# BIODIVERSITY GOVERNANCE IN PENINSULAR MALAYSIA - IDENTIFYING CONSERVATION PRIORITIES, EVALUATING THE IMPACT OF FEDERALISM AND ASSESSING THE GOVERNANCE OF PROTECTED AREAS

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# ABSTRACT

To address global biodiversity loss, national and subnational actions are imperative. Malaysia is a biodiversity hotspot with a federal system of government. The literature points to gaps in governance of biodiversity. The aim of this Ph.D. was to understand issues on biodiversity governance in Peninsular Malaysia, with the following objectives: (i) identify conservation priorities; (ii) review and assess the effect of federalism; and (iii) review and analyse the governance of protected areas (PA). This research identified conservation priorities defined by multi stakeholder participation, deploying a workshop and snowball survey approach. This generated a ranked list of 35 priority issues under seven themes, with high degree of agreement among stakeholders. The prioritisation exercise and the literature revealed current federal system of governance posed biodiversity governance challenges. Building on postcolonial and political ecology frameworks, theoretical and empirical qualitative research was carried out on the impact of federalism on biodiversity governance; and the governance of protected areas. I concluded that that states did not want to give up their land for conservation as it is their source of revenue in the absence of incentives for conservation from federal government due to the dichotomy in the federal constitution. Governance of PAs is compromised with different laws operating at both state and federal level, shortage of manpower and funds. This study provides a menu of recommendation options which highlights constitutional, institutional, financial and legal reforms to strengthen governance of biodiversity. In terms of contribution, this study took an innovative approach to identify conservation priorities in Peninsular Malaysia while applying postcolonial and political ecology theory to examine biodiversity governance in a federalised developing country. I highlight the potential of this

study to influence policy space and if the proposed reforms are implemented, Peninsular Malaysia has all the ingredients in terms of economic capability, sizeable forest cover and low population density for the effective conservation of biodiversity.

# PUBLICATIONS AND PAPERS PRESENTED IN KEY INTERNATIONAL CONFERENCES

*A list of peer reviewed publications based on the work of this thesis:*

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Padfield, R., Drew, S., Syayuti, K., Page, S., Evers, S., Campos-Arceiz, A., Nagulendran., K., Sayok, A., Hansen, S., Schouten, G., Maulidia, M., Papargyropoulou, E. and Tham, M. H. (2016) 'Landscapes in transition: an analysis of sustainable policy initiatives and emerging corporate commitments in the palm oil industry', *Landscape Research*, 41(7), pp. 744–756

*A list of key international conferences attended during this Ph.D. study and papers presented based on the work of this thesis:*

IUCN Asia Parks Congress, 10-16 November 2013, Sendai, Japan
Paper: *Interventions to Strengthen Protected Area Management in Malaysia*

IUCN World Parks Congress, 12 – 19 November 2014, Sydney, Australia
Paper: *Malaysia- Integrating Protected Areas into National Planning: Overview and key issues* (https://tinyurl.com/YouTube-Nagu-PA)

3rd Indian Biodiversity Congress, 18-20 December 2014, Chennai, India
Paper: *The Role of Protected Area in Malaysia's Vision 2020*

8th Trondheim Biodiversity Conference, 31 May – 3 June 2016, Norway
Paper: *Spatial planning as a tool to mainstream biodiversity in related sectors by identifying conservation priorities* (https://tinyurl.com/Nagu-Trondheim)

Conservation Asia, 29 June-2 July 2016, Singapore
Paper: *Conservation priorities among stakeholder groups in Peninsular Malaysia: Towards a common agreement?*

IUCN World Conservation Congress, 1-10 September 2016, Hawaii, USA
Paper: *Managing Protected Areas and Mainstreaming Biodiversity: A case study of Peninsular Malaysia*

This Ph.D. is dedicated to my beloved parents,

Mr & Mrs Kangayatkarasu Subramaniam, who were my first *Gurus*.

Though both of you have left your mortal coils, your love and guidance are still

immensely felt from the inner worlds to this day.


"I MUST, I WILL, I CAN"

*– a simple yet powerful affirmation imparted to me by*

*K. Sarojini Devi (1938-2004), my mother…..*

# ACKNOWLEDGEMENTS

# TABLE OF CONTENTS

# LIST OF TABLES

# LIST OF FIGURES

# ACRONYMS

| | |
|---|---|
| ABS | Access to Biological Resources and Benefit Sharing |
| ADB | Asian Development Bank |
| CBD | Convention on Biological Diversity |
| CBDR | Common but Differentiated Responsibilities |
| CBO | Community Based Organisation |
| CEPA | Communication, Education and Public Awareness |
| COP | Conference of Parties to UN Treaties such as CBD |
| CVB | Common Vision on Biodiversity |
| DWNP | Department of Wildlife and National Parks |
| EPU | Economic Planning Unit |
| ETP | Economic Transformation Programme |
| FDPM | Forestry Department Peninsular Malaysia |
| GoM | Government of Malaysia |
| ICCA | Indigenous and Community Conserved Areas |
| IGOs | International Governmental Organisations |
| ILCs | Indigenous and Local Communities |
| IPBES | Intergovernmental Platform on Biodiversity and Ecosystem Services |
| IUCN | International Union for Conservation of Nature |
| MACC | Malaysian Anti-Corruption Commission |
| MEAs | Multilateral Environmental Agreements |
| MEME | Management and Ecology of Malaysian Elephants |
| MOCAT | Ministry of Tourism and Culture Malaysia |
| MOF | Ministry of Finance |
| MOH | Ministry of Health |
| MOSTI | Ministry of Science, Technology and Innovation |
| MP | Malaysia Plan |
| NBC | National Biodiversity Centre |
| NCTF | National Conservation Trust Fund |
| NEM | New Economy Model |

| | |
|---|---|
| NGO | Non-Governmental Organisations |
| NPBD | National Policy on Biological Diversity |
| NRE | Ministry of Natural Resources and Environment Malaysia |
| PA | Protected Areas |
| PES | Payment for Ecosystem Services |
| PETRONAS | Petroleum Nasional Berhad |
| PNP | Penang National Park |
| PRF | Permanent Forest Reserve |
| RBSP | The Royal Belum State Park |
| REDD+ | Reducing Emissions from Deforestation and Forest Degradation |
| TK | Traditional Knowledge |
| TNP | Taman Negara Pahang |
| UNFCCC | United Nations Framework Convention on Climate Change |
| UNGA | United Nations General Assembly |
| UNMC | University of Nottingham Malaysia Campus |
| UoN | University of Nottingham (UK) |

# CHAPTER 1: General Introduction

*"Science without politics has no impact, politics without science can be dangerous…"*

–Peter Pivot (2016 Manson Medal recipient)

## 1.1. Introduction

### 1.1.1. Biodiversity – a snapshot

Biodiversity can generally be defined as the variety of life forms found on this planet and the various habitats they live in (Wilson, 1999). Biodiversity provides us with ecosystem services such as pollination; provisioning services such as food and medicines; supporting services such as soil formation; and aesthetic and cultural services such as nature based tourism and some religions pay respect to nature (Gaston and Spicer, 2004). While biodiversity is integral to the well-being of this planet, it is being lost at unprecedented rates due to anthropogenic causes (Chapin *et al.*, 2000; Sodhi *et al.*, 2004; Adenle, 2012). The current extinction is believed to be a thousand times higher than the background levels as the planet moves deeper into the Anthropocene epoch (Schwagerl, 2014) – which requires concrete actions to deflect this trend.

