

**STAKEHOLDER COLLABORATION ON
CONSERVATION OF NATURAL RESOURCES IN
LOWER KINABATANGAN SABAH**

MARCELA BINTI PIMID

UNIVERSITI SAINS MALAYSIA

2018

**STAKEHOLDER COLLABORATION ON
CONSERVATION OF NATURAL RESOURCES IN
LOWER KINABATANGAN SABAH**

by

MARCELA BINTI PIMID

**Thesis submitted in fulfilment of the requirements
for the Degree of
Doctor of Philosophy**

August 2018

DECLARATION

The thesis is submitted for an academic research purpose to fulfil a requirement for the Degree of Doctor of Philosophy in Urban and Regional Planning at the School of Housing, Building, and Planning, Universiti Sains Malaysia.

I declare that the thesis is the results of my own independent work unless stated otherwise. The thesis also has not been submitted for any other degree, and currently it is not being presented for other degree.

Marcela Binti Pimid

School of Housing, Building and Planning

Universiti Sains Malaysia

DEDICATIONS

To my dear husband, Kumara Thevan,

My beloved children, Nathanael and Aedan,

My family in Sabah, family in-law, and closest friends,

Who taught me how hard one has to fight to make those dreams a reality.

ACKNOWLEDGEMENT

“If I think of research as a journey to reach my final destination, undertaking this study has been a challenging, but a wonderful experience. I would say my previous studies (degree and master in Applied Biology) in the laboratory are entirely quantitative. Therefore, making a leap from a purely laboratory research towards understanding abstract things that cannot be measured quantitatively have been really difficult, but a worthy lesson. More importantly, I have met many wonderful people along the way!” (Researcher’s thought)

My greatest thanksgiving to Almighty God for an unending strength and solitude throughout my PhD journey.

I express my deep sense of thanks and gratitude to Dr. Normah Abdul Latip, my main supervisor, for her invaluable guidance, keen interest, and encouragement at various stages of my research. Her scholarly advices and experiences shared (both as a researcher and a mother) have helped me to a great extent to complete my work, while taking care of my own family. I owe a deep sense of gratitude to Associate Professor Dr. Azizan Marzuki, my co-supervisor, for his timely guidance, enthusiasm, and constructive criticism has contributed immensely to the evolution of my ideas on this project. I extend my thanks to the staff of Housing, Building, and Planning (USM), particularly madam Normah Ismail, madam Norwahida Ismail, and madam Noraini Rafie for their kind assistance and cooperation throughout my study.

I will be forever grateful to many people for their generous supports and willingness to give freely of their time, especially to those who let me come back again and again with questions. There are too many of these people to list, but gracious souls from various organisations – the Sabah Ministry of Tourism, Culture, and Environment (KePKAS), the district office of Kinabatangan, Sabah Wildlife

Department, Sabah Forestry Department, Forest Research Centre, Sabah Tourism Board, Environmental Protection Department, HUTAN Kinabatangan Orangutan Conservation Programme, KOPEL Ltd, Nestlé Rileaf, Homestay organisation in the Lower Kinabatangan, as well as the head of villages, village development and security committees, and the local communities of Lower Kinabatangan (especially Sukau and Batu Puteh villages). Thank you very much for your invaluable insights and abundant technical assistance. Not forgetting those who make my research sampling a more joyful experience.

I offer a special thank to the Ministry of Higher Education for funding my doctorate study (program: MyPhD). It has motivated me to work diligently and fulfil my milestone accordingly.

I am very thankful to my friends, Nadiatul Sarah, Hamizah, and Diana (School of Housing, Building, and Planning, USM) for the enlightenment, fun, and fruitful friendship we have throughout our research journeys. Not forgetting, an occasional meet up with Aini Hasanah, Melissa Renee, Myra, Lorraine, Marcolate, and Heidi, whom I find reasons to laugh and see life beyond than just doing a research. Thanks to Imelda Tambayang for her kind assistance during my research sampling.

I am extremely grateful to Dr. Kumara Thevan, my husband, for his unending encouragement and warmth love. During my absence in the house, he takes good care of our children and greatly assisting me in doing the house chores. To my lovely children, Nathanael and Aedan – they always find their ways to amuse me! To my family in Sabah (mother, father, and siblings) and family in-law in Penang, you are all the source of my strength, and the accomplishment of this research is made possible with all of your supports and prayers. Thank you very much!

TABLE OF CONTENTS

ACKNOWLEDGEMENT.....	ii
TABLE OF CONTENTS.....	iv
LIST OF TABLES.....	xi
LIST OF FIGURES.....	xiii
LIST OF ABBREVIATIONS.....	xvi
LIST OF APPENDICES.....	xvii
ABSTRAK.....	xviii
ABSTRACT.....	xx
 CHAPTER 1- INTRODUCTION	
1.1 Introduction.....	1
1.2 Research background.....	7
1.3 Problem statement.....	11
1.4 Research objectives.....	17
1.5 Research questions.....	18
1.6 Scopes of research.....	18
1.7 Significance of the study.....	19
1.8 Organisation of thesis.....	20
 CHAPTER 2- LITERATURE REVIEW	
2.1 Introduction.....	24
2.2 Conservation and ecotourism as one entity.....	24
2.3 Stakeholder collaboration on conservation and ecotourism in rural area.....	26
2.3.1 Stakeholder collaboration: contexts and definitions.....	27
2.3.2 Criteria for stakeholder collaboration.....	28

2.3.3 Barriers influencing the effectiveness of stakeholder collaboration in conservation and ecotourism.....	30
2.3.4 Implications of community participation on stakeholder collaboration in conservation and ecotourism.....	32
2.3.4(a) Typologies of community participation in decision-making process.....	33
2.3.4(b) Implications of community participation on stakeholder collaboration.....	35
2.4 Theoretical basis of stakeholder collaboration.....	37
2.4.1 Stakeholder theory on conservation and ecotourism.....	38
2.4.2 Stakeholder collaboration on conservation and ecotourism.....	41
2.4.3 Theoretical framework for the current study.....	45
2.4.4 Development of an integrated framework for conservation and ecotourism.....	50
2.4.5 Stakeholder analysis for identifying relevant stakeholders.....	52
2.5 Management of conservation of natural resources in rural areas.....	58
2.5.1 Top-down (command and control) to decentralised management.....	58
2.5.2 Community-based natural resource management.....	59
2.5.3 Integrated approach of conservation: ICDP versus INRM.....	60
2.5.4 Community-based conservation.....	61
2.6 Management of ecotourism in rural areas.....	63
2.6.1 Community-based tourism.....	64
2.6.2 Community-based ecotourism.....	66
2.7 Climate change in relation to conservation and ecotourism.....	69
2.7.1 Climate change: shocks and stressors.....	69
2.7.2 Impacts of climate change.....	70
2.7.3 Current management of climate change.....	71

2.8 Case studies on stakeholder collaboration in conservation and ecotourism..	72
2.8.1 Biodiversity conservation and ecotourism in Myanmar.....	73
2.8.2 Conservation and ecotourism in Hainan, China.....	75
2.8.3 Conservation and ecotourism in protected areas in Brazil.....	77
2.8.4 Conservation and ecotourism in Kenya.....	80
2.8.5 Lessons learnt from four case studies.....	83
2.9 Impacts of conservation and ecotourism in remote areas.....	87
2.9.1 Positive impacts of conservation and ecotourism in remote areas.....	87
2.9.2 Negative impacts of conservation and ecotourism in remote areas.....	88
2.10 Issues of conservation and ecotourism.....	90
2.11 Policies and regulations on conservation and ecotourism.....	93
2.12 Conclusion.....	97

