

**WAQF FOREST: CONCEPT, MODEL, DEVELOPMENT,
AND COMMUNITY DEVELOPMENT IN INDONESIA**

BY

KHALIFAH MUHAMAD ALI

A thesis submitted in fulfillment of the requirement for the
degree of Doctor of Philosophy of Islamic Banking and
Finance

**IIUM Institute of Islamic Banking and Finance
International Islamic University Malaysia**

FEBRUARY 2022

ABSTRACT

This study's main objective is to investigate the concept and development of waqf forest to achieve productive and sustainable waqf-based forest management. This study aims to achieve five specific objectives: to explore the waqf forest concept, to formulate a model of a productive waqf forest, to explore the viability of the proposed model (as in objective 2) by getting the perspectives of selected stakeholders, including professionals, regulators, and academics; to identify the strategy for developing a sustainable and productive waqf forest, and to analyze the public's perception regarding the proposed waqf forest model and identify factors influencing them to participate in the program. The first, second, and third objectives are answered by using descriptive analysis and interpretive analysis. Meanwhile, the fourth and fifth objectives are responded to using the modified Analytic Network Process (ANP) and Structural Equation Modeling (SEM). There are five findings in this study. First, the waqf forest is a land waqf that is used as a forest. Second, A productive waqf forest means that some of the waqf forest's tangible benefits should be utilized for the *waqf* development, managed by the *nazir* (waqf managers). The rest of the services, tangible and intangible, are allocated for the *mauquf'alaihi* (waqf beneficiaries). Third, there are several notes or differences between the waqf forest management model developed from literature studies and the field's actual waqf forest model. In practice, the parties who play most of the field are Wakif, Nazir, partner institutions, and *mauquf'alaihi*. However, BWI still plays a role in the legality and control aspects of the waqf manager. Fourth, the Bogor Waqf Forest Foundation needs to carry out an aggressive strategy. It maximizes its strengths to seize available opportunities by optimizing the existing legal institution and well-educated human resources to educate the public about the concept of waqf in Islam and its application in the waqf forest. Fifth, respondents have excellent perceptions of the waqf forest program. All variables (attitude, subjective norm, perceived behavioral control, environmental concern, religiosity, and trust in waqf institutions) tested in this study significantly affect community interest in participating in the waqf forest program. This study suggests that the waqf forest should be socialized widely. It is hoped that the waqf forest can become one of the Islamic solutions to overcoming forest destruction. Waqf forest managers should prioritize legality to become an official nazir in line with applicable regulations. Nazir should focus on the six factors influencing people to participate in the waqf forest program so that more people can join in the development of the waqf-based forest program. This study is one of Indonesia's pioneering studies on developing waqf forests. The results of this study provide comprehensive knowledge of waqf forest, starting from the concept, model, and development strategy to the community's intention to participate in the waqf forest program. Therefore, the authors hope this study can become one of the primary references for researchers who will study the waqf forest in the future.

خلاصة البحث

تهدف هذه الدراسة إلى التحقيق في مفهوم وقف الغابات وتطوره لتحقيق إدارة غابات منتجة . هنالك خمسة أهداف محددة لهذه الدراسة: استكشاف مفهوم وقف الغابة، وصياغة مخطط للغابات الوقفية المنتجة ، واستكشاف جدوى المخطط المقترح (كما في الهدف 2) من خلال الحصول على وجهات نظر الخبراء المختارين ، بما في ذلك المهنيين ، المنظمين والأكاديميين لتحديد الاستراتيجية في تطوير غابة وقفية مستدامة ومنتجة ، وتحليل تصور الجمهور فيما يتعلق بنموذج غابة الوقف المقترح وتحديد العوامل التي تؤثر عليهم للمشاركة في البرنامج. تتم الإجابة على الأهداف الأولى والثانية والثالثة باستخدام التحليل الوصفي والتحليل التفسيري. وفي الوقت نفسه، يتم الاستجابة للهدفين الرابع والخامس باستخدام عملية التحليل الشبكي للقرارات (ANP) ونموذج المعادلة الهيكلية (SEM). هناك خمس نتائج لهذه الدراسة. أولاً ، غابة الوقف هي وقف أرضي يستخدم كغابة. ثانياً ، تعني الغابة الوقفية المنتجة أنه يجب استخدام بعض المنافع الملموسة لغابة الوقف في تطوير الوقف الذي يديره الناظر (مدير الوقف). أما باقي الخدمات ، الملموسة وغير الملموسة ، فنخصص للموقوف عليه. ثالثاً ، تم تطوير العديد من الملاحظات بين مخطط إدارة غابات الوقف من دراسات أدبية مع مخطط غابات الوقف الحقيقي. رابعاً ، يجب تنفيذ استراتيجية عدوانية من قبل مؤسسة غابة بوجور الوقفية. وتتمثل في تعظيم نقاط قوتها لاغتنام الفرص المتاحة من خلال تحسين المؤسسة القانونية القائمة والموارد البشرية المتعلمة جيداً للتثقيف الجمهور حول مفهوم الوقف في الإسلام وتطبيقه في غابة الوقف. خامساً ، لدى العينة البحثية تصورات ممتازة عن برنامج غابات الوقف. جميع العوامل (الموقف ، المعيار الذاتي ، التحكم السلوكي المدرك ، الاهتمام البيئي ، التدبير ، الثقة في مؤسسات الوقف) التي تم اختبارها في هذه الدراسة لها تأثير إيجابي كبير على اهتمام المجتمع بالمشاركة في برنامج غابة الوقف . تقترح هذه الدراسة أنه يجب تدريس وقف الغابات على نطاق واسع. يمكن أن تصبح غابة الوقف أحد الحلول الإسلامية للتغلب على تدمير الغابات. يجب على مديري غابات الوقف إعطاء الأولوية للجانب القانوني ليصبح ناظراً رسمياً بما يتماشى مع القانون. يجب أن يركز الناظر على العوامل الستة التي تؤثر على الناس للمشاركة في برنامج غابة الوقف، حتى يتمكن المزيد من الناس من المشاركة في تطوير برنامج الغابات القائم على الوقف. هذه الدراسة من الدراسات الرائدة في مجال تنمية غابات الوقف في إندونيسيا وتوفر نتائج هذه الدراسة معرفة شاملة بغابة الوقف، بدءاً من المفهوم والمخطط واستراتيجية التنمية إلى نية المجتمع للمشاركة في هذا البرنامج. لذلك ، يأمل الباحث أن تصبح هذه الدراسة واحدة من المراجع الأساسية للباحثين الذين سيدرسون غابة الوقف في المستقبل .

APPROVAL PAGE

The thesis of Khalifah Muhamad Ali has been approved by the following:

Salina Kassim
Supervisor

Syed Musa Alhabshi
Internal Examiner

Abdul Ghafar Ismail
External Examiner

Raditya Sukmana
External Examiner

Ainul Jaria Maidin
Chairperson

DECLARATION

I hereby declare that this thesis is the result of my own investigation, except where otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at IIUM or other institutions.

Khalifah Muhamad Ali



15th February 2022



INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

**DECLARATION OF COPYRIGHT AND AFFIRMATION OF
FAIR USE OF UNPUBLISHED RESEARCH**

**WAQF FOREST: CONCEPT, MODEL, DEVELOPMENT,
AND COMMUNITY PERCEPTION IN INDONESIA**

I declare that the copyright holder of this thesis is Khalifah Muhamad Ali

Copyright © 2022 Khalifah Muhamad Ali. All rights reserved.

No part of this unpublished research may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without prior written permission of the copyright holder except as provided below:

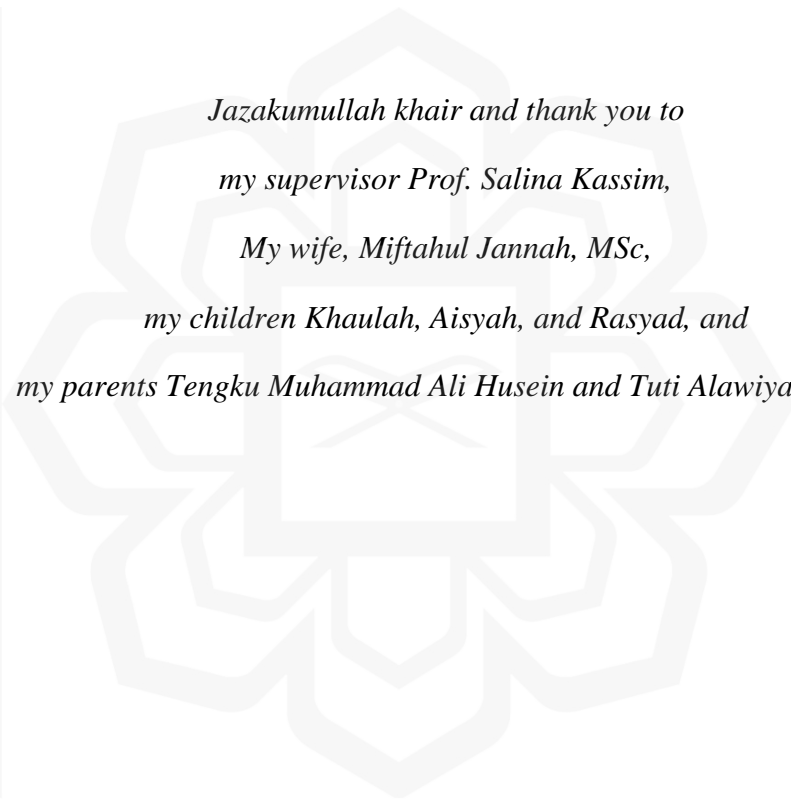
1. Any material contained in or derived from this unpublished research may be used by others in their writing with due acknowledgment.
2. IIUM or its library will have the right to make and transmit copies (print or electronic) for institutional and academic purposes.
3. The IIUM library will have the right to make, store in a retrieved system and supply copies of this unpublished research if requested by other universities and research libraries.

By signing this form, I acknowledged that I have read and understood the IIUM Intellectual Property Right and Commercialization policy.

Affirmed by Khalifah Muhamad Ali



15th February 2022



*Jazakumullah khair and thank you to
my supervisor Prof. Salina Kassim,
My wife, Miftahul Jannah, MSc,
my children Khaulah, Aisyah, and Rasyad, and
my parents Tengku Muhammad Ali Husein and Tuti Alawiyah, BSc*

ACKNOWLEDGEMENTS

الحمد لله والصلاة والسلام على رسول الله

All glory is due to Allah, the Almighty, whose Grace and Mercies have been with me throughout the duration of my programme. Although, it has been tasking, His Mercies and Blessings on me ease the herculean task of completing this thesis.

I want to thank my supervisor, Prof. Dr. Salina Hj. Kassim, for the motivation, direction, and valuable input to complete this PhD thesis properly.

Thank you to my wife, Miftahul Jannah, MSc, for her support and togetherness until the end of this PhD life at the IIUM campus. I also thank my children Khaulah, Aisyah, and Rasyad, who always give happiness and smiles. A million thanks to my parents, Tengku Muhammad Ali Husein and Tuti Alawiyah, alm. Prof Dr. Achmad, MSc, and Dr. Yudiwanti Wahyu EK, MSc, for their strong support and prayers. I also never forget the generosity of my best friends, Ustadz Gonda Yumitro (University of Muhammadiyah Malang) and Ustadz Ismail Akzam (Islamic University of Riau).

I truly appreciate the research respondents willing to fill out the questionnaire. I would also like to thank the experts from the Ministry of Religious Affairs of the Republic of Indonesia, the Indonesian Waqf Board, the Department of Sharia Economics, FEM IPB, the Faculty of Forestry IPB, and the University of Indonesia. They have been willing to think together about developing waqf forests in Indonesia.

I am grateful to all who were involved in completing my PhD. Hopefully, the waqf forest will multiply in Indonesia and around the world. Insha Allah.

TABLE OF CONTENTS

Abstract	ii
Abstract in Arabic	iii
Approval Page.....	iv
Declaration.....	v
Copyright Page.....	vi
Dedication	vii
Acknowledgments	viii
List of Tables	xiii
List of Figures	xiv
List of Abbreviations	xx
CHAPTER ONE: INTRODUCTION	1
1.1 Background of Study.....	1
1.1.1 Islam as an Environmental Friendly Religion	2
1.1.2 Waqf Forest	4
1.2 Purpose of the Study.....	6
1.3 Problem Statement.....	7
1.4 Objectives of the Research	8
1.5 Research Questions	9
1.6 Significance of the Study.....	9
1.7 Limitations of The Study.....	11
1.8 Organization of Study.....	12
CHAPTER TWO: WAQF FOR ENVIRONMENTAL PRESERVATION: A LITERATURE REVIEW.....	13
2.1 Introduction	13
2.2 Definition and Types of Waqf	13
2.3 Waqf Characteristics and Stakeholders	15
2.4 Waqf as an Islamic Social Finance.....	16
2.5 Waqf for Environmental Protection	18
2.6 Waqf in Indonesia.....	19
2.6.1 Potential of Waqf in Indonesia	19
2.6.2 Distribution and Utilization of Waqf in Indonesia	20
2.6.3 Regulation of Waqf in Indonesia.....	21
2.7 Summary.....	22
CHAPTER THREE: FOREST IN INDONESIA: A LITERATURE REVIEW	23
3.1 Introduction	23
3.2 Forest Status	23
3.3 Benefits of Forests	24
3.4 Forest Productivity	26
3.5 Forest Problems	27
3.6 Indonesian Forest Conservation Efforts	30

3.7 Waqf Forest in Indonesia.....	32
3.7.1 Aceh Waqf Forest, Aceh	32
3.7.2 Sabilulungan Waqf Forest, Bandung.....	33
3.7.3 Bogor Waqf Forest, Bogor	34
3.8 Identification of Research Gap	36
3.9 Summary.....	37

CHAPTER FOUR: METHODOLOGY 38

4.1 Introduction	38
4.2 Conceptual Framework	40
4.3 Time and Area of Research	41
4.4 Data Collecting Method	42
4.4.1 Literature Review	42
4.4.2 In-Depth Interview	43
4.4.3 Purposive Sampling.....	46
4.5 Data Analysis Method	46
4.5.1 Descriptive Analysis.....	47
4.5.2 Interpretive Analysis	47
4.5.3 ANP-SWOT Method.....	48
4.5.3.1 SWOT	50
4.5.3.2 ANP	53
4.5.3.2.1 Model Construction	53
4.5.3.2.2 Model Quantification	53
4.5.3.2.3 Analysis and Synthesis	57
4.5.4 Structural Equation Modelling (SEM)	62
4.6 Estimated Model.....	64
4.6.1 Forming Model ANP-SWOT Analysis	65
4.6.1.1 Internal Aspects	65
4.6.1.1.1 Strengths	65
4.6.1.1.2 Weaknesses	67
4.6.1.2 External Aspects.....	68
4.6.1.2.1 Opportunities.....	68
4.6.1.2.2 Threats.....	69
4.6.1.3 SWOT Strategies	70
4.6.1.3.1 Fundraising Intensification (SO).....	71
4.6.1.3.2 Volunteer Recruitment (SW)	71
4.6.1.3.3 Encouraging the Issuance of Waqf Forest Fatwa (ST)	72
4.6.1.3.4 Get Permission as A Collector of Waqf/Cash Waqf (ST).....	72
4.6.2 Forming Model SEM Analysis.....	73
4.6.2.1 Hypothesis Development.....	74
4.6.2.1.1 Religiosity	75
4.6.2.1.2 Trust in Waqf Institutions	75
4.6.2.1.3 Environmental Concern	76
4.6.2.1.4 Attitude	76
4.6.2.1.5 Subjective Norm	77
4.6.2.1.6 Perceived Behavioral Control	77
4.6.2.2 Sample Size and Instrumentation	78
4.7 Summary.....	81

CHAPTER FIVE: WAQF FOREST: DEFINITION AND HISTORY	82
5.1 Introduction	82
5.2 The Definition of Waqf Forest	82
5.2.1 Forest in the Perspective of Islam	85
5.2.2 Waqf Forest in the Perspective of State Law (Indonesia)	88
5.2.2.1 Waqf Forest and Changes In Its Use	89
5.2.2.2 Waqf Forest Cannot Be Sold	90
5.3 The History of Waqf Forest.....	92
5.3.1 The Period Before The Prophet P.B.U.H.	92
5.3.2 History/Thoughts of Waqf Forest During The Time of The Prophet P.B.U.H.	92
5.3.2.1 Garden Waqf	92
5.3.2.2 Hima	96
5.3.3 Waqf Forest During The Ottoman Empire.....	96
5.3.4 Waqf Forest in The Present	97
5.4 Bogor Waqf Forest	99
5.4.1 Location 1 Bogor Waqf Forest	100
5.4.2 Location 2 Bogor Waqf Forest	103
5.4.3 Location 3 Bogor Waqf Forest	108
5.5 Conclusion and Recommendations	110
 CHAPTER SIX: WAQF FOREST MODEL: THEORY AND PRACTICE ..	 112
6.1 Introduction	112
6.2 Productive Waqf Forest MODEL: A Theory	112
6.2.1 Waqif (Waqf Donors).....	113
6.2.2 Nazir (Waqf Manager) of a Productive Waqf Forest	114
6.2.3 Mauquf`alaih (Waqf Beneficiaries).....	115
6.2.4 Tangible Benefits for Waqf Forest Development	117
6.2.5 BWI (Indonesian Waqf Board)	117
6.2.6 Other Related Stakeholders	118
6.2.6.1 DSN-MUI (National Sharia Board of Indonesian Ulema Council)	118
6.2.6.2 Ministry of Religious Affairs, Ministry of Agrarian Affairs and Spatial Planning, and Ministry of Environment and Forestry	118
6.2.6.3 Academics (Scholars).....	119
6.2.6.4 Landscape Architect	120
6.2.6.5 Community	120
6.2.7 Waqf Forest and Sustainable Development Goals (SDGs).....	120
6.3 Productive Waqf Forest Model: An Evidence from Bogor Waqf Forest Foundation.....	122
6.3.1 Stingless Bee Farm	125
6.3.2 Stingless Bee Farm Development Model in Bogor Waqf Forest ..	126
6.3.3 Clove.....	128
6.4 Conclusion and Recommendations	128
 CHAPTER SEVEN: WAQF FOREST DEVELOPMENT STRATEGY.....	 131
7.1 Introduction	131
7.2 Strengths	132
7.3 Weaknesses.....	135

7.4 Opportunities	136
7.5 Threats	140
7.6 SWOT Priorities	142
7.7 Strategies	142
7.8 Conclusion and Policy Recommendation.....	145
CHAPTER EIGHT: COMMUNITY PERCEPTION AND INTENTION OF WAQF FOREST.....	148
8.1 Introduction	148
8.2 Socioeconomic Demography.....	149
8.3 Perception.....	154
8.3.1 The General Perspective of Respondents.....	155
8.3.2 Respondents' Perceptions of Waqf Forests in Detail.....	156
8.3.2.1 INT	157
8.3.2.2 ATT	163
8.3.2.3 SN.....	168
8.3.2.4 PBC.....	173
8.3.2.5 EC.....	180
8.3.2.6 REL.....	188
8.3.2.7 TRU	193
8.4 Model Construction.....	197
8.4.1 Model Fit	197
8.4.2 Construct Reliability and Validity.....	200
8.4.3 Bootstrapping	201
8.5 Discussions	202
8.5.1 ATT, SN, PBC to INT.....	203
8.5.2 EC, REL, TRU to ATT.....	204
8.5.3 EC, REL, TRU to INT.....	205
8.6 Conclusion.....	206
CHAPTER NINE: CONCLUSION AND RECOMMENDATIONS	207
9.1 Introduction	207
9.2 Major Findings	207
9.3 Policy Implications and Recommendations	209
9.4 Contributions of Research	213
9.4.1 As a Body of Knowledge	214
9.4.2 For Professionals in Associated Industry	216
9.5 Extension for Future Research	217
9.6 Summary.....	218
REFERENCES	219
APPENDIX I: SURVEY QUESTIONNAIRE 1.....	239
APPENDIX II: SURVEY QUESTIONNAIRE 2	245
APPENDIX III: GEOMETRIC MEAN AND RATER AGREEMENT CALCULATION	252

LIST OF TABLES

Table 4.1	Overview of Research Methodology	39
Table 4.2	In-depth Interview Respondent's List	44
Table 4.3	Scaling Guidance	55
Table 4.4	Operationalization of Measurement Constructs	78
Table 4.5	The Questions for Measuring the Constructs	79
Table 8.1	Demographic data of the respondents	150
Table 8.2	Cronbach's Alpha and Average Variance Extracted (AVE) Values for Each Latent Variable	200
Table 8.3	VIF Value on Each Variable	200
Table 8.4	The Value of P Values for Each Variable	202
Table 8.5	Specific Indirect Effects	202
Table 9.1	Summary of Major Findings	210

LIST OF FIGURES

Figure 1.1	Role of Forest Ecosystems for Supporting SDGs Goals	2
Figure 2.1	Sectors in Islamic Economics	17
Figure 2.2	Diagram of Waqf Land Use in Indonesia	20
Figure 3.1	Emerging forest definition based on the understanding of its productivity	26
Figure 3.2	Indonesia primary forest loss from 2002 to 2020	28
Figure 3.3	Map of Hutan Wakaf Aceh	33
Figure 3.4	Planting Activities on Sabilulungan Waqf Forest, Bandung	34
Figure 3.5	The First Waqf Forest Land in Cibunian Village	35
Figure 4.1	Conceptual Framework of the Study	40
Figure 4.2	Location of Case Study	42
Figure 4.3	Example of ANP-SWOT Hierarchy	49
Figure 4.4	Four-quadrant Box of SWOT	50
Figure 4.5	ANP Research Phases	54
Figure 4.6	Model Quantification Process Using Super Decisions Software	55
Figure 4.7	Pairwise Comparison of Alternative Strategies	56
Figure 4.8	Inconsistency Index Value in Super Decisions Software	57
Figure 4.9	Priority of All Elements in the Model	58
Figure 4.10	Illustration of Calculating the Geometric Mean Value	59
Figure 4.11	Transpose Data Turn Rows into Columns and Columns into Rows	61
Figure 4.12	Ranking of Data in the Calculation of Rater Agreement's Value (W)	62
Figure 4.13	Illustration of Data Processing in Finding Rater Agreement's Values	62
Figure 4.14	ANP-SWOT Network	64
Figure 4.15	Access to Bogor Waqf Forest from the Central Jakarta	66
Figure 4.16	Serincil (Sekolah Rimbawan Kecil)	72
Figure 4.17	The Theoretical Framework of the Theory of Planned Behavior	73

Figure 4.18	Conceptual Framework of Modified TPB to Cash Waqf Intention for Forest Preservation	74
Figure 5.1	The Bogor Waqf Forest Foundation's Logo	99
Figure 5.2	The First Location of Bogor Waqf Forest, West Java, Indonesia	100
Figure 5.3	Bogor Waqf Forest's Natural Spring	101
Figure 5.4	Maize Agroforestry in the First Bogor Waqf Forest	103
Figure 5.5	The Boundary Mark of Mount Halimun Salak National Park with the Bogor Waqf Forest's Second Location	104
Figure 5.6	The Combination of Forestry Plants with Crops (Agroforestry) in the Second Waqf Forest as a Vertical Space Optimization	105
Figure 5.7	Plantation under Trees Given Fertilizer from Sheep Farm in the Waqf Forest	106
Figure 5.8	Silvopastoral Application in Bogor Waqf Forest	107
Figure 5.9	Canceled Land Purchases for the Third Bogor Waqf Forest Expansion	108
Figure 5.10	The Third Bogor Waqf Forest Location	109
Figure 6.1	Productive Waqf Forest's Model	112
Figure 6.2	National Zakat Board's Visit to the Bogor Waqf Forest	122
Figure 6.3	Ministry of Religious Affairs of the Republic of Indonesia's Survey to the Bogor Waqf Forest	123
Figure 6.4	Director of Zakat and Waqf Empowerment, the Ministry of Religion of the Republic of Indonesia, Muhammad Fuad Nasar, MSc	124
Figure 6.5	Discussion between the BAZNAS and Bogor Waqf Forest's Nazir in Determining a Suitable Business Model in the Waqf-based Forest	125
Figure 6.6	Cooperation Between the Bogor Waqf Forest Foundation, BAZNAS, and The Ministry of Religion of the Republic of Indonesia in the Development of a Stingless Bee Farm in the Bogor Waqf Forest	127
Figure 6.7	Harvesting Cloves in the Bogor Waqf Forest's Second Location	128
Figure 7.1	The ANP-SWOT Framework	132
Figure 7.2	Priority among the Strength Aspects	133
Figure 7.3	Priority among the weakness aspects	135
Figure 7.4	Priority Among the Opportunities Aspects	137

Figure 7.5	Priority Among the Threat Aspects	140
Figure 7.6	Priority among the SWOT Aspects	142
Figure 7.7	Bogor Waqf Forest Development Priority Strategies	143
Figure 7.8	All SWOT aspects priority	145
Figure 8.1	Proportion of Research Respondent's Gender	151
Figure 8.2	Respondent's Age Distribution	151
Figure 8.3	Respondent's Last Formal Education	152
Figure 8.4	Respondent's Marital Status	153
Figure 8.5	Respondent's Number of Dependent	153
Figure 8.6	Respondent's Monthly Income	154
Figure 8.7	General Perspective of Respondents on Waqf Forest	156
Figure 8.8	Respondent's Responses in All INT Indicator Variables	157
Figure 8.9	Respondents' Responses to INT1 as INT's First Indicator Variable	158
Figure 8.10	Respondents' Responses to INT2 as the Second Indicator Variable of INT	159
Figure 8.11	Respondents' Responses to INT3 as the Third Indicator Variable of INT	159
Figure 8.12	Respondents' Responses to INT4 as the Fourth Indicator Variable of INT	160
Figure 8.13	Respondents' Responses to INT5 as the Fifth Indicator Variable of INT	161
Figure 8.14	Respondents' Responses to INT6 as the Sixth Indicator Variable of INT	161
Figure 8.15	Respondents' Responses to INT7 as the Seventh Indicator Variable of INT	162
Figure 8.16	Respondents' Responses in all ATT Indicator Variables	164
Figure 8.17	Respondents' Responses to ATT1 as the First Indicator Variable of ATT	164
Figure 8.18	Respondents' Responses to ATT2 as the Second Indicator Variable of ATT	165
Figure 8.19	Respondents' Responses to ATT3 as the Third Indicator Variable of ATT	165
Figure 8.20	Respondents' Responses to ATT4 as the Fourth Indicator Variable of ATT	166

Figure 8.21	Respondents' Responses to ATT5 as the Fifth Indicator Variable of ATT	167
Figure 8.22	Respondents' Responses in All SN Indicator Variables	168
Figure 8.23	Respondents' Responses to SN1 as the Seventh Indicator Variable of SN	169
Figure 8.24	Respondents' Responses to SN2 as the second Indicator Variable of SN	169
Figure 8.25	Respondents' Responses to SN3 as the Third Indicator Variable of SN	170
Figure 8.26	Respondents' Responses to SN4 as the Fourth Indicator Variable of SN	171
Figure 8.27	Respondents' Responses to SN5 as the Fifth Indicator Variable of SN	172
Figure 8.28	Respondents' Responses to SN6 as the Sixth Indicator Variable of SN	172
Figure 8.29	Respondents' Responses in all PBC Indicator Variables	173
Figure 8.30	Respondents' Responses to PBC1 as the First Indicator Variable of PBC	174
Figure 8.31	Respondents' Responses to PBC2 as the Second Indicator Variable of PBC	175
Figure 8.32	Respondents' Responses to PBC3 as the third Indicator Variable of PBC	176
Figure 8.33	Respondents' Responses to PBC4 as the Fourth Indicator Variable of PBC	177
Figure 8.34	Respondents' Responses to PBC5 as the Fifth Indicator Variable of PBC	178
Figure 8.35	Respondents' Responses to PBC6 as the Sixth Indicator Variable of PBC	179
Figure 8.36	Respondents' Responses to PBC7 as the Seventh Indicator Variable of PBC	179
Figure 8.37	Respondents' Responses in all PBC Indicator Variables	180
Figure 8.38	Respondents' Responses to EC1 as the First Indicator Variable of EC	181

Figure 8.39	Respondents' Responses to EC2 as the Second Indicator Variable of EC	182
Figure 8.40	Respondents' Responses to EC3 as the Third Indicator Variable of EC	183
Figure 8.41	Respondents' Responses to EC4 as the Fourth Indicator Variable of EC	184
Figure 8.42	Respondents' Responses to EC5 as the Fifth Indicator Variable of EC	185
Figure 8.43	Respondents' Responses to EC6 as the Sixth Indicator Variable of EC	185
Figure 8.44	Respondents' Responses to EC7 as the Seventh Indicator Variable of EC	186
Figure 8.45	Respondents' Responses to EC8 as the Eighth Indicator Variable of EC	187
Figure 8.46	Respondents' Responses in All REL Indicator Variables	188
Figure 8.47	Respondents' Responses to REL1 as the First Indicator Variable of REL	189
Figure 8.48	Respondents' Responses to REL2 as the Second Indicator Variable of REL	190
Figure 8.49	Respondents' Responses to REL3 as the Third Indicator Variable of REL	190
Figure 8.50	Respondents' Responses to REL4 as the Fourth Indicator Variable of REL	191
Figure 8.51	Respondents' Responses to REL5 as the Fifth Indicator Variable of REL	191
Figure 8.52	Respondents' Responses to REL6 as the Sixth Indicator Variable of REL	192
Figure 8.53	Respondents' Responses in All REL Indicator Variables	194
Figure 8.54	Respondents' Responses to TRU1 as the First Indicator Variable of TRU	194
Figure 8.55	Respondents' Responses to TRU2 as the Second Indicator Variable of TRU	195
Figure 8.56	Respondents' Responses to TRU3 as the third Indicator Variable of TRU	195

Figure 8.57	Respondents' Responses to TRU4 as the Fourth Indicator Variable of TRU	196
Figure 8.58	Model fit	198
Figure 8.59	Cronbach's Alpha Value for Each Latent Variable	199
Figure 8.60	The Average Variance Extracted (AVE) Value for Each Latent Variable	199
Figure 8.61	Bootstrapping Results on the Model	201



LIST OF ABBREVIATIONS

AIW	Akta Ikrar Wakaf (Waqf Pledge Deed)
ANP	Analytical Network Process
APBN	Anggaran Pendapatan dan Belanja Negara (State Budget)
BAZNAS	Badan Amil Zakat Nasional (National Zakat Board)
BPN	Badan Pertanahan Nasional (National Land Agency)
BPS	Badan Pusat Statistik (Central Bureau of Statistics)
BWI	Badan Wakaf Indonesia (Indonesian Waqf Board)
CWFP	Cash Waqf for Forest Participation
DSN-MUI	Dewan Syariah Nasional-Majelis Ulama Indonesia (National Sharia Board – Indonesian Ulema Council)
GCF	Green Climate Fund
KLHK	Kementerian Lingkungan Hidup dan Kehutanan (Ministry of Environment and Forestry)
MUI	Majelis Ulama Indonesia (Indonesian Ulema Council)
PLS	Partial Least Squares
PPAIW	Pejabat Pembuat Akta Ikrar Wakaf (Waqf Pledge Deed Making Official)
REDD+	Reducing Emissions from Deforestation and Forest Degradation
SDGs	Sustainable Development Goals
SEM	Structural Equation Modelling
SF	Social Forestry
SWOT	Strength, Weakness, Opportunity, Threat
TNGHS	Taman Nasional Gunung Halimun-Salak (Halimun-Salak National Park)
TPB	Theory of Planned Behavior
UMR	Upah Minimum Regional (Regional Minimum Wage)
ZISWAF	Zakat, Infaq, Sedekah, dan Wakaf (Zakah, Infaq, Shadaqa, and Waqf)
ZVI	Zakat Village Index

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF STUDY

Indonesia's forests are the third-largest globally, after Brazil and Congo (Margono et al., 2016). Although it is not as large as the two countries, Indonesia's forests' biodiversity is the highest in the world. Its rainforests contain 10 percent of the world's flowering plant species, 12 percent of its mammal species, 16 percent of all reptile and amphibian species, and 17 percent of its bird species. Indonesia ranks first in the world for species richness for mammals (515 species with 36 percent classified as endemic) and early in the world for swallowtail butterflies (121 species with 44 percent classified as endemic) (Keong, 2015).

This evidence shows that Indonesia's forests play an essential role in maintaining the ecosystem's balance on the planet. Birds and bats in the forest, for example, can help cocoa farmers control pests and increase productivity by nearly half (Maas et al., 2013). For some Indonesians, forests are also a source of food and income. Forests provide clean air and freshwater. Consequently, forests in Indonesia play a critical role in achieving the Sustainable Development Goals (SDGs).

As shown in Figure 1.1, in the Sustainable Development Goals (SDGs) context, a forest, one of the most crucial ecosystems on the planet, has many benefits. It can generate income for the people, provide food and medicine, deliver freshwater and maintain the temperature of the earth, and protect sources of biodiversity (Seymour & Busch, 2016).

Forest destruction occurs in state forests and community forests, mainly due to massive logging. In the context of the SDGs, it causes an increase in poverty due to climate change, starvation due to loss of sources of water and insects, respiratory problems due to smoke from forest fires, and destruction of infrastructure due to floods and landslides. All of that can interfere with the SDGs goals (Seymour & Busch, 2016).



Figure 1.1 Role of Forest Ecosystems for Supporting SDGs Goals
Source: Seymour & Busch (2016)

Unfortunately, forest in Indonesia is under threat from deforestation. Indonesia's forests were shrinking by about 507,486 hectares annually between 1990 and 2012, causing loss of biodiversity, climate emissions, and posing a danger to 48,8 million people in Indonesia who depend on forests for their livelihood (UNPDF, 2018).

1.1.1 Islam as an Environmental Friendly Religion

Islam, a perfect religion that covers all aspects of life, certainly has a solution to an environmental problem. Islam is not only a ritual religion that regulates the relationship of servants with Allah S.W.T. but also a faith that pays attention to the relationship between humans and other humans and their environment, including forests.

There is a misperception from people who do not explore Islamic literature and civilization about this environmental problem: environmental preservation is not included in the scope of Islamic heritage and knowledge. The fact is that this environment's maintenance is closely related to authentic Islamic sciences, such as the Tawheed knowledge and Islamic jurisprudence (Al-Qaradhawi, 2001).

Allah S.W.T. has ordered humans to protect the environment, including the forests, and has warned humans not to damage it. The word "tree" has been mentioned in the Qur'an 26 times (Ozdemir, 2002).

In Surah Ibrahim verse 24 – 25: Have you not considered how God presents an example, [making] a good word like a good tree, whose root is firmly fixed and its branches [high] in the sky? (Saheeh, 2010)

In surah Al-Rahman verse 5 - 9: The sun and the moon [move] by precise calculation, And the stars and trees prostrate. And the heaven He raised and imposed the balance. That you not transgress within the balance. And establish weight in justice and do not make deficient the balance. (Saheeh, 2010)

Rasulullah P.B.U.H. said,

مَنْ قَطَعَ سِدْرَةَ صَوَّبَ اللَّهُ رَأْسَهُ فِي النَّارِ

Whoever cuts down a lote-tree, Allah will put his head in the fire.

Imam Abu Dawud explained this noble hadith in his book: Whoever cuts down a lote-tree in the wilderness under which wayfarers and animals find shades, for no purpose or unlawfully, Allah will put his head in the Fire. (Abu-Dawud, 2008).

In the Arab tradition, lote-tree (*as-sidrah*) is commonly used to represent all trees. The tree often grows in the middle of the desert, so this tree is very beneficial for travelers to shelter (Al-Qaradhawi, 2001). Therefore, cutting down trees without the right reasons is to disperse the Prophet's orders. Instead, the Prophet P.B.U.H. encouraged his people to plant trees. In a hadith, the Prophet P.B.U.H. said,

Narrated Anas bin Malik: Allah's Apostle P.B.U.H. said: There is none amongst the Muslims who plants a tree or sows seeds, and then a bird, or a person or an animal eats from it but is regarded as a charitable gift for him. (Al-Bukhari, 2009)

If the day of resurrection comes upon any one of you while he has a seedling in hand, let him plant it. (Al-Bukhari, 2009)

Waqf (Islamic Endowment), as one of the main instruments in Islamic social finance, can be a solution to environmental problems and forest destruction. Management of waqf, which was limited to socio-religious activities, began to shift towards maintenance and preservation and the environment.

Indonesia has immovable waqf assets, especially land, which are the most extensive globally, around 440,512.89 ha. If the waqf assets are productively developed,

the potential is enormous, about 19.4 percent of the Gross Domestic Product (GDP) (Nizar, 2017). Similarly, moveable waqf assets, especially cash waqf, from the calculations using 2014 Susenas data, the potential for cash waqf is estimated to range from Rp. 2.36 to Rp. 11.82 trillion per year (Nizar, 2017).

Waqf institutions introduce some pioneering programs. Most of the programs take the form of tree planting or cultivating, making well, and building clean water installation. Even though they still seem sporadic actions, waqf institutions' environmental programs continuously run and increase support from the people (Budiman, 2011).

In 2010, PP Muhammadiyah, one of Indonesia's most prominent Islamic organizations, initiated to invite the members to join the program called "Gerakan Wakaf dan Tanam Pohon Warga Muhammadiyah" (Waqf movement for Tree Planting Muhammadiyah Members). This effort was to overcome the escalating of greenhouse gasses (BWI, 2010).

Tabung Wakaf Indonesia (TWI) 2012 launched a new program named "Wakaf Sengon (fast-growing tree species)" or "Sengon waqf" in West Java Province, Indonesia. (TWI, 2012). Sengon plantation was planned to be carried out in three locations: Jonggol, Sentul, and Sukabumi, West Java. The purpose of the Sengon waqf activity is to increase the productivity of waqf assets owned by the TWI. In 2013, the planting of 8,000 Sengon trees was carried out in Jonggol and Sentul, which collaborated with PT Mitsubishi Electric (Siswanto & Suprpto, 2014).

1.1.2 Waqf Forest

To solve the problem of forest and environmental damage, people in Indonesia have been developing waqf forests. In Indonesia, the first waqf forest was established by Aceh Waqf Forest Community in Aceh Province in 2012 called "Hutan Wakaf Jantho" (Waqf Forest Jantho). The community invites people to donate and support the waqf forest program. The community uses the donation (cash waqf) for buying critical land and converts the land to be a waqf forest (Hutanterisa.org, 2018).

Waqf forests were also have been built in Bandung Regency in 2013 called "Wakaf Leuwueng" (BWI, 2013). "Leuwueng" in Sundanese means "forest." In Bogor