## 1.2. Background and Context

### 1.2.1. A Global perspective on Biodiversity Governance

In 1987 the Brundtland Report also known as 'Our Common Future' highlighted that in the name of development, the world's natural resources including biodiversity were rapidly being depleted (World Commission On Environment and Development, 1990). Subsequently, to address the rapid decline of biodiversity, world leaders who met at the Earth Summit in Rio in 1992 adopted three treaties

related to environment including the Convention on Biological Diversity (CBD). The CBD was then envisaged to be the panacea for global biodiversity loss. The CBD in 2010 adopted the Global Biodiversity Targets (known as the Aichi Targets) to halt biodiversity loss by 2020. Even with a global treaty, the report card is not encouraging. The 4th Global Biodiversity Outlook and WWF's Living Planet Index Report, 2016 has revealed that biodiversity loss is still happening at alarming rates (CBD Secretariat, 2014; WWF International, 2016).

This can be due to a couple of reasons. Firstly, the CBD, is a treaty that has no compliance mechanism and it's up to Parties to draw up policies and actions as per national circumstances. The nearly universal membership of CBD (USA and Holy See are not parties, CBD Secretariat, 2017), shows global support for this treaty and its conservation efforts. But even with this global support, there is inadequate action at national levels as reported by the Millennium Ecosystem Assessment (Prip *et al.*, 2010). This can be attributed to low priority given by governments as there is no strict compliance requirement by this treaty (Rosendal, 2010)

The second reason is the north-south divide on bio-diplomacy under the lines of the 'common but differentiated responsibilities' (CBDR) principle, agreed to at the Earth Summit in 1992. This principle was maintained at the Rio+20 Conference in 2012 (Dutta, 2012). Under this principle the South stresses actions will only be taken to conserve biodiversity, if new and additional funding is provided by developed countries to support developing countries implement CBD decisions (Bortscheller, 2010; Gibbons, 2012).

The third reason is to ensure the Aichi Targets are met, a new governance approach is needed at all levels especially at national levels to meet these ambitious

targets. Yet it is argued by Jóhannsdóttir, Cresswell, & Bridgewater (2010) that the international community seems to be paying more attention to the economics of the anthropogenic climate change issues. This lack of attention to the CBD can be attributed to the nature of CBD itself which is seen as a weak treaty with no specific obligatory commitments as highlighted by Gurusamy (1998).

These three main issues created a situation of relegating CBD's role in conserving biodiversity effectively (Tollefson, 2012), which requires for an alternative approach especially a national level.

### 1.2.2. An alternative prescription

Some of the possible pathways to address biodiversity loss is to take an alternative pathway and focus on (i) biodiversity hotspots, (ii) prioritise conservation interventions, and (iii) protected areas (PAs) (Myers *et al.*, 2000; Sutherland, 2000; Terborgh and Schaik, 2002).

An alternative approach as argued by Myers et al., (2000), to enhance biodiversity conservation and to effectively deploy resources, is to focus on biodiversity hotspot areas (which includes the Indo-Malayan biogeographical region). Myers argues that these biodiversity hotspots just cover 1.4% of Earth's land surface but houses 44% of all plant species and 35% of all vertebrate species.

On the other hand, Sutherland, (2000), argues that since resources are always limiting conservation actions, there is a need to focus on highest conservation priorities. This conservation priority can allow for governments to take action where it's needed most in terms of biodiversity conservation (Sutherland and Woodroof, 2009; Rudd *et al.*, 2011). In identifying priorities, a participatory and transparent approach would strengthen the justification and the

prioritisation itself can be useful in generating more resources especially funds from donors (Sutherland, 2000).

To conserve biodiversity, land is integral in a shrinking planet and protected areas (PAs) promises to be an answer to conserve biodiversity (Dudley *et al.*, 2005). This is because PAs are geographically defined and managed for their conservation purposes and as to date, terrestrial PAs covers 14.8% of earth's surface (UNEP-WCMC, 2017). Protected areas, when governed and managed appropriately, can provide nature-based solutions to development pressures.

PAs are vital to respond to some of today's most pressing challenges, including food and water security, human health and well-being, disaster risk reduction and climate change (Terborgh and Schaik, 2002; Dearden, Bennett and Johnston, 2005). PAs also offer a wide range of socioeconomic as well as cultural benefit to indigenous and local communities (Naughton-Treves, Holland and Brandon, 2005).

### 1.2.3. Peninsular Malaysia and Biodiversity

Taking on the suggestion to focus actions for conservation at biodiversity hotspots, this research is on Malaysia and focuses on Peninsular Malaysia. Malaysia provides as an interesting biodiversity hotspot for research on biodiversity governance, given its rich biodiversity and rapid growth (Aiken and Leigh, 1992; Rasiah, 2011).

Malaysia is located just above the equator (2 30 N, 112 30 E), has a tropical climate with an average temperature of 28$^{\circ}$C. Malaysia's land area is about 330,803km$^2$ and is made up of Peninsular Malaysia which is connected to mainland Asia and two states in the Borneo Island. This upper middle income country has a

GDP per-capita of USD 9,766 and poverty level below 0.6% (EPU, 2016). Malaysia has a federal system of government that practices a system of parliamentary democracy with a constitutional monarchy. Present day Malaysia is made up of 13 state governments and a federal government (*Figure 1.1*). The constitution clearly distributes power and responsibility to the federal and the state governments. For example, the constitution gives rights over land, forest and water to state governments (Loh, 2010). We will see later and in subsequent chapters that this dichotomy poses challenges to biodiversity governance.

Malaysia is regarded as one of the most successful developing country to have achieved a promising and smooth transition to modern economic growth over the last century or so (Commission on Growth and Development, 2008; Rasiah, 2011). Malaysia after independence has put in place five-year national development plans called the 'Malaysian Plans' which was rolled out since 1966 (EPU, 2013). Currently the 11th Malaysian Plan (2016-2020) is being implemented. Malaysia at the same time is a megadiverse country with rich biodiversity (Aiken & Leigh, 1992, *Table 1.1*).

The situation of Malaysia's biodiversity mirrors the global trend as described above. Rapid development over the years had a direct impact on biodiversity. Malaysia relied on her natural resource base to drive economic growth (Sodhi, 2008). This reliance of development based on natural resources has had an impact on biodiversity. For example, wild tiger population in 1950s was estimated to be 3000 individuals but these majestic megafauna have seen a sharp decline to about 250 to 340 individuals in 2015 (Jeremy, 2014; WWF Malaysia, 2016).

To address biodiversity loss, the government has put in place several biodiversity and related policies ever since 1978 (see Appendix A for a list of all

5

biodiversity related policies). Malaysia's 5th National Report to the Convention on Biological Diversity and other published studies have shown that despite these policies, biodiversity in Malaysia is facing a declining trend (Jomo, Chang and Khoo, 2004; Sodhi, 2008; NRE, 2014a).