CHAPTER 3- THE LOWER KINABATANGAN SABAH

3.1 Introduction.....	98
3.2 Justifications for choosing the Lower Kinabatangan as a research area.....	98
3.3 The background of the Lower Kinabatangan.....	101
3.3.1 Geographic setting.....	101
3.3.2 History of Kinabatangan.....	102
3.3.3 Physical setting.....	105
3.3.4 Demographic background.....	109
3.4 Issues and challenges in the Lower Kinabatangan.....	110
3.4.1 Land fragmentation and habitat loss.....	110
3.4.2 Illegal logging and poaching.....	111
3.4.3 Environmental problems.....	112
3.4.4 Human-wildlife conflict.....	113
3.5 Stakeholder collaboration in conservation of natural resources and ecotourism in the Lower Kinabatangan.....	114
3.6 Conservation activities in the Lower Kinabatangan.....	118

3.7 Ecotourism attraction and products in the Lower Kinabatangan.....	123
3.8 Impacts of climate change in the Lower Kinabatangan.....	126
3.9 Conclusion.....	130

CHAPTER 4- RESEARCH METHODOLOGY

4.1 Introduction.....	131
4.2 Development of research designs.....	134
4.2.1 Concepts and approaches of research.....	134
4.2.2 Link paradigm to data collection and analysis strategies.....	136
4.2.3 Critics over choosing a method that fits the research purposes.....	141
4.3 Analysis of stakeholders in conservation and ecotourism.....	143
4.3.1 Stakeholder analysis and mapping.....	143
4.3.2 Analysis and mapping of stakeholders in Lower Kinabatangan.....	144
4.4 Mixed method research: concurrent triangulation design.....	147
4.4.1 Rationale for choosing a mixed method study.....	147
4.3.2 Approaches to concurrent mixed method research.....	150
4.3.3 Parsimonious set of mixed method designs.....	153
4.3.4 Triangulation of qualitative and quantitative methods in a mixed method study.....	153
4.5 Qualitative methodology.....	158
4.5.1 Preliminary study.....	160
4.5.2 Sampling design of qualitative.....	162
4.5.3 Data collection.....	166
4.5.4 Data analysis.....	167
4.6 Quantitative methodology.....	181
4.6.1 Sampling design.....	182
4.6.2 Questionnaire design.....	185
4.6.3 Preliminary study.....	188
4.6.4 Data collection.....	188
4.6.5 Data analysis.....	189

4.7 Conclusion.....	191
---------------------	-----

CHAPTER 5- RESULT

5.1 Introduction.....	192
5.2 Response rates, data screening, and reliability test.....	192
5.2.1 Screening of questionnaire data.....	194
5.2.2 Reliability test.....	194
5.3 Socio-demographic background of questionnaire respondents.....	195
5.4 Research findings based on three research questions.....	203
5.4.1 Research question 1.....	203
5.4.1(a) Stakeholder participation in conservation of natural resources and ecotourism in the Lower Kinabatangan.....	204
5.4.1(b) The factors that influence the stakeholder collaboration in conservation and ecotourism in the Lower Kinabatangan.....	211
5.4.1(c) Stakeholder management of conservation of natural resources and ecotourism in the Lower Kinabatangan.....	217
5.4.1(d) The issues pertaining to the conservation of natural resources and ecotourism in the Lower Kinabatangan.....	223
5.4.2 Research question 2.....	235
5.4.2(a) The impacts of conservation of natural resources to the stakeholders in the Lower Kinabatangan.....	235
5.4.2(b) The impacts of ecotourism to the stakeholders in the Lower Kinabatangan.....	238
5.4.2(c) The impacts of climate change on conservation, ecotourism, and stakeholders in the Lower Kinabatangan.....	241
5.4.3 Research question 3.....	246
5.4.3(a) Strategies to improve the conservation of natural resources in the Lower Kinabatangan.....	246
5.4.3(b) Strategies to improve the ecotourism in the Lower Kinabatangan.....	252

5.4.3(c) Strategies to enhance stakeholder collaboration in managing conservation and ecotourism in the Lower Kinabatangan.....	255
5.5 Triangulation of quantitative and qualitative results.....	257
5.6 Exploratory factor analysis.....	265
5.6.1 Exploratory factor analysis of items of conservation.....	265
5.6.2 Exploratory factor analysis of items of ecotourism.....	268
5.7 Conclusion.....	270
 CHAPTER 6- DISCUSSION OF FINDINGS	
6.1 Introduction.....	272
6.2 The attitudes of local community towards the conservation.....	273
6.3 The communities' willingness to donate for conservation activities.....	275
6.4 The attitudes of local community towards ecotourism.....	278
6.5 Analysis of stakeholder collaboration in conservation of natural resources and ecotourism in the Lower Kinabatangan.....	280
6.6 Stakeholder mapping in the Lower Kinabatangan.....	293
6.7 Collaborative process and outcomes in the Lower Kinabatangan.....	296
6.7.1 Collaborative process of conservation and ecotourism.....	296
6.7.2 Collaborative outcomes of conservation and ecotourism.....	300
6.8 Integrated framework of stakeholder collaboration in conservation and ecotourism in the Lower Kinabatangan.....	303
6.8.1 Criteria used to structure an integrated framework.....	303
6.8.2 Stakeholders' opinions on improving the collaboration for the future	305
6.8.3 Strategies to enhance stakeholder collaboration in conservation and ecotourism in the Lower Kinabatangan.....	307
6.9 Conclusion.....	315

CHAPTER 7- RESEARCH SUMMARY AND RECOMMENDATIONS

7.1 Introduction.....	318
7.2 Overview and implications of the study.....	318
7.3 Contributions of the study.....	325
7.3.1 Contribution towards the existing body of knowledge.....	326
7.3.2 Contribution to the society in the rural setting.....	329
7.3.3 Contribution to the economy.....	329
7.3.4 Contribution towards effective stakeholder collaboration in conservation, ecotourism, and climate change.....	330
7.4 Research limitations.....	331
7.5 Opportunities for future research.....	332
7.6 Final remarks.....	334
REFERENCES.....	335

APPENDICES

LIST OF TABLES

		Page
Table 2.1	Definitions and concepts of community-based tourism	65
Table 3.1	Statistic of tourist travelling to Kinabatangan in 2009 until 2015	125
Table 4.1	Links between paradigms, methods, and instruments	140
Table 4.2	Interview guide for multiple stakeholders	167
Table 4.3	The codes and descriptions of codes	176
Table 4.4	Charting data into a matrix	179
Table 4.5	Attributes for questionnaire surveys	186
Table 5.1	Response rates for questionnaire surveys	193
Table 5.2	Triangulation of mixed method research using a condensed data convergence matrix	258
Table 5.3	Factor analysis of respondents' opinions on current conservation	267
Table 5.4	Factor analysis of respondents' opinions on current ecotourism	269
Table 6.1	Regression analysis on the effects of seven independent variables on the community attitudes towards conservation in the Lower Kinabatangan	274
Table 6.2	Logistic regression predicting a likelihood of the community's willingness to donate for conservation in the Lower Kinabatangan	276
Table 6.3	Regression analysis on the effects of ten independent variables on the community attitudes towards ecotourism in the Lower Kinabatangan	278

Table 6.4	Interest-influence relationships among the stakeholders in the Lower Kinabatangan	287
Table 6.5	Collaborative process of conservation and ecotourism in the Lower Kinabatangan	298
Table 6.6	Collaborative outcomes of conservation and ecotourism in the Lower Kinabatangan	302

LIST OF FIGURES

	Page
Figure 2.1 Theoretical framework of stakeholder collaboration on conservation of natural resources and ecotourism in the Lower Kinabatangan.	49
Figure 2.2 Three stages of stakeholder analysis comprise of rationale, typology, and methods.	57
Figure 3.1 The location of Kinabatangan town, Sukau and Batu Puteh villages.	102
Figure 3.2 Types of land use in the Lower Kinabatangan. The lots represent areas of the LKWS which are disconnected between various types of land use.	108
Figure 3.3 Systematic relationship among the stakeholders in the Lower Kinabatangan.	116
Figure 4.1 Research approach for examining the collaboration of multiple stakeholders in conservation and ecotourism in the Lower Kinabatangan.	132
Figure 4.2 Relationships between ontology, epistemology and methodology.	134
Figure 4.3 Stakeholder analysis and mapping in the Lower Kinabatangan.	145
Figure 4.4 Basic design of a mixed method research.	154
Figure 4.5 The coding of an interview transcript.	174
Figure 4.6 The application of an analytical framework to each transcript.	177
Figure 4.7 Interpret the data.	181
Figure 5.1a Frequency analysis of respondents based on gender and age in the Lower Kinabatangan.	196
Figure 5.1b Frequency analysis of respondents based on ethnicity and marital status in the Lower Kinabatangan.	197

Figure 5.2a	Frequency analysis of respondents based on highest education level and occupation in the Lower Kinabatangan.	199
Figure 5.2b	Frequency analysis of respondents based on monthly salary and length of stay in the Lower Kinabatangan.	200
Figure 5.3a	Frequency analysis of respondents based on reason to stay and land ownership in the Lower Kinabatangan.	202
Figure 5.3b	Frequency analysis of respondents based on experience with wildlife species in the Lower Kinabatangan.	203
Figure 5.4	The participation of respondents in ecotourism activities.	204
Figure 5.5	The participation of respondents in conservation activities.	206
Figure 5.6	The opinions of respondents on the current management of ecotourism in the Lower Kinabatangan.	209
Figure 5.7	A list of problems that the respondents encounter in ecotourism.	212
Figure 5.8	A list of problems that the respondents encounter in conservation.	214
Figure 5.9	Eleven mediums of communication in conservation as reported by the respondents.	218
Figure 5.10	The opinions of respondents on the current management of the Lower Kinabatangan Wildlife Sanctuary.	221
Figure 5.11	The perspectives of respondents pertaining to seven issues of conservation.	224
Figure 5.12	The perceived impacts of conservation among the respondents.	235
Figure 5.13	Perceived impacts of ecotourism among the respondents.	239
Figure 5.14	The opinions of respondents on the climate change in the Lower Kinabatangan.	242
Figure 5.15	The impacts of climate change on ecotourism in the Lower Kinabatangan.	243
Figure 5.16	The impacts of climate change on the conservation in the Lower Kinabatangan.	244

Figure 5.17	Three attitudinal responses of respondents on conservation.	247
Figure 5.18	The perspectives of respondents on future development of conservation in the Lower Kinabatangan.	248
Figure 5.19	The opinions of respondents on the current trend of conservation and future participation in conservation.	249
Figure 5.20	The opinions of respondents on the support for conservation and the willingness to donate for conservation.	250
Figure 5.21	The opinions of respondents on the future management of climate change in the Lower Kinabatangan.	251
Figure 5.22	The interests and willingness of respondents to participate in future ecotourism venture.	252
Figure 5.23	The opinions of respondents on how to improve current ecotourism in the Lower Kinabatangan.	253
Figure 6.1	Mapping of key stakeholders in the Lower Kinabatangan.	294
Figure 6.2	An integrated framework to enhance a stakeholder collaboration on conservation of natural resources and ecotourism in the Lower Kinabatangan.	305

LIST OF ABBREVIATIONS

CBC	Community-based conservation
CBET	Community-based ecotourism
CBNRM	Community-based natural resource management
CBT	Community-based tourism
EPD	Environment Protection Department
HUTAN-KOCP	HUTAN Kinabatangan Orangutan Conservation Programme
ICDP	Integrated conservation and development program
INRM	Integrated natural resource management
JKKK	Jawatankuasa Kemajuan Dan Keselamatan Kampung
KiTA	Kinabatangan-corridor of Life Tourism Operators Association
KePKAS	Sabah Ministry of Tourism, Culture, And Environment
KOPEL	Community Ecotourism Cooperative (Koperasi pelancongan)
LKWS	Lower Kinabatangan Wildlife Sanctuary
MMR	Mixed method research
MP	Malaysia plan
NEP	National Ecotourism Plan
TDC	Tourism Development Corporation of Malaysia
NGOs	Non-governmental organisations
SBC	Sabah conservation strategy
SFD	Sabah Forestry Department
SFM	Sustainable forest management
SWD	Sabah Wildlife Department
TIES	The International Ecotourism Society
UNWTO	The World Tourism Organisation
WWF	World Wide Fund
WTD	Willingness to donate
WTP	Willingness to pay

LIST OF APPENDICES

Appendix A	Consent form for field research
Appendix B	List of interviewees
Appendix C	Interview questions (English)
Appendix D	Interview questions (Malay)
Appendix E	Questionnaire survey (English)
Appendix F	Questionnaire survey (Malay)

KERJASAMA PEMEGANG TARUH DALAM KONSERVASI SUMBER SEMULA JADI DI HILIR KINABATANGAN SABAH

ABSTRAK

Kegagalan untuk mencapai kelestarian dalam konservasi dan ekopelancongan selalu dikaitkan dengan kegagalan dalam memahami keperluan dan agenda pemegang taruh. Tambahan pula, strategi yang digunakan untuk menyelesaikan isu-isu konservasi dan ekopelancongan sering mengabaikan pendapat komuniti tempatan di luar bandar. Kajian ini berfokus kepada kerjasama pemegang taruh dalam kedua-dua sektor, faktor dan isu yang mempengaruhi kerjasama pemegang taruh dalam konservasi dan ekopelancongan, termasuk kesan perubahan iklim kepada pemegang taruh, ekopelancongan, dan konservasi di Hilir Kinabatangan Sabah. Matlamat kajian dilaksanakan dengan menggunakan kaedah gabungan kuantitatif dan kualitatif. Untuk kaedah kuantitatif, sebanyak 328 soal selidik yang dikutip dari setiap rumah komuniti tempatan di kampung Sukau dan Batu Puteh di Hilir Kinabatangan. Kaedah kualitatif dilaksanakan melalui pemerhatian dan temuramah kepada pemimpin komuniti, pihak berkuasa tempatan, pertubuhan bukan kerajaan, sektor swasta, ekopelancongan sektor tempatan dan swasta. Analisis kajian menunjukkan lima penemuan penting. Pertama, bilangan komuniti tempatan yang terlibat dalam aktiviti konservasi adalah lebih tinggi berbanding ekopelancongan. Kedua, analisis soal selidik menunjukkan bahawa komuniti tempatan tidak tahu cara untuk melibatkan diri dalam aktiviti konservasi dan ekopelancongan, tetapi analisis temuramah mendedahkan bahawa keuntungan adalah faktor utama yang mempengaruhi penglibatan komuniti dalam kedua-dua sektor. Ketiga, walaupun ada kajian sebelum ini dilaksanakan di kawasan ini, isu-isu seperti konflik antara pemegang taruh,

konflik hidupan liar dengan manusia, dan pencemaran alam sekitar belum dapat diselesaikan. Analisis kajian membuktikan bahawa isu-isu ini berpunca daripada kurangnya platform untuk menyuarakan masalah mereka berkaitan konservasi dan ekopelancongan secara terbuka, terutamanya komuniti tempatan dan ekopelancongan sektor tempatan. Keempat, sikap komuniti tempatan terhadap konservasi dan ekopelancongan dipengaruhi oleh penglibatan terdahulu dan cadangan untuk memperbaiki ekopelancongan dan konservasi. Tambahan pula, komuniti tempatan yang memandang positif akan cadangan untuk memperbaiki konservasi adalah 4.9 kali lebih rela menderma untuk aktiviti konservasi berbanding mereka yang mempunyai tanggapan negatif. Kelima, hasil kajian ini digunakan untuk membentuk rangka kerja bersepadu berdasarkan pendapat pemegang taruh. Rangka kerja ini menekankan lima aspek penting yang perlu diperbaiki untuk meningkatkan kerjasama pemegang taruh dalam konservasi dan ekopelancongan di Hilir Kinabatangan iaitu persekitaran, sosial, ekonomi, kerjasama pemegang taruh dalam konservasi dan ekopelancongan (termasuk penyertaan komuniti tempatan), dan perubahan iklim. Rangka kerja ini boleh juga diaplikasikan untuk menyelesaikan isu-isu berkaitan konservasi dan ekopelancongan di kawasan luar bandar lain yang menghadapi masalah yang sama.

STAKEHOLDER COLLABORATION ON CONSERVATION OF NATURAL RESOURCES IN LOWER KINABATANGAN SABAH

ABSTRACT

A failure to achieve a sustainable development of ecotourism and conservation is often related to the failure in addressing varying needs and interests of various stakeholders. Moreover, the strategies use to solve the issues of conservation and ecotourism often excludes the opinions of local communities in rural areas. The present study investigated the stakeholder collaboration in both sectors, factors and issues which influenced stakeholder collaboration on conservation and ecotourism, as well as the impacts of climate change on stakeholders, ecotourism and conservation in the Lower Kinabatangan Sabah. The aims were achieved by conducting a concurrent mixed method research using quantitative and qualitative approaches. The quantitative method gathered 328 questionnaires from each household of local communities in Sukau and Batu Puteh villages in the Lower Kinabatangan, whereas the qualitative method was conducted using a participant observation and in-depth semi-structured interviews to community leaders, local authorities, non-governmental organisations, private sectors, local and private sector ecotourism. The study highlighted five important findings. First, the number of local communities participated in conservation activities were higher compared to the ecotourism venture. Second, the surveys revealed that the local communities did not know how to participate in both activities of conservation and ecotourism, but the interview analysis showed that profit was the main factor that determined the community involvement in both sector. Third, despite previous studies conducted in this area, persistent issues such as a conflict

among stakeholder, human-wildlife conflict, and environmental pollutions were found unresolved. The findings exhibited that these issues stemmed primarily from the lack of avenue for the stakeholders to express their problems of conservation and ecotourism, especially the local communities and local sector ecotourism. Fourth, the attitudes of local communities towards conservation and ecotourism were both influenced by a previous participation and the suggestions to improve current conservation and ecotourism. Furthermore, the local communities who positively perceived the suggestions to improve the current conservation were over 4.9 times more willing to donate for the conservation activities than those who perceived it negatively. Fifth, the findings were used to develop an integrated framework based on the viewpoints of key stakeholders. In this regard, the framework highlighted five important aspects necessary for enhancing the collaboration of stakeholders in the conservation and ecotourism in the Lower Kinabatangan, namely the environment, social, economy, stakeholder collaboration on conservation and ecotourism (including local community participation), and a climate change. The framework could also be applied to solve the prevalent issues of conservation of natural resources and ecotourism in other remote areas which encountered similar problems.

CHAPTER 1

INTRODUCTION

1.1 Introduction

The current study aims to investigate the collaboration of key stakeholders on conservation of natural resources and ecotourism in remote areas, with a specific reference to the Lower Kinabatangan in Sabah, Malaysia. This study focuses on the current management of conservation and ecotourism by various stakeholders, the issues and factors that influence stakeholder collaboration, and substantial impacts of climate change in conservation and ecotourism. The findings from the study are used to formulate an integrated framework to better improve the stakeholder collaboration on conservation and ecotourism in the Lower Kinabatangan, by strategically addressing the previous and current issues pertaining to these two aspects.

A key challenge in achieving a successful management of conservation of natural resources and ecotourism in rural areas is to determine how stakeholders can collaborate efficiently in order to sustain the conservation of natural resources and ecotourism for a long term. A collaborative approach is reported to be effective in addressing issues of conservation and ecotourism through a long term engagement and trust building among various stakeholders (Ratner et al., 2017). Stakeholder collaboration is also crucial for improving the livelihoods of rural community because it empowers community members, generate new ideas, reduce conflicts, increase sharing of responsibilities, and eventually leads to an informed community (Pasape et al., 2013). In addition, it is important to understand varying needs and interests of various stakeholders so that they could work together to achieve a sustainable development of conservation and ecotourism.

Ecotourism has become a booming industry in many countries, as a drive for economic development and creating more job opportunities for local communities (Somarriba-Chang & Gunnarsdotter, 2012; Snyman, 2014b). Ecotourism also provides an economic incentive including direct or indirect employment, ecotourism development and promotion to reduce poverty in rural areas (Adeleke, 2015), whereby it is inherently claimed to provide various benefits to local communities, such as job opportunities, supplementary income, a shortcut to fast develop their village's facilities, and an exchange of cultural experiences (Spiteri & Nepal, 2006; Adeleke, 2015). Recent researches show the importance to examine the impacts of climate change in relation to conservation of biodiversity, wildlife, human being, and most importantly the role of ecotourism as an adaptation strategy, not only for reducing the local community vulnerability to climate change, but also to act as a poverty-alleviation measure (Adler et al., 2013; Mkiramweni et al., 2016). Undeniably, in recent managements of the environment and natural resources, it is evident that climate change emerges as a global threat for conservation, but the impacts on local context is understudied (Sabah Biodiversity Centre, 2011).

Nevertheless, there are many issues that jeopardise the genuine purposes of conservation and ecotourism. First, while successful conservation and ecotourism is a continuous outcome of a proper and strategic management, various stakeholders (e.g. ecotourism operators, local authorities, and local communities) with varying interests complicate the results (Zhou et al., 2014). Therefore, understanding the opinions and perspectives of these stakeholders are crucial in order to enhance the development of conservation and ecotourism in certain areas. Second, the involvement of local community in ecotourism venture is undeniably crucial, but it is meaningless without examining the factors that motivate or discourage them to

continually support and participate in ecotourism venture, as well as in the conservation activities (Coria & Calfucura, 2012; Somarriba-Chang & Gunnarsdotter, 2012).

Third, Stronza (2007) reported that the application of stakeholder collaboration as a strategy to enhance conservation measures yielded mixed results that some local people who gained benefits from ecotourism were motivated to conserve resources, while others extract more resources despite getting incomes by participating in ecotourism activities. Therefore, there is a contradict link between achieving an increased conservation through getting an increased income from ecotourism, and the same author calls for more research regarding factors that influence such dynamic findings. Another scholar noted that local people were motivated to conserve resources by recognising the environment's aesthetic characteristics and value, not merely based on economic incentives (Fletcher, 2009).

The research title is defined to present an overview of Lower Kinabatangan area. The term stakeholder emerged in the 1960s, defined as "*individuals or groups who are affected by the decision-makers' decisions and actions, and those who have the power to influence their outcomes*" (Freeman, 1984, p.46). However, the definition is considered too broad for a practical purpose because ecotourism planner requires a thorough picture of all groups who are involved in all stages of ecotourism development (Sautter & Leisen, 1999; Weitzner & Deutsch, 2015). In the case of conservation, stakeholder means "*any individual, group, or institution who has a vested interest in the natural resources of the project area and/or who potentially will be affected by project activities and have something to gain or lose if conditions change or stay the same*" (WWF, 2005, p.1).

Stakeholder collaboration means “*a process of ensuring that there is interaction of various stakeholders with common or related goals during planning, learning, decision making and empowerment mainly for the sake of enabling smooth management, collectively decision and innovation when tackling challenges, opportunities and plans for current and future well-being of a particular society*” (Pasape et al., 2013, p.2). Other scholar define a collaboration as “*a process through which parties who see different aspects of a problem can constructively explore their differences and search for solutions that go beyond their own limited vision of what is possible, thereby the process leads to a more comprehensive understanding of a problem that enables the participants to find new solutions that no one party could have envisioned or enacted alone*” (Roberts, 1991, p.4). In this regard, the collaboration enhances the potential to discover novel and innovative solutions.

Based on these definitions, the study in the Lower Kinabatangan adopts an exclusive definition of stakeholder as people or groups who are directly (and indirectly) involved or affected by the planning, processes, and outcomes of the conservation and ecotourism in this area. Moreover, the current study refers the collaboration as a process through which the stakeholders who see different aspects of a problem (conservation or ecotourism issue) can constructively explore their differences and search for solutions to enable smooth management and collective decision so as to attain a sustainable development of conservation and ecotourism in this area. The Lower Kinabatangan is a rural area and located in the Sabah state (east Malaysia). It is of important area for conservation because it harbours various species of flora and fauna, especially wildlife that has become a flagship attraction for ecotourism development.

Conservation is defined as the protection and/or sustainable use of species or ecosystem to ensure their long-term survival and viability (Kothari et al., 2000). Borgström (2015, p.70) defines conservation as “*a series of measures required to maintain or restore the natural habitats and the populations of species of wild fauna and flora at a favourable conservation status.*” Meanwhile, natural resources refer to biophysical materials which satisfy human needs and provide direct inputs to human well-being such as forests, flora, wildlife, timber, and minerals (Ratner et al., 2017). People depend largely on natural resources for various purposes. For examples, the people depend on forests for medicinal plants, water catchment, foods, and traditional rituals (Fabricius & Collins, 2007, Ratner et al., 2017).

In addition, conservation requires a continuous effort necessary to safeguard the natural resources while assuring sustainable use of remaining resources. Conservation provides five significances of a sustainable development, namely its intrinsic values of biodiversity, ecosystem services (e.g. provides clean air and water), amenity and recreational values, the opportunity to use them to yield socioeconomic benefits, and maintenance of intergenerational equity (Coffey & Major, 2005; Robert et al., 2005; Hussin, 2009). In this regard, the current study adopts a definition of conservation of natural resources as the protection and sustainable use of natural resources (the environment, forests, flora and wildlife) to ensure their long-term viability while at the same time to restore natural habitats in the Lower Kinabatangan.

The International Ecotourism Society (TIES) defines ecotourism as a “*responsible travel to natural areas that conserves the environment and improves the well-being of local people*” (TIES, 1990, p.2). The World Tourism Organisation states that ecotourism generates benefits for host communities, provides alternative

employment and income opportunities for local communities, and increases awareness towards the conservation of natural and cultural assets (UNWTO, 2002). The definition emphasises three important aspects of ecotourism, known as ecological, social, and economic. The definition of ecotourism is also synonymous with local community involvement, profit sharing, and empowerment through ecotourism and conservation projects (Adeleke, 2015). Likewise, two influential organisations apply similar criteria of ecotourism, namely the United Nations Environmental Program (UNEP) and the World Conservation Union (IUCN) (Ceballos-Lascurain, 1996). More importantly, ecotourism acts as an incentive for conservation of natural resources, wildlife, and biodiversity in developing countries, particularly in remote areas (Stronza & Gordillo, 2008). This interdependency depicts the symbiotic relationship between ecotourism, conservation, and local indigenous people (Stronza & Gordillo, 2008).

Climate change is defined as a change of climate properties that are identified by changes of mean and variability of its properties, and continue for a longer period due to natural variability and human activity (Intergovernmental Panel on Climate Change, 2007). According to Calgaro et al. (2014), the physical impacts of climate change are categorised into two types, namely shocks (occur suddenly and last for a short period of time) and stressors (happen at a slow pace and take a longer time). In this light, earthquake and landslide are the examples of shocks whereas biodiversity loss and water shortage are stressors. There are broad studies on climate change, but the present study focuses specifically on its impacts on ecotourism, conservation, and stakeholders in the Lower Kinabatangan. Therefore, the present study is written based on the definitions stated herein.

Taken together, the current study focuses on the stakeholder collaboration on natural resources in the Lower Kinabatangan Sabah. The collaborative approach is examined by understanding the issues and factors that influence stakeholder collaboration, the mechanisms used by the stakeholders to manage the natural resources such as the environment, forests, flora and wildlife, as well as the impacts of conservation and ecotourism to the stakeholders. Moreover, by identifying flaws in the current management of both sectors, the study proposes strategies to enhance the stakeholder collaboration in order to achieve a sustainable development of conservation and ecotourism in the Lower Kinabatangan.

1.2 Research background

Until the 1970s, tourism is undeveloped and remained as an insignificant economy in Malaysia. In 1972, the Tourism Development Corporation of Malaysia (TDC) is established which serves as a development authority, but it is ineffective due to limited financial allocations (WWF, 1996). Consequently, the development of tourism in Malaysia is lagged behind other Asian countries such as Thailand, Indonesia, and Singapore during that time. Nevertheless, the tourism is starting to bloom worldwide in the 1980s. The booming tourism is stimulated by an increased investment in new facilities, increased personal income, upgraded international transportation system, and improved communications. The Malaysian government carries out a series of development strategies to stimulate the tourism sector, knowing that it plays a crucial role in economic and social development. For example, the Ministry of Culture, Arts, and Tourism is responsible for planning and coordinating tourism (WWF, 1996), as well as the government's efforts to introduce tourism as a core subject in local universities and schools (Mohamed, 2002).

The Malaysian government allocates an increased amount of funds for marketing, promotional activities, physical and social infrastructures so as to expand tourism sector. For instance, the expenditures for tourism sector are RM 125.5 million during the Fourth Malaysia Plan (4MP, 1981-1985), RM 132.1 million during the Fifth Malaysia Plan (5MP, 1986-1990), and RM 533.9 million during the Sixth Malaysia Plan (6MP, 1991-1995). Therefore, the total funding for tourism development has increased significantly from 4MP to 6MP, showing that the tourism sector consistently yields an increased revenue from time to time. During the Visit Malaysia Year 1990, Malaysia attracts 7.4 million tourists with a net revenue of RM 4.5 billion (WWF, 1996).

Compare to the first cycle of Malaysia Plans (1MP to 5MP), the Seventh Malaysia Plan (7MP, 1996-2000) focuses on expanding the range of activities, products, and market to enhance foreign exchanges (The Malaysian Economic Planning Unit, 1996). The Malaysian government also invests a huge amount of money to improve technology related to tourism, such as holiday bookings through internet, promotion in various electronic media, and services-based on automated electronic. The Eighth Malaysia Plan (8MP, 2001-2005) aims for a rapid and sustainable growth of tourism, to improve human resource development in tourism, to enhance communication connectivity, to ensure safety and welfare of tourists, as well as to form strategic alliances and enhance international cooperation (The Malaysian Economic Planning Unit, 2001). The 8MP allocates RM 295.3 million for beautification and the protection of the environment, as compare to RM 89.2 million in the 7MP. Despite an economic crisis in 1997 and 1998 (8MP), the tourism industry remains strong and steady. During the 8MP, the net revenue of the tourism sector has increased from RM 11.2 billion in 2000 to RM 18.1 billion in 2005.

The Ninth Malaysia Plan (9MP, 2006-2010) focuses on promoting cultural and heritage, as well as eco- and agro-tourism, especially in Melaka, Penang, Sabah, and Sarawak (The Malaysian Economic Planning Unit, 2006). The ecotourism is developed based on the National Ecotourism Plan, which includes Homestay programme. The main purpose of the Homestay programme is to enhance the involvement of rural communities in tourism-related activities, thereby providing them supplementary incomes. During the 9MP, the Malaysian government continues to expand infrastructures and communication facilities. The strategies of the 9MP are ensuring a sustainable tourism development and enhancing the development of innovative tourism products and services. For example, extra emphasis is given in ecotourism sector, including the conservation of natural attractions (wildlife sanctuaries, national parks, and islands). The importance of ecotourism development is evident with an allocation of RM 652.1 million in the 9MP compare to RM 243.1 million in the 8MP. During 2006 until 2009, the revenue of the tourism sector has increased 67.1 % to RM 53.4 billion, while tourist arrivals increase 43.6 % to 23.6 million.

The Tenth Malaysia Plan (10MP, 2011-2015) aims to attract a larger share of high spend travelers and capture high growth segments (e.g. Rusia, India, China, and Middle East) (The Malaysian Economic Planning Unit, 2011). Among the key strategies are promoting differentiated strategy for ecotourism, improving existing and new iconic tourism products, cooperation between private sector and public-private partnership. The number of tourist arrivals in 2015 is 25.7 million with a tourism receipt of RM 69.1 billion. The 10MP also places a greater value on environmental assets and ecological resources by managing them in a more sustainable manner. Therefore, the Malaysian government facilitates a greater

participation of local communities in ecotourism activities such as fishermen as guides, biodiversity protection through the compilation of knowledge on biotropical herbs, and self-sustaining conservation. Equally important, the Malaysian government also responds proactively to the climate change that focuses on adaptation and mitigation strategies to reduce its negative impacts.

Therefore, as the Malaysian Plan progressing (1MP to 10MP), it is evident that the Malaysian government places greater values on ecotourism sector, conservation, and encourages the local communities to participate in this sector. An increased amount of expenditure is allocated to beautification and protecting the biodiversity as a crucial asset for both sustainable tourism and ecotourism development. Nevertheless, strategic planning without addressing the actual needs of local communities might lead to a failure in achieving such objectives. In particular, solving issues involving protected areas and local communities without understanding their opinions and problems (e.g. assuming what their issues are and try to solve them, top-down planning and management) eventually discourage them in getting involved in ecotourism and conservation activities (Walters et al., 1999; Garrod, 2003).

Meanwhile, in the case of climate change, the Malaysian Ministry of Natural Resources and Environment (NRE) is formed in 2004 to better coordinate the complex issue of climate change, apart from dealing with other environmental problems (Ministry of Natural Resources and Environment Malaysia, 2007). Moreover, Malaysia also adopts a precautionary principle and ‘no regrets’ policy to mitigate climate change. Various government agencies, private sectors, and NGOs also mutually cooperate and promote public awareness to address this issue. Indeed, without proper mitigation, the impacts of climate change are severe such as sea level

rise, repeated flooding, extreme weather, increase public health problems (e.g. dengue, malaria, and diarrhea due to an increased temperature has resulted in an increased of vector capacity), health effects (e.g. heat waves, cardiovascular and respiratory problems), increase trapping of pollutants, and its effect on socioeconomic (e.g. workforce capacity and economic growth). Furthermore, both plants and animals would suffer from changing climatic pressures, in the event of the climate change exceeding their natural ability to adapt, they might succumb to species extinction (Ministry of Natural Resources and Environment Malaysia, 2007). Despite initiatives undertaken by the government, little is known about its effects in a local context, particularly in an area that is exposed to an alarming threat of climate change.

1.3 Problem statement

The establishment of protected areas in many developing countries serves many purposes, such as ecosystem protections, environmental and landscape conservation, including its roles in social and economic aspects (Somarriba-Chang & Gunnarsdotter, 2012). For example, it is used for human occupancy in many developing countries, particularly the local indigenous people (Coria & Calfucura, 2012). Protected areas give them a crucial protection, a sense of belonging and essential spaces to continually practicing traditional activities that are now often impossible elsewhere (Ami & Hamzah, 2013). Besides that, it also provides multiple environmental services to human being, for instance, controlling soil erosion, recycling nutrients, and acts as a water catchment system (Somarriba-Chang & Gunnarsdotter, 2012).

Ironically, just by establishing protected areas in many developing countries does not guarantee their main objective of protecting the nature (Ami & Hamzah,

2013). In many cases, the managements of protected areas are associated with social and economic conflicts, mostly due to local people being excluded from decision-making and management, including the reason that different groups have different perspectives pertaining to using and managing the natural resources (Hussain et al., 2016). Moreover, the local community attitudes towards protected areas are influenced by education, participation, cost and benefits perceived by these people (Adeleke, 2015). Therefore, previous studies report that managing the protected areas based on the participation of the local community could avoid conflicts (Lewis, 1996; Somarriba-Chang & Gunnarsdotter, 2012). Although the local community is assured of getting benefits from ecotourism activities, this is not always the case. It seems a common problem, whereby the lack of local participation prevails in many developing countries (Somarriba-Chang & Gunnarsdotter, 2012).

The World Commission on Environment and Development (1987, p.15) defines sustainable as a “*development which meets the needs of the present without compromising the ability of future generations to meet their own needs.*” In this regard, the conservation of natural resources and ecotourism are essential elements of a sustainable development. The conservation provides several significances for a sustainable development, namely ecosystem services, amenity and recreational values, and an opportunity to use them for socioeconomic benefits, as well as to maintain intergenerational equity (Coffey & Major, 2005; Robert et al., 2005). Meanwhile, ecotourism is regarded as one component of sustainable development because it generates long-term benefits to local community, contribute towards conservation of environment and culture, promote intrinsic value of nature, non-consumptive use of natural resources, create an awareness of environmental conservation among stakeholders, as well as foster understanding and collaboration

among stakeholders (Pasape et al., 2013; Snyman, 2014b). Similarly, Manaf et al. (2018) state that if a development is able to maintain all criteria such as a widespread community engagement, benefits that can be distributed equally to all communities, good management of ecotourism, strong internal and external collaboration, and well-maintained environmental conservation – then it is considered as a sustainable development based on the description provided by the United Nations Environment Programme (Manaf et al., 2018).

The Lower Kinabatangan Sabah is a significant area for studying the collaboration of various stakeholders in conservation purposes because it provides an ideal and a wide range of habitats for rare and endangered wildlife species. It is one of only two places on earth that harbours ten primate species, including the proboscis monkey, orangutan, and Bornean gibbon (Hai et al., 2001; WWF, 2001). It provides a home for a more than fifty mammal species, including the Sumatran rhinoceros, Asian elephant, pygmy elephant, as well as at least eight species of hornbill (Hai et al., 2001; WWF, 2001). Moreover, the Kinabatangan river is the longest in Sabah (560 km), serves as the source of livelihoods and one way of transportation to local indigenous community, known as ‘Orang Sungai’ in this area. The river and the surrounding wetland are a precious breeding ground for a various types of aquatic, especially freshwater fishes, crabs, and prawns (Hai et al., 2001). Equally important, the river is the main supply of daily water for Sandakan district.

There are many studies conducted on conservation and ecotourism in developing countries, especially in rural areas. The studies focus on the impacts of conservation and ecotourism on various stakeholders, the relationship among stakeholders, the issues pertaining to stakeholder collaboration in both aspects, and propose solutions to address the issues (Majail & Webber, 2006; Ancrenaz et al.

2007; Mbaiwa & Stronza 2010; Snyman, 2012; Snyman, 2016). However, what is lacking the most is that the studies do not directly ask the opinions of relevant stakeholders on how to address the issues of conservation and ecotourism, especially the perspectives of local communities who are most affected by the development of both sectors in their areas.

In the case of Lower Kinabatangan, a local government and NGOs made many initiatives to increase stakeholders' awareness on the importance of conservation and ecotourism in rural areas as part of economic and social development, but a weak integration among the stakeholders jeopardised the efforts (Fletcher, 1996; Hussin, 2009). Other factors such as a poor communication and inefficient management also contribute towards negative outcomes (Fletcher, 1996; Hai et al. 2001; Latip et al. 2015a). Furthermore, studies of conservation and ecotourism only included two groups of stakeholder (Ghasemi & Hamzah, 2014; Goh, 2015), or three types of stakeholders such local authority, NGOs, and local community (Latip & Badarulzaman, 2014) or government, industries (oil palm and ecotourism), and local community (Majail & Webber, 2006). Meanwhile, Hussin (2006) examines more groups of stakeholders such as local community, NGOs, homestay participants, and conservation volunteers. In this light, it is noteworthy that a better understanding of broader groups of affected stakeholders (human or social dimension) enhances conservation and ecotourism measures (Bennett et al. 2017; Mak et al., 2017; Sterling et al., 2017).

In the past, the Lower Kinabatangan is practically covered by forests, but today many forests were cleared to make ways for agricultural and development purposes (Vaz, 1993; WWF, 2001). It causes a huge land fragmentation in this area. Even worse, 85 % of the Kinabatangan forests have been converted to agricultural

sectors in 2003 (Pang, 2003). Although commercial logging activities have reduced, this area is subjected to many threats, such as land conversion to oil palm plantations, illegal logging, and local villagers are willing to sell or give up their private land to agricultural companies to obtain fast, lucrative incomes. At present, the land in the Lower Kinabatangan is used predominantly for oil palm plantations (Hai et al., 2001; Abram & Ancrenaz, 2017). Excessive land conversion which is still occurring to this day leaves the Lower Kinabatangan area even more fragmented (Abram & Ancrenaz, 2017). Consequently, it creates isolated patches of landscape that has a severe impact on the biodiversity and wildlife in this area (WWF, 2007). Land fragmentation is a leading threat to many terrestrial animals, because it causes an increased competition among biodiversity species and more limited resources (Abram & Ancrenaz, 2017).

To manage and continually protect natural resources, the state government of Sabah has gazetted 26 103 hectares of the Lower Kinabatangan area as a Lower Kinabatangan Wildlife Sanctuary and places it under the jurisdiction of the Sabah Wildlife Department (Ancrenaz et al., 2007; Sabah Wildlife Department, 2017a). Nevertheless, there are many threats that influence the integrity of this wildlife sanctuary. Apart from a demand for a fast economic development, varying interests and agenda between various groups (e.g. government, logging and oil palm companies, and local community) have placed the conservation goals at stake (Majail & Webber, 2006). Since then, various activities are conducted to obtain greater supports from various stakeholders to work through a common vision for conservation, but without understanding underlying causes, it is difficult to develop and implement a strategic action plan.

Previous studies report undesirable effects of climate change towards ecotourism business, especially in protected areas because most attraction rely

heavily on natural landscapes, animals, and archaeological sites which are sensitive to climate change (Calgaro et al., 2014). The negative impacts of climate change discourage tourists' visit to affected areas, thereby reducing income flow (Calgaro et al., 2014). Other impacts of climate change are damages to public facilities, recurrent drought, and death of livestock (Stucki & Smith, 2011). In the case of conservation, a climate change is linked with the decline of wildlife species such as elephants, rhinoceros, and lions (Casazza et al., 2014). It also exacerbates illegal harvesting of natural resources and illegal poaching due to food scarcity during severe drought (Aryal et al., 2014; Becken & Wilson, 2016).

Although a climate change is a global concern and its negative effects are unavoidable, many studies argue the understanding of impacts and mitigation at local context (Aryal et al., 2014; Gouldson et al., 2016). A case in point is the Lower Kinabatangan which harbours a vast (threatened) wildlife species and depleting virgin forests. Notably, although this area offers homestay and cultural experiences, the main attraction in this area is wildlife species (Ghasemi & Hamzah, 2014; Goh, 2015). Due to undesirable weather changes and a prolong drought, many forested areas have become prone to forest burning, but little is known regarding its impacts to stakeholders, ecotourism, and conservation, as well as strategies to curb this problem (Sabah Biodiversity Centre, 2011).

Based on the literature review, the gap of study is to gather the perspectives of relevant stakeholders in addressing issues based on their knowledge and capabilities, as well as to understand the reasons of unresolved issues pertaining to the stakeholder collaboration in conservation and ecotourism. The opinions of key stakeholders in the Lower Kinabatangan are crucial because they are most affected by the conservation measures and ecotourism development, especially the local

communities. In this regard, the current study focuses on the stakeholder collaboration on the conservation of natural resources and ecotourism in the Lower Kinabatangan as a case study. In order to address this gap, the study will examine the issues and factors that influence the stakeholder collaboration, the impacts of conservation and ecotourism to the stakeholders, and propose strategies to enhance the collaboration so as to ensure a sustainable development of conservation and ecotourism in the future.

1.4 Research objectives

The current study aims to accomplish three objectives:

- 1) To examine stakeholder collaboration in achieving sustainable conservation of natural resources and ecotourism in the Lower Kinabatangan.
- 2) To evaluate the impacts of conservation of natural resources and ecotourism to stakeholders in the Lower Kinabatangan.
- 3) To identify strategies in improving the stakeholder collaboration in achieving sustainable conservation of natural resources and ecotourism in the Lower Kinabatangan.

1.5 Research questions

To fulfil the objectives stated above, three research questions are examined in this study:

- 1) What are the issues and factors that influence the stakeholder collaboration in achieving sustainable conservation of natural resources and ecotourism in the Lower Kinabatangan?
- 2) What are the impacts of conservation of natural resources and ecotourism to the stakeholders in the Lower Kinabatangan?
- 3) How the collaboration among the stakeholders in the Lower Kinabatangan be improved for the future?

1.6 Scopes of research

The study focuses on the collaboration of key stakeholders involved in the conservation of natural resources, the management of conservation and ecotourism by relevant stakeholders, and key relationships between the stakeholders in a remote area. It identifies the factors that influence stakeholder collaboration, the relationships among key stakeholders, and several pertinent issues encounter by the stakeholders in managing the conservation and ecotourism. Equally important, it also examines the impacts of climate change in relation to the stakeholders, conservation and ecotourism sectors. A research sampling is conducted in the rural area of Sabah known as the Lower Kinabatangan. Therefore, the discussion is illustrated based on a rural setting. In addition, part of this study examines a climate change in relation to conservation and ecotourism, as it is considered an alarming threat to this area. However, it only covers impacts of climate change in this area.

The fact that conservation and ecotourism development is complex and requires a depth understanding, this study combines quantitative and qualitative

methods, precisely a concurrent triangulation of mixed method. A theoretical framework for this study is formulated based on stakeholder theory and stakeholder collaboration to explain the collaborative roles of key stakeholders in the Lower Kinabatangan. The perspectives and interests of these stakeholders are further analysed using a stakeholder analysis. The findings from this study are used to formulate an integrated framework for enhancing the stakeholder collaboration in the conservation and ecotourism in the Lower Kinabatangan.

The main constraint in this research is the geographical access to the Lower Kinabatangan area. Although some villages are well connected with roads (paved and gravel roads), other villages are difficult to reach and need to cross over a huge Kinabatangan river. In addition to the geographical difficulties, other matters like historical background of ecotourism, inadequate finance, and time constraints are considered thoroughly. Hence, two specific villages of the Lower Kinabatangan are chosen for the research, namely Sukau and Batu Puteh. Nevertheless, these limitations are overcome by applying a census collection of primary data to both villages. The study also applied triangulation techniques to increase the internal validity of research findings.

1.7 Significance of the study

The findings of this study redound to the benefit of a society, considering that ecotourism plays an important role to provide a high-income economy and acts as an incentive to conserve depleting natural resources, biodiversity, and wildlife. The greater demands of expanding ecotourism in many countries justify the needs for more effective approaches in managing conservation and ecotourism, particularly in remote areas. Hence, policy makers, local and private businesspersons that employ the recommended framework derived from this study will be able to improve the

collaboration of various stakeholders in managing conservation and ecotourism in rural areas.

It assists local authorities and NGOs to better address pertinent issues of conservation and ecotourism, and helps them in understanding the factors that encourage the involvement of local communities. It also uncovers critical aspects in conservation and ecotourism that helps other researchers to explain similar phenomenon, but warrants further investigation for different research settings. Overall, it provides a guideline for applying a new perspective for examining the stakeholder collaboration in conservation and ecotourism in remote areas.

1.8 Organisation of thesis

The current study comprises of seven chapters and is organised in the following way:

Chapter 1 briefly introduces the research stances pertaining to the stakeholder collaboration in conservation of natural resources and ecotourism, symbiotic interrelationship between conservation and ecotourism, and the problems pertaining to the stakeholder collaboration on both aspects in remote areas. It describes how a climate change influence the ecotourism, conservation, and stakeholders in the Lower Kinabatangan Sabah. It also states the research objectives, research questions, and the scope of the study, including the philosophy chosen for this study and its limitations. Additionally, it highlights the significance of the study in relation to knowledge contribution and produces an integrated approach to improve stakeholder collaboration in conservation and ecotourism in rural areas. The final section explains the organisation of this thesis.

Chapter 2 sets to compare and contrast four developing countries in relation to a stakeholder collaboration in managing the conservation and ecotourism, issues and factors that influence the collaboration of stakeholders in conservation and ecotourism sectors. It discusses the approaches undertaken by relevant stakeholders in managing conservation and ecotourism in rural areas, and how the local communities get involved in both activities. It also explains the philosophy and typology of conservation and ecotourism, and how they are applied in the current study. This chapter includes previous researches of conservation and ecotourism, the issues, and existing solutions employed to solve such problems. It justifies the importance of examining the impacts of climate change to conservation and ecotourism, particularly to the stakeholders in the Lower Kinabatangan. It describes the perspective undertaken for this study, and shows how the current study is distinguished from the previous studies.

Chapter 3 explains the detailed background of the Lower Kinabatangan, such as demographic, geographical, historical, and physical settings. It also describes the stakeholder involvement in conservation and ecotourism in this area. It further illustrates the changes that occur in the Lower Kinabatangan. This chapter helps to justify the importance of ecotourism as an accelerating economy boost in this area, but at the same time taking a proactive approaches to conserve many endangered wildlife species and their natural habitats. It provides a summary of previous researches conducted in this area, and the extent to which aspects of conservation and ecotourism are remained understudied, including its relevance to the current study.

Chapter 4 outlines the research methodologies undertaken to examine the stakeholder collaboration in conservation and ecotourism in the Lower Kinabatangan as a case study. The application of a mixed method study is explained thoroughly, including the rationale for choosing such method. Specifically, it elaborates how a concurrent mixed method study is carried out by combining qualitative and quantitative approaches, including using a triangulation starting from the point it formulates the research questions until the data analysis and discussion of research findings. It includes the description of primary and secondary data, the research instruments, and types of data analysis. Qualitative method utilises in-depth semi-structured interviews of six important groups of stakeholders and a participant observation. On the contrary, quantitative method applies a closed-ended questionnaire survey, field notes, published reports, and pamphlets which are gathered throughout the field sampling. It also describes the research paradigm used in this study.

Chapter 5 analyses and discusses the results regarding the involvement of stakeholders in conservation and ecotourism in the Lower Kinabatangan, particularly their opinions and supports in both sectors. It further identifies the problems associated with stakeholder collaboration and the perceived impacts on the established Lower Kinabatangan Wildlife Sanctuary. The views of stakeholders pertaining to the management of conservation and ecotourism are compared and explained in relation to the community involvement in both sectors. The quantitative findings of local communities' opinions are further enhanced through a triangulation method with the qualitative analyses. The application of the triangulation method is explained thoroughly using four labels, namely confirm, contradict, mixed, and

enhance. Overall, this chapter addresses the three research questions that are raised in the Chapter 1.

Chapter 6 explains the communities' willingness to donate for conservation using a binary logistic regression. In addition, it elaborates the predictive ability of several independent variables on the attitudes of local communities towards conservation and ecotourism using two series of multiple regressions. It extends the discussion by examining key relationships between the stakeholders using an interest-influence matrix which highlights a beneficial relationship and issues that occur between the stakeholders involved in the conservation and ecotourism in the Lower Kinabatangan. Subsequently, it provides a description of strategy which proposes five aspects that need to be improved in order to enhance the stakeholder collaboration in both sectors.

Chapter 7 gives a summary of this study, as well as a discussion on directions for future works. It highlights the main findings and explains several shortcomings encountered throughout the research journey. Based on the findings and limitations, it provides useful suggestions for future studies on conservation and ecotourism, particularly in a remote setting.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Chapter 2 focuses on explaining the overall perspective of the research undertaken. It elaborates the fundamental and philosophy of stakeholder collaboration and how it is significantly related to conservation of natural resources and ecotourism in a rural context. It further describes the challenges and opportunities pertaining to conservation and ecotourism, as well as the existing approaches employ to mitigate the problems, while assuring more benefits are distributed to relevant stakeholders. In this case, four case studies of developing countries are compared and discussed in terms of stakeholder collaboration, challenges, and current management of conservation and ecotourism. In addition, it explains the importance of studying the ill-effects of climate change on conservation and ecotourism.

2.2 Conservation and ecotourism as one entity

As sustainability “*meets the needs of the present without compromising the ability of future generations to meet their own needs*” (World Commission on Environment and Development, 1987, p.15), conservation is an essential element of a sustainable development (Robert et al., 2005). Recent studies emphasise the integration of conservation objectives into non-environmental sectors and local involvement because conservation alone is unable to secure environmental objectives (Coffey & Major, 2005; Ancrenaz et al., 2007; Engen & Hausner, 2017). Five significances of conservation towards a sustainable development are its intrinsic values of biodiversity, ecosystem services (e.g. provides clean air and water),

amenity and recreational values, the opportunity to use them to yield socioeconomic benefits, and maintenance of intergenerational equity (Coffey & Major, 2005; Robert et al., 2005; Hussin, 2009).

Ecotourism is also one component of sustainable development and it gains a fast momentum in recent years (Pasape et al., 2013). The World Tourism Organisation states that ecotourism generates benefits for host communities, provides alternative employment and income opportunities for local communities, and increases awareness towards the conservation of natural and cultural assets (UNWTO, 2002). The key principles of ecotourism are to generate long-term benefits to local community, contribute towards conservation of environment and culture, promote intrinsic value of nature, non-consumptive use of natural resources, create an awareness of environmental conservation among stakeholders, and foster understanding and collaboration among stakeholders (Pasape et al., 2013; Snyman, 2014b).

The link between conservation and ecotourism has been debated for many years. It is because the fundamental functions of ecotourism (e.g. protection of natural areas, production of revenue, and meaningful local participation) to contribute effectively towards a conservation goal is questionable, but the reverse is also true (Ross & Wall, 1999; Fennell & Weaver, 2005). Some scholars reach a consensus that ecotourism and conservation exhibit a symbiotic relationship. In this case, ecotourism destination gains profit from the protection of quality natural resources, whereas the conservation of natural resources is increasingly appreciated because the nature acts as ecotourism attraction (Ross & Wall, 1999; Fennell & Weaver, 2005; Kiper, 2013; Boley & Green, 2016). Moreover, to encourage a sustainable development, ecotourism must account for the complexity of social,