqf *tamanu* forests can be integrated with various environmental education and programs. In addition, various projects can also be implemented that aim to reduce pollution, protect forest and land ecosystems, minimize desertification, increase biodiversity, maintain water sources, and increase forest resources. In addition to the examples of projects that have been mentioned, CWLS can also be utilized for other projects that still have a relationship with the fifteenth SDG goal. Based on these results, it is shown that in realizing the goal of preserving terrestrial ecosystems, waqf can use the CWLS instrument which is then used to finance various projects related to terrestrial ecosystems.

CONCLUSION

Waqf has relevance to the Sustainable Development Goals (SDGs) in realizing sustainable development and is in line with the Maqasid Sharia framework. The Waqf-SDGs model that fits these criteria can be implemented using five alternative waqf

models where waqf can have a social role which is then collaborated with a commercial role with other models.

The best waqf-SDGs model for point 15 is the integrated Waqf & Sukuk model with a weight value of 0.284. This model is a type of commercial waqf, where waqf is collaborated with sukuk instruments. So that the utilization of this instrument is suitable for the benefit of infrastructure development in the long term.

The Maqasid Syariah criterion that is the top priority is the preservation of religion with a weight value of 0.175. This criterion aims to protect Islam by having the right to embrace and believe that everyone can and has the right to embrace Islam and without interference. Then the most important SDGs criteria based on priority ranking is social criteria which has a weight value of 0.364. This criterion aims to end poverty and ensure that by 2030 all people will enjoy well-being.

After implementing various Waqf-SDGs models in accordance with their priorities, it is expected that the Government, Private Companies, Social Financial Institutions and Islamic Commercial Financial Institutions can more easily realize the SDGs because they are supported by waqf funding. The implementation of the five waqf models that have been

proposed with their respective priorities can potentially become an Islamic social fund instrument that participates in supporting the SDGs to ensure that all humans can enjoy a prosperous life and advance economically, socially, and technologically in harmony with nature.

Recommendation

Policy makers in the economy including academics, practitioners and regulators and institutions that issue sukuk, namely the Government and companies in particular must begin to seriously manage sukuk, not only to provide social and public services to the needy but also to simultaneously improve welfare and financial sustainability. Sukuk activities must be integrated with SDGs activities. Regulators should encourage and provide support in the form of regulations and incentives needed to implement the Waqf-SDGs model. Further research is needed to refine and explore the Waqf-SDGs model for SDGs goal 15 in particular by using different methods such as Structural Equation Modeling (SEM), Strategic Assumption Surfacing and Testing (SAST) and Interpretive Structural Modeling (ISM), or improving the ANP model.

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