*Figure 1.1: Map of Malaysia with the Federal Territories and 13 different States across Peninsular Malaysia and East Malaysia (in Borneo)*
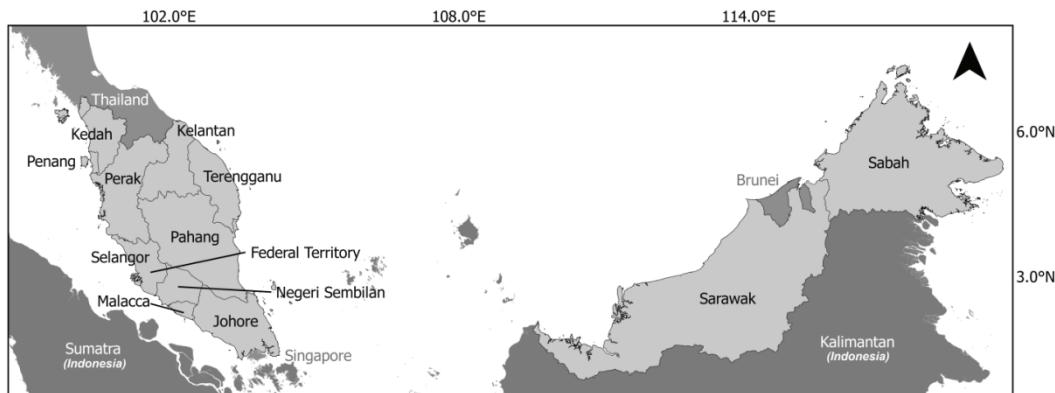


*Table 1.1:Summary of Malaysia's overall biodiversity richness*

| Group | Estimated Species |
|---|---|
| Mammals | 306 |
| Birds | 742 |
| Reptiles | 567 |
| Amphibians | 242 |
| Marine Fishes | 1,619 |
| Freshwater Fishes | 449 |
| Invertebrates | 150,000 |
| Vascular Plants | 15,000 |
| Fungi | 4,000 |
| Mosses | 522 |
| Hard Coral | 612 |

Source: (NRE, 2014a)

## 1.3.    Problem Statement

Malaysia is a fast-growing developing country with rich biodiversity and has in place policies related to biodiversity conservation, however the emerging scientific data is indicating that its biodiversity is under threat.

## 1.4.    Research Aim and Objective

Given the above backdrop, the aim of this thesis is to study the attributes that affect biodiversity governance in Peninsular Malaysia with the following broad objectives, to:

(i)     identify conservation priorities as defined by stakeholder engagement;

(ii)    review and assess the impact of federalism on biodiversity governance; and

(iii)   review and analyse institutional and legal-policy framework at both federal and state government levels on PA governance.

Objective (ii) and (iii), were inspired by the results of objective (i). These broad objectives were further refined into supplementary objectives and research questions in the following chapters. The scheme and diagrammatic representation of this research with the sub-objectives appears in *Figure 1.2*. I conducted my research first by defining the conservation priorities and the outcome of this research while insights from the literature guided the focus on the two other main objectives (ii) and (iii) which were integral to biodiversity conservation.

*Figure 1.2:  Diagrammatic scheme of the research*
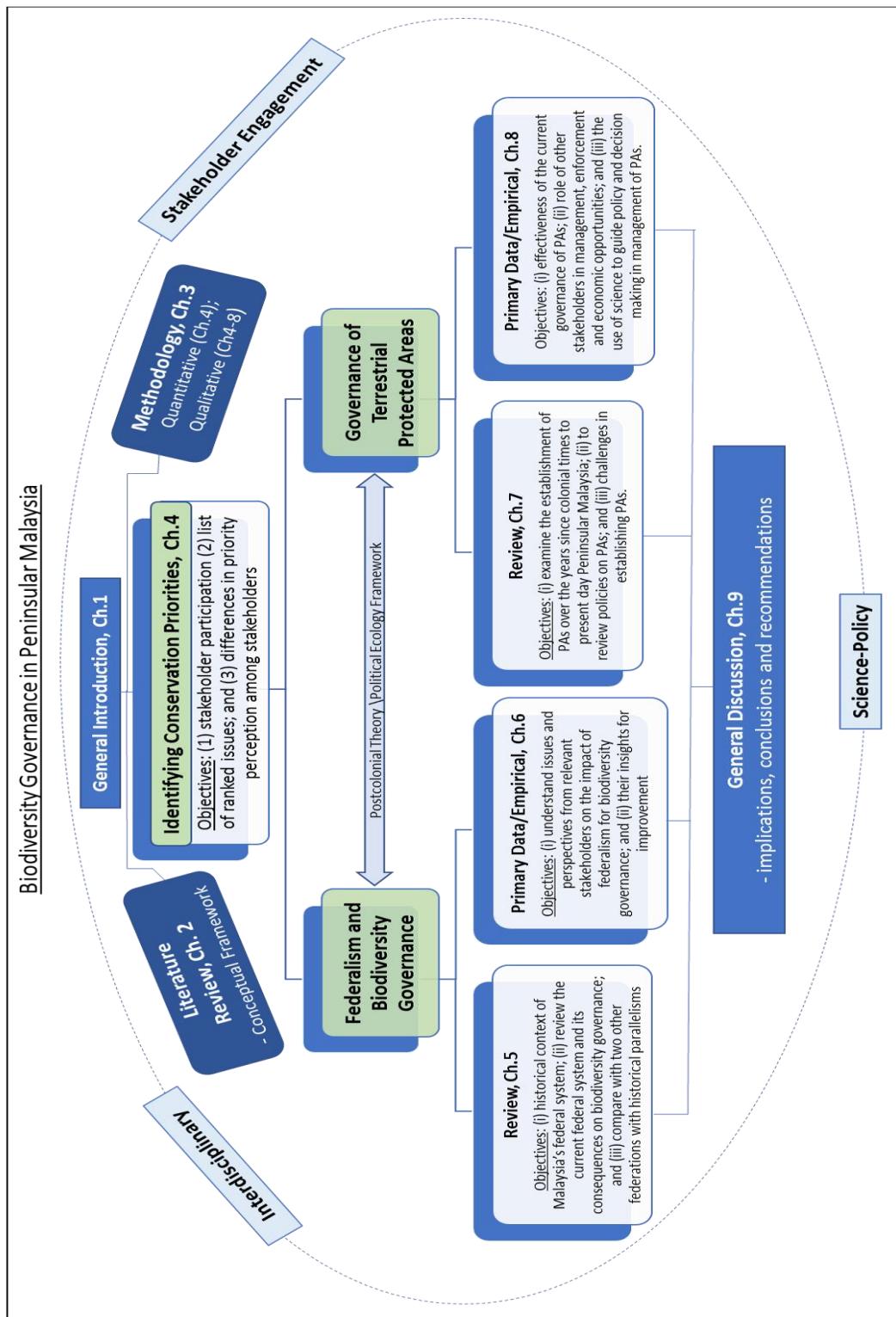
## 1.5.    Thesis Structure

The original structure of this thesis was discussed with my main supervisor and was approved by the School of Environmental and Geographical Sciences, University of Nottingham Malaysia Campus during my first year Post Graduate Presentation in 2014. This thesis had taken the approach for each chapter to be stand alone to enable it to be published. Nevertheless, some cross referencing between chapters was used to avoid repetitions especially on methods and background on Malaysia. For clarity some similar ideas appear more than once in the substantive chapters[1].

**Chapter One** is the **general introduction** which provides a background on the current situation and highlights the objectives and aims of this research. This chapter also serves as an extended abstract. This chapter is followed by a **literature review** in **Chapter Two** which frames this research in its conceptual context. **Chapter Three** highlights the **methodology** used in this research, with details highlighted in the respective chapters.

Malaysia as a fast-growing economy, needs a delicate balance between conservation and development. To have a concrete impact on conservation, it will be important to understand and identify conservation priorities. This is explored in my **fourth chapter**, where **a multi stake holder approach to define conservation priorities in Peninsular Malaysia** was undertaken.

Another issue that underpins all discussion regarding biodiversity conservation nationally at a systemic level is the federal-state issue (Hezri, 2016;

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[1] The UoN's Submission for a Research Degree by Published Works does recognise that: "The incorporation of publications/publication-style chapters in the thesis will inevitably lead to some duplication since each publication-style chapter will have self-contained components that will overlap with parts of the other sections of the thesis……"

Ling, 2011). The dichotomy (separation of powers between federal and state governments) provided by the constitution creates challenges for effective implementation of biodiversity policies at federal and state level (Jomo and Hui, 2003). Since conservation is still not high in the public perception and lacks visibility, both federal and state governments are hesitant to invest in biodiversity conservation due to its low political returns (Dourojeanni, 2002; Waldron *et al.*, 2013). In Malaysia, land and forest is a state matter and state governments are reluctant to take any concrete measures for conservation, because land and forest are their main source of revenue (Aiken & Leigh, 1988).

This motivated the research on Federal-State issues regarding biodiversity governance which translated into the fifth and sixth chapter of this thesis. I organised the fifth chapter to capture the theoretical issues and the sixth chapter to address the empirical research. The **fifth chapter** focuses on a policy analysis and review on the **impact of federalism on biodiversity governance in Peninsular Malaysia**. **Chapter Six** focuses on **perceptions from the field regarding federal-state issues on biodiversity governance**.

PAs in Peninsular Malaysia are either managed by federal or state governments which has caused lack of uniformity due to different laws and the absence of a national definition for PAs (NRE, 2009a). In this context, **Chapter Seven** focuses on an **overview and analysis of terrestrial protected areas in Peninsular Malaysia. Chapter Eight** builds on the review in Chapter Seven and highlights empirical research at three PA sites in Peninsular Malaysia by deploying **a case study approach to understand the issues and challenges to PA governance in three PAs sites** – Penang National Park, Taman Negara Pahang and Royal Belum State Park. These three sites were chosen because they had a

different legal and institutional framework which made this case study useful to give a holistic picture of the governance of PA in Peninsular Malaysia.

## 1.6.    Positionality and the research process

In qualitative research, the researcher is part of the study and the issue of positionality and reflexivity need to be addressed, to reduce researcher bias.

### 1.6.1.   Me the researcher

Prior to undertaking this doctoral study, I was attached to the Ministry of Natural Resource and Environment, Malaysia. My last position was as the Deputy Undersecretary of the Forestry and Biodiversity Management Division. My work involved policy formulation, including developing Malaysia's positions for negotiations especially in biodiversity related treaties as well as interacting with colleagues from other agencies and the wider stakeholders.

Hence in this research process, I bring in my practical experience which is useful in providing insights to the research. While this is useful, it may bring about bias in the way I design the research and interpret the findings. To address the subjectivity and enhance credibility of this research, I started off by undertaking a process (as in Chapter Four) to allow stakeholders to define the priorities in an open, transparent and participatory manner. The following research on federalism and protected areas, were identified as priority issues by the stakeholders and matched my interest and were pursued in this study.

Furthermore, to keep my influence in check on the findings of this research, the findings were checked with some of the respondents to see if the issues were captured accurately. The findings were derived from different methods such as semi structured interviews, focus groups, secondary data analysis and observations

to enable the triangulation of the findings to enhance the validity. Finally, the findings were also discussed with two experts in this field where one of them has been involved in biodiversity matters especially on the legal aspects for over 20 years and the other was an expert on protected areas in Peninsular Malaysia with over 30 years' experience.

### 1.6.2. <u>The research process</u>

Initially I found it quite difficult to interview colleagues especially the more junior colleagues from the departments under the purview of the ministry, as they were rather guarded in their response. They at first were wondering whether I was really undertaking a Ph.D. study or am I undercover to find out inside information that could compromise them. It was after some time that I could get their trust. This was established as I frequently visited my study sites and, on each visit, I stayed for several days ranging from three days to a week. Staying in the study site allowed me to build friendly relationships (rather than being very formal) with the participants. I also gave them my assurance that all information will be kept confidential. These approaches facilitated most of the participants on site to open-up and speak from the heart. I also shared with them the transcripts to check and they were happy as they remained anonymous and their identity was reduced to codes.

In addition to ensure they were comfortable with the process, prior to the interview, a plan language statement (see Appendix G) was sent to them explaining about the research and interview process.

## 1.7. Key Findings of this Research

### 1.7.1. Identifying Conservation Priorities (Chapter Four)

A multi-stakeholder engagement was undertaken in a co-design and participatory approach to (1) define conservation priorities in Peninsular Malaysia; and (2) explore differences in perceptions among and within different stakeholder groups. Two workshops and two online surveys were conducted where participants identified seven general conservation themes and ranked the top five priority issues within each theme (total 35 priorities identified and ranked). The themes were: (1) policy and management, (2) legislation and enforcement, (3) socio-economic issues, (4) finance and resource allocation, (5) knowledge, research and development, (6) public awareness and participation, and (7) rights of nature. The top issue under these seven themes were lack of leadership to champion conservation agendas, weak enforcement and inadequate manpower, ILCs do not participate in management of PAs, lack of funds, weak science-policy interface, passion among Malaysians on biodiversity issues lacking and weak protection of traditional knowledge that promotes nature protection.

The findings showed that the four stakeholder groups showed general agreement in their priority preferences for 33 out of 35 issues. In terms of differences in priority choice, respondents from government and private sector differed the most, while academia and NGO had highest degree of similarity in their choices. From the literature search this is the first time a ranked list of conservation priorities has been identified for Peninsular Malaysia, which will be useful for policy makers to strengthen biodiversity governance. This research has been published and the some results of this study has been incorporated in the

'pursuing green growth for sustainability and resilience' section of the 11th Malaysia Plan (2016-2020; EPU, 2015) see Appendix L.

### 1.7.2. <u>Federalism and Biodiversity Governance (Chapter Five and Six)</u>

To address this issue, a review and empirical research were undertaken and presented in two chapters respectively. The policy review was conducted: (i) to understand the historical context; (ii) its consequences on biodiversity governance; and (iii) derive insights from other countries with federal systems (this research focused on Australia and India which were also former British colonies). The empirical research was conducted to: (i) understand issues and perspectives from stakeholders on federalism and biodiversity governance; and (ii) gather their insights for improvement.

The findings show that colonial legacy has influenced the governance of biodiversity given the dichotomy of powers in the federal constitution. The constitution while providing rights over land and forest to state governments, it has allocated very narrow revenue streams to state governments. A majority of the nation's revenue is channelled to the federal government. This situation makes state governments overly rely on natural sources and forest for their income. The findings further point to either Malaysia amending its constitution or/and having a standalone law for biodiversity conservation in the spirit of cooperation federalism.

Addressing the legal framework alone is not enough, Malaysia must complement these efforts by mainstreaming biodiversity into the national development process and allocating adequate funding and optimising resource mobilisation by focusing on conservation priorities.

### 1.7.3. <u>Protected Area and Biodiversity Governance (Chapter Seven and Eight)</u>

A review and empirical research was undertaken to study this issue. The review focused on: (i) examining the establishment of PAs over the years; (ii) reviewing policies on PAs; and (iii) challenges in establishing PAs. The aim of the empirical research was to: (i) investigate the effectiveness of the current governance of PAs; (ii) investigate the role and participation of other stakeholders; and (iii) examine the use of science to guide policy and decision making.

The findings showed that the British created PAs from the early 1900s in Peninsular Malaysia to dedicate areas for wildlife game and to arrest degradation of biodiversity (loss of wildlife species). Ever since independence the creation of PAs have been not encouraging with just 1% PA expansion of Peninsular Malaysia's total land area. The findings among others revealed the shortcoming in managing PAs were: (a) different laws used by federal and state governments to manage PAs; (b) lack of incentive for states to manage PAs; (c) competing priorities especially for socio-economic development; (d) absence of a national PA framework; (e) *orang asli*[2] not involved in the management of PAs and obtain very little economic benefit from activities in PAs; and (f) the use of science is lacking to guide policy and decision making.

This study highlights that there are enough policies but, there is a need to review and harmonise laws on PAs and to explore a co-management approach among stakeholders to manage PAs. With this approach, private sector and ILCs

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[2] *Orang asli* is the Malay term for the aboriginal people of Peninsular Malaysia. Officially, there are 18 orang asli tribes, categorised under three main groups according to their different languages and customs: (a) *Negrito*, generally confined to the northern portion of the peninsula; (b) *Senoi*, residing in the central region; and *Aboriginal Malay (Proto-Malay),* residing in the southern peninsula (Nicholas, Engi and Ping, 2004).

can be given the opportunity to assist the government (both federal and state) in managing PAs and enhance its governance and the conservation of biodiversity.

## 1.8.    Statement of Joint Authorship

Chapters Four to Eight are stand-alone papers which have been published or are being processed for publishing with collaboration of other authors. Below I highlight my contribution and that of the other authors. Chapters one, two, three and nine was authored by me with feedback from my main supervisor (Dr Ahimsa Campos-Arceiz) and co-supervisor (Dr Rory Padfield).

### 1.8.1.  Chapter Four

I undertook the work in conceptualising the idea, designing the study, correspondence with the participants, approval process from the ethics committee, deploying and manging the surveys and workshops, data collection, data analysis and writing. My main supervisor guided me with the research design, checking and providing feedback on the manuscript. My co-supervisor also assisted with the research design, checking and providing feedback on the manuscript. The other authors were people who participated in the workshop and due to their contribution during the workshops, they were invited to be co-authors in the spirit of stakeholder participation and co-designed nature of this research.

The advance draft of the manuscript was given to them to comment and a few of them suggested editorial improvements to the paper. This paper was published in Cogent Environmental Science on 31 October 2016 in an open access format for its free and wide distribution as I wanted all stakeholders especially in the government to have free access to this paper to assist them with their work on strengthening biodiversity governance.

### 1.8.2. <u>Chapter Five to Eight</u>

I am the main author and my main supervisor and co-supervisor are the co-authors. I undertook the work in conceptualising the idea, designing the study, correspondence with the participants, approval process from the ethics committee and the relevant government agencies, conducting all the interviews and the focus groups (including moderating), data collection, data analysis and writing. My main supervisor guided me with the research design, checking and providing feedback on the manuscript. My co-supervisor also assisted with the research design, checking and providing feedback on the manuscript.

Chapters Five and Six are being prepared to be published in Tropical Conservation Science Journal. Chapters Seven and Eight are been prepared for Tropical Conservation Science Journal or Biological Conservation Journal. Chapters Five to Eight have yet to be published.

# CHAPTER 2: Literature Review

## 2.1.    Introduction and framing the research

This chapter provides a general review as Chapters Four, Five and Seven have incorporated in-depth subject literature reviews. The main aim of this research is to define conservation priorities for Peninsular Malaysia and understand the impact federalism has on biodiversity governance and study the governance of protected areas.

From literatures that were reviewed it is clear that global biodiversity continues to be lost at rapid levels (Smith, Muir and Walpole, 2003; Sodhi, 2008; McShane *et al.*, 2011; Ripple *et al.*, 2016) in spite of having a dedicated treaty — the Convention on Biological Diversity (CBD). The CBD's 2010 targets to halt the loss of biodiversity were not met and many criticised it for not having any clear measurable goals added with the relatively short implementation period since its adoption in 2002 (Mace *et al.*, 2010). Land use change, invasive alien species, poaching, unsustainable production and consumption patterns, pollution, nutrient loading from nitrogen and phosphorous continue to drive biodiversity loss (Smith, Muir and Walpole, 2003; Fitzherbert *et al.*, 2008; Yule, 2008). At a more systemic level, the lack of governance, limited resources, inadequate awareness, weak science-policy interface and not having clear prioritised interventions, have impacted the effectiveness of translating actions on the ground to strengthen biodiversity conservation (Barrett *et al.*, 2006; Duraiappah and Rogers, 2011; Game, Kareiva and Possingham, 2013).

Building on the experience of the 2010 target failure, Parties that met at the tenth Conference of Parties to the CBD in Nagoya, Japan in 2010 developed a more robust set of targets which was complemented with a resource mobilisation plan

(CBD Secretariat, 2010). This new set of goals were a called the Biodiversity Strategic Plan 2011-2020 and the Aichi Biodiversity Targets. These new goals aimed to halve the rate of habitat loss; increase terrestrial protected areas to 17%; restore at least 15% of degraded areas. The extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained (CBD Secretariat, 2010). While the Aichi Targets seem to have an ambitious plan, the road ahead for the conservation of biodiversity seems to be going down a slippery slope. Preliminary assessment of the Aichi Targets so far has not been encouraging unless efforts at all levels are doubled (Tittensor *et al.*, 2014).

Corresponding to the global scenario of declining biodiversity, the situation in Malaysia must be looked at within the wider political, socio-economic and historical construct. Malaysia, a mega biodiverse country has made remarkable progress in socioeconomic development in recent years (Aiken and Leigh, 1992; Rasiah, 2011). When Malaysia obtained independence in 1957, it had inherited a thriving plantation, timber and mining industry, which was established by the British colonial rule. Much of this sector especially plantations continue to fuel Malaysia's economy (Hezri, 2016). From the literature reviewed, it was apparent that large-scale conversion of forested land took place in Peninsular Malaysia during the industrial revolution in Europe to make way for rubber and oil palm plantations. From 1900 to 1950 alone, Malaysia's arable land increased fivefold (ADB, 1994). During this period infrastructure such as roads and ports were built by the colonial government to support the logistics and trade of these commodities. The extractive development by the British and their 'divide and rule' approach

brought about gross spatial and structural imbalances as well as societal economic inequality (Chuan, 1982; Andaya and Andaya, 2001).

At the time of independence, Malaysia was daunted with challenges of inequality in socio-economic distribution and had to undertake economic reforms to eradicate poverty ─ 52% of the population in 1957 was poor (Yukio, 1985). In its formative years, Malaysia focused economic growth through the agriculture sector which was mainly rubber and oil palm plantation (Robertson, 1984; Kailany, 2011). To drive this agenda, the government among others established the Federal Land Development Authority of Malaysia (FELDA) in 1956. FELDA's primary objective was the resettlement of the rural poor into newly developed areas by clearing forest and opening smallholder farms to grow oil palm or rubber (Aziz, Hassan and Saud, 2012). FELDA received global recognition for its success in reducing poverty among rural communities (Robertson, 1984). FELDA's work also had an impact on biodiversity (Aiken and Leigh, 1992).

By 1965, FELDA had converted 1,000km$^2$ of forested land for plantation (Goh, 1982) and in 2011 the figure was 8,533km$^2$ (Kailany, 2011). This and other agriculture interventions including infrastructure development further reduced forest cover. In 1966, 68% of Peninsular Malaysia was under forest cover and this figure declined to 43.8% in 2016. (Chuan, 1982; FDPM, 2017).  The situation faced by Malaysia parallels the observations of Adams et al. (2004), who suggested that while it is desirable to undertake poverty reduction and biodiversity conservation simultaneously, it's complex, dynamic and requires hard choices which are usually politically charged (Bryant and Bailey, 1997).

Malaysia in the present day has diversified its economy (see *Figure 2.3*) with manufacturing of electric and electronic products and service industry as the

main economic drivers (Drabble, 2000). Nevertheless, agriculture (mainly commodity crops) contributed approximately 8% of the total GDP in 2014 (EPU, 2016). While Malaysia's economy has expanded in terms of GDP, agriculture figures may be small but in terms of land area, it's significant. For example 15.8% of Malaysia's land area is planted with oil palm which covers 70% of land used for agriculture (Ishak *et al.*, 2012).

*Figure 2.3: Contribution of different sectors to Malaysia's GDP (%) from 1970 – 2016 (Developed with data from EPU, 2016)*
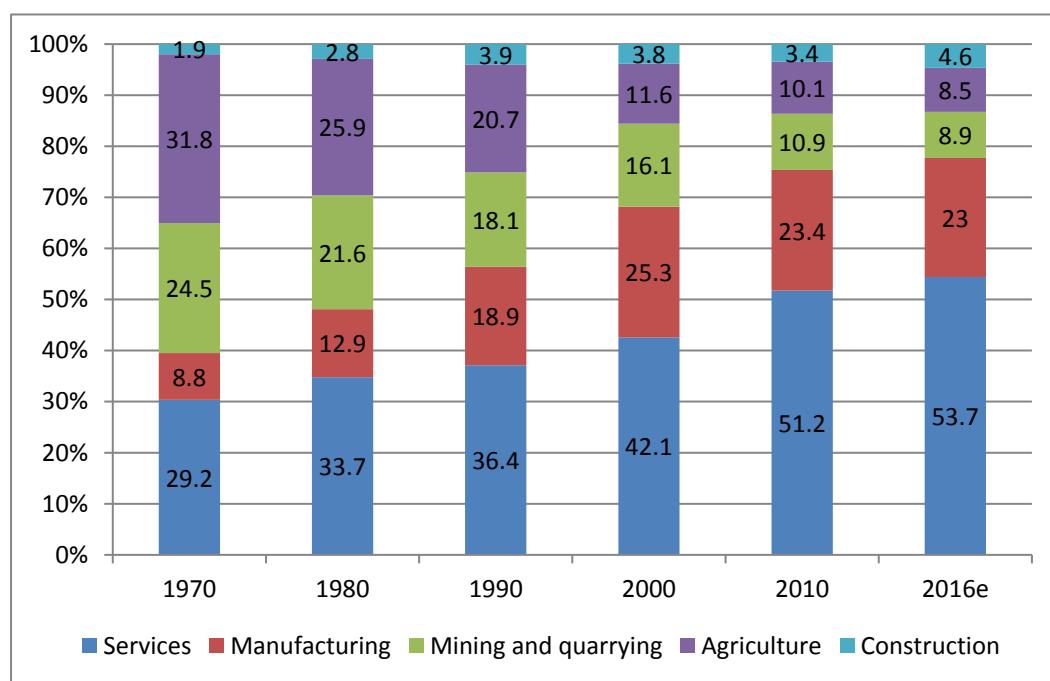


Malaysia has the aspiration to be a fully developed nation by 2020 based on sustainable development principles as envisaged in its Vision 2020 (Mahathir, 1993). This sustainable development commitment to balance development and environmental concerns has been the guiding principle in the nation's five year development plans (EPU, 2013). In reality the balance tilts towards development rather than conservation as observed by some critiques especially local environmental NGOs (MNF for Rio+10, 2003).

Malaysia has in place some key biodiversity policy documents namely the National Policy on Biological Diversity (NPBD), 2016-2025 (replacing the 1998 policy) and the Common Vision on Biodiversity (CVB), 2009. The revised NPBD, is Malaysia's response to the Global Biodiversity Aichi Targets, with a view to halt biodiversity loss (NRE, 2016). The CVB's main aim was to provide policy direction to mainstream biodiversity into national planning and development processes and at the same time strengthen the protected area system (NRE, 2009a).

A list of biodiversity and related policies in Malaysia is listed in Appendix C. In spite of these policies generated by the federal government, biodiversity governance in present day Malaysia is highly influenced by the interdependence of political relations at state and federal government level infused with colonial imprints and interactions with wider stakeholders  (Guha, 2000; Peet and Watts, 2004; Kathirithamby-Wells, 2005).

## 2.2.    The Conceptual Framework

### 2.2.1.  Political Ecology and Postcolonial Theory

This research draws its conceptual framework based on an interdisciplinary approach embedded within political ecology and postcolonial scholarship. Malaysia was colonised for over 450 years, the hegemonic standards the colonisers have imparted (Bill, Gareth and Helen, 2007) and level of mimicry and hybridity of these standards have influenced governance, culture and language (Homi, 1994) of present day Malaysia.  Malaysia is formed by a Federal Constitution that binds 13 state governments together to form Malaysia. Under this framework, the state government have their own political and governance space and have been bestowed rights over land, water and forest while a majority of the revenue streams

22

is channelled to the federal government (Hutchinson, 2014). The dichotomy in the constitution provides challenges for the effective deployment of federal level policies on biodiversity at state and local levels (Ling, 2011; Raja Omar, 2012).

Parallel to observations made by Pathak (1994), environment and biodiversity in Malaysia are often seen as adjunct issues to development (Nagulendran *et al.*, 2016) where postcolonial perspectives also play an important role in governance because it emphasises and focuses upon the interaction of the state and non-state actors (Padfield, 2008). The literatures revealed that the study of biodiversity governance in post-colonial states in the context of federalism in political ecology furthers the work done by Adams & Hutton (2007), Adams *et al.*, (2004) and Jewitt (2008) who have studied political ecologies of local communities and resource use conflicts especially in the forestry sector and creation of protected areas. Many other authors (see Brandon, Redford and Sanderson, 1998; Jomo, Chang and Khoo, 2004; Jewitt *et al.*, 2014) have also directly or indirectly positioned their research within the political ecology framework mainly to address the issue of forestry and communities.

In the Malaysian context, this postcolonial paradigm is framed within the wider political ecology scholarship which enables us to understand interactions of federal and state government political interaction and its impact on biodiversity conservation and is presented in this research as a protected area governance case study. Political ecology while being more of an empirical analysis approach rather than a theory is inspired by a range of important theoretical platforms including such as environmental justices, green materialism, peasant studies as well as post-colonial theory (Robbins, 2004).

The diagrammatic scheme of the conceptual framework for this research is as in *Figure 2.4*. The political ecology paradigm allows us to understand biodiversity governance challenges in the wider political, social and economic context (Bryant, 1998; Adams *et al.*, 2004; Jewitt, 2008). The political ecology premise as argued by Bryant & Bailey, (1997) is based on the assumptions that biodiversity degradation does not affect society in a homogenous way, which amplifies socioeconomic inequalities and contributes to political implications in terms of the altered power relationships.

*Figure 2.4:Schematic representation of the conceptual framework*
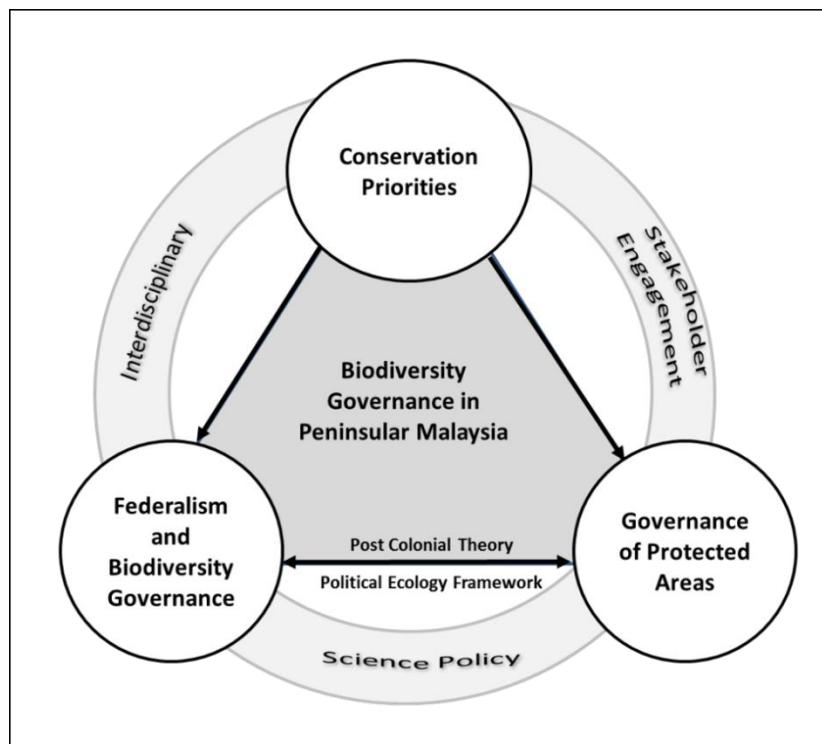


Political ecology is not without its critics, some authors feel that proponents of political ecology overly emphasise the 'politics' rather than the ecology or the environment itself (Vayda and Walters, 1999; Abel and Stepp, 2003; Walker, 2005). They argue that political ecology seems to have moved the paradigm of *"…'ecology without politics' of three decades ago' to a 'politics without ecology'…."* (Vayda and Walters, 1999: 169). They further highlight that

this over emphasis on politics without trying to understand actual cause of environmental changes may not address the issues effectively. While what has been argued by critics of political ecology has some merits especially on issues such as climate change and genetically modified organisms, these emerging issues are also fuelled by political discourse and policy decisions which are dominated by global capitalist systems (Flachs, 2015; Klein, 2015).

The political ecology debate framework of global biodiversity conservation has frequently highlighted that the trend of most countries is to advance their development agenda first and environmental issues including social issues could be address at a later stage when their economy has reached a satisfactory state (World Bank, 1992). A key advocate of this approach (Beckerman, 1992) further postulates based on the Environmental Kuznets Curve (EKC) framework that countries in the initial state to improve their socio-economic status would exploit their natural resources which will have an impact on the environment (*Figure 2.5*). Once they have grown to have a substantial income they will inevitably be motivated to invest in activities which are less impactful to the environment (Beckerman, 1992). Malaysia is still a developing economy and this model probably explains the focus on development over biodiversity conservation.

The EKC idea that environment growth will eventually lead to environmental improvement resonates with the core of the sustainable development agenda framework (Stern, 2004). The sustainable development approach which gives an enticing proposition to governments that environment can be managed without deviating too much from the business as usual approach

(Stern, 2004) is also a key feature of the recently adopted Sustainable Development
Goals 2015-2030 (SDG)[3].

*Figure 2.5: Environmental Kuznets Curve (EKC)[adapted from: Pettinger 2017]*
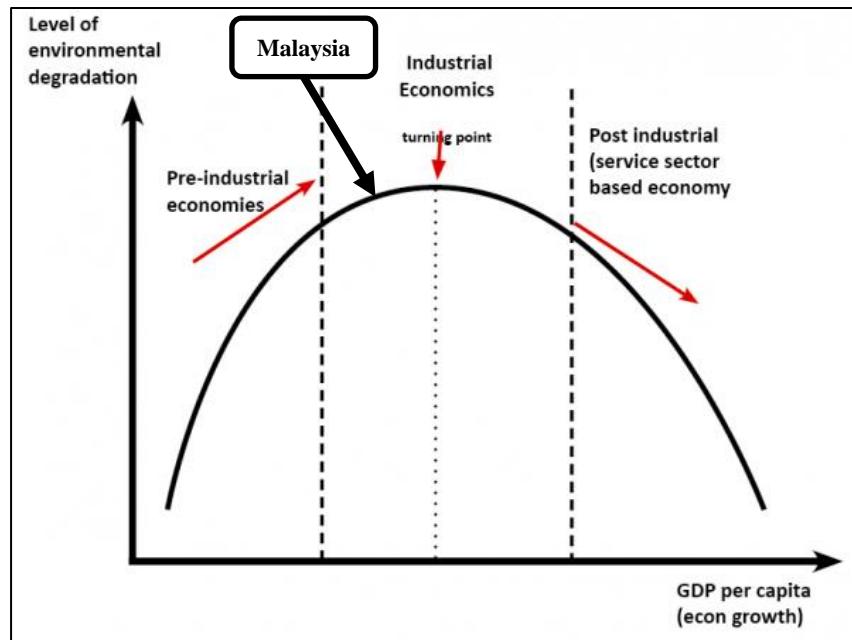


### 2.2.2. Biodiversity Governance

To ensure sustainable development takes place at the national level, the
conservation of biodiversity has to be integrated into strategies for economic
development to improve livelihoods at local scales (Adams *et al.*, 2004). Malaysia
in her 1998 National Policy on Biological Diversity had framed a path way based
on the need to integrate biodiversity in the national development process. The
Common Vison on Biodiversity (2009) further stresses the need to mainstream
biodiversity into all sectors. While the policy call is clear at the federal government

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[3] The SDG is a set of 17 Goals adopted by countries to the United Nations in 2015 to end poverty,
protect the planet and ensure prosperity for all as part of a new sustainable development agenda
(United Nations 2015).

level, the state governments rely heavily on natural resources and forests for their state level socioeconomic development (Jomo, Chang and Khoo, 2004).

Building on the arguments above, in the present-day Malaysian setting, we have come a long way since our colonised years. Poverty rate in 2014 had dropped to a mere 0.6% (EPU, 2016) yet there is much need to strengthen governance on biodiversity towards a more sustainable development pathway (Hezri, 2016). Nevertheless, since we are still classified as a developing country, using the EKC model, where economic interest dominates at this phase, it will take some time before we gather enough momentum, political will and awareness to enhance biodiversity governance (Nagulendran *et al.*, 2016).

Traditionally the term governance as put forward by scholars such as Osborne (1993), were somewhat conventional and limits the term to governmental process. Kim, Halligan, & Cho (2005) highlighted that government is only one of the many actors involved in governance alongside the private sector, civil society, indigenous communities and others. Governance is also broader than just management According to Armitage, de Loë and Plummer (2012), management is a process to deliver specific outcomes and governance is a broader process where institutions involve wider groups of stakeholders that participate and make decisions that shapes the outcome.

Graham, Amos and Plumptre (2003:1) defined governance as *"…...not about government…..[but]a process whereby societies or organizations make their important decisions, determine whom they involve in the process and how they render account. .... policies that define who gets power, how decisions are taken and how accountability is rendered."*

Strengthening governance has emerged as an important element in public administration reforms. In today's world, public policy making has to go beyond organisational boundaries to ensure effective policy making which addresses the various complex and difficult issues that governments have to respond to (Bovaird and Loffler, 2003). This includes the need for informed and participatory decision and policy making guided by science (Young *et al.*, 2014).

Hill *et al.* (2013) highlights that global biodiversity is going through a phase and has not reached to a level of adequate governance. Hill *et al.* (2013) applied the social maturation framework which has six phases ─ Observation, Theorization, Popularization, Challenge, Governance and Normalisation and argued that biodiversity is still at the 'challenge' level (see *Figure 2.6*). This is because of the economic benefits derived from development is driving biodiversity decline. The experience in Malaysia corresponds with the view by Hill *et al.*, (2013) as the literatures studied (Aiken and Leigh, 1992; Yule, 2008; Hezri and Dovers, 2012; Miyamoto *et al.*, 2014; Jacobson, 2015) shows that Malaysia is still at the 'challenge' level. Hence to move into 'governance' phase would require major policy responses from government and business sector (Pisupati, 2012; Hill *et al.*, 2013).

## 2.3.    Science-Policy Interface

The role of science to make effective interventions cannot be dismissed or underplayed in the emerging post truth era especially in the realm of governance (Keyes, 2004). The consequences of denying science can be dangerous both to human health and biodiversity as witnessed in the past with the usage of DDT (dichloro-diphenyl-trichloroethane) and in the present day with climate change deniers (Vitousek, 1997; Dunlap, 2013). Hoppe, (1999) argues that for high quality

policy making, knowledge and information are key ingredients. Biodiversity issues have been recently recognised globally and the Intergovernmental Panel on Biodiversity and Ecosystem Services (IPBES) was established in 2012 to guide the global and sub global science-policy interface. The approach taken by IPBES is to provide for interdisciplinary science which includes social science as well as ethno-knowledge systems to guide policy making (IPBES Secretariat, 2014). While having this global platform in place, it will also be more effective to replicate this approach at regional and national levels as assimilated by Europe (Carmen *et al.*, 2015). This is because biodiversity, unlike climate change requires specific prescriptions at national and sub-regional levels (Duraiappah and Rogers, 2011).

*Figure 2.6: The Phases of the Social Maturation Framework for Biodiversity proposed by Hill et al. (2013)*

| Phase | Focus | Indicators | Outcomes |
|---|---|---|---|
| Observation | *Discovery* | • Trigger event(s) OR phenomena identified posing new/growing problems | • New issue or idea advanced |
| Emergence | *Initial theorization; discourse development* | • Initial advancement of theories (e.g. about issue causes and effects)<br>• Theory contestation, falsification<br>• Fringe interests and/or 'elite' voices advocating the issue<br>• Initial validation | • Theorization substantiating issue<br>• Emerging body of knowledge and challenge to the 'status quo' |
| Popularization | *Growing awareness* | • Formation of issue-specific organizations<br>• Media coverage<br>• (Re)framing of the issue by advocates to create/increase moral imperative to act<br>• Building community concern and emergence of 'outrage' | • Greater public awareness (but not in-depth issue knowledge)<br>• Pressure for action (e.g. more research) starts to build<br>• Development of moral imperative for addressing the issue |
| Challenge | *Intensified societal engagement* | • Growing research interest (e.g. new academic centers, major public championing by scientists)<br>• More mainstream group formation<br>• Advocacy and pushback: issue framed by different stakeholder positions<br>• Politicization<br>• Counter-cultural innovators | • Better understanding of the problems and suggestions for related new directions<br>• More mainstream strong opinion formation about the issue<br>• Paradigm intensely challenged<br>• Agenda setting (the initial stage of the Public Policy Cycle) |
| Governance | *Policy responses* | • 'Big business' visionaries show leadership<br>• New regulation: public policy development commens urate with the level of 'outrage' and perceived hazards (risk)<br>• General public acceptance of the issue and policy responses<br>• Mandatory accommodation of the issue | • Leadership businesses' policies become increasingly influential<br>• Policy decided and implemented<br>• Regulatory codes enforced and general (e.g. public) acceptance of key policy r esponses |
| Normative | *Socialization* | • New issue champions emerge<br>• In-depth, mainstream public understanding and ownership/management of issue<br>• Acceptance of new norms: emergence and diffusion of related behaviors/practices<br>• Sanctions to those breaching new norms; benefits given to those upholding them | • Responding to the issue becomes an accepted part of life<br>• Diffusion of new behavioral patterns and raised expectations<br>• More widespread innovation<br>• Solution found to the issue (or potential for a 'paradigm shift') |

### 2.3.1. Stakeholder Engagement

As described earlier governance is multi-level (both political and social) and stakeholder engagement is an important aspect of this process of policy making (Kim, Halligan and Cho, 2005). Sutherland and Woodroof (2009) further argued that while acknowledging the importance of science to be translated into practise, most of the time there is a mismatch between the need of policy makers and work undertaken by the research communities. It has also been shown that stake holder engagement is useful to identify priority actions in a co-designed, participatory and transparent approach which can enhance policy actions (Sutherland *et al.*, 2010a; Mitchell *et al.*, 2016). The identification of priorities exercise has been successfully implemented in a couple of instances, for example in "The identification of priority policy options for UK nature conservation" (Sutherland *et al.*, 2010b). Stakeholder engagement for identifying priority has also been introduced by other authors in related fields such as water management and closer to home in peat land management (Brown *et al.*, 2010; Padfield *et al.*, 2014). A search of the literature revealed that this approach has not been applied for biodiversity governance in Malaysia to identify conservation priorities.

## 2.4. Conclusion

The theoretical positioning of this research builds upon the political ecology and postcolonial scholarship and deploys a stakeholder engagement approach to co-design a study on biodiversity governance firmly positioned to enhance the science-policy interface. The approach allows this study to unveil the complex dynamics of biodiversity governance of a fairly young nation, Malaysia, that on paper has postulated a clear sustainable development approach to balance conservation and development (EPU, 2015a).

From the literature search, this study provides a new framework integrated in a multi-disciplinary approach which provides a fresh research design that adds to the current corpus of knowledge. This study also corresponds with the arguments set forth by Hill *et al.*, (2013), to shift the level of biodiversity from 'challenge' to 'governance' in this biodiversity rich nation.

# CHAPTER 3: Methodology

## 3.1.    Introduction

This chapter outlines the general methodology and the rationale for the approach used. Nevertheless, each subsequent substantive chapter (Chapter Four to Eight) have their own methodological sections. This interdisciplinary research was carried out to study the attributes that affect biodiversity governance in Peninsular Malaysia.

It was framed by a co-designed and participatory approach to define the research focus. The joint design of research is a key element of interdisciplinarity, where perspectives of various disciplines are integrated rather than particular intellectual tools and models being used to solve a problem (Mitchell *et al.*, 2016). The significance of this approach is that it combines the views of various stakeholders into research designs, including those outside academia as well as subjects of research. This is particularly important to study complex issues such as the governance of biodiversity in a fast-growing developing nation like Malaysia. The participation of various stakeholders in this research is key to address this issue in an inclusive and holistic manner.

The main objectives of this dissertation are:

(i)      identify the conservation priorities in peninsular Malaysia as defined by stakeholders;

(ii)     review and assess the impact of federalism on biodiversity governance; and

(iii)    review and analyse institutional and legal-policy frameworks at both federal and state government levels on PA governance.

To facilitate the research process for the first objective in identifying the conservation priorities both qualitative and quantitative research methods were used. Results from the first objective inspired the latter two objectives. Qualitative research method was administered for objective two and three using the case study approach.

This chapter includes (a) the rationale for the research methods and design; (b) analysis of data; and (c) ethical considerations.

## 3.2. Rationale for Research Method and Design

### 3.2.1. Objective 1: Identifying Conservation Priorities

A mixed approach in a participatory co-design setting was used to identify conservation priorities in Peninsular Malaysia. Qualitative methods were used to obtain a holistic view rather than a reductionist view of the issue through focus group discussions which was made possible by organising two workshops which also gave depth to the issues discussed (Krueger and Casey, 2009).

At the first workshop, participants were divided into four multi-stakeholder working groups and asked to identify general themes under which to categorize high-priority conservation issues in Peninsular Malaysia that were agreed upon through a consensus approach at a plenary session during the workshop where seven themes were identified. This was complemented with a quantitative approach by conducting two surveys to generate a list of issues and rank them. Based on the list of seven themes identified at the first workshop, the first survey (see Appendix A) was administered to obtain a list of conservation issues under each theme while obtaining demographic details of the respondent as well as the

sector they represent. From the first survey a long list of conservation priority issues embedded within a series of conservation themes was obtained.

This was followed by a second half-day multi-stakeholder workshop to identify the top-five conservation priority issues within each theme. Each group was asked to consolidate the issues collected through the online survey and to choose the top-five priority issues (without a rank) within each theme. Finally, a second online survey (Appendix B) was conducted using the same platform (www.qualtrics.com). Respondents were requested to rank the top-five conservation issues identified within each theme according to their perceived order of priority and to provide the same basic demographic descriptors as in the first survey. Both the surveys was administered using the snowball sampling strategy (Atkinson and Flint, 2004; Oliver, 2006).

Further examinations of the quantitative data allowed for a statistically derived and ranked list of conservation priorities. This data also allowed the use of a non-parametric statistical test to study relationships among stake holders as well represent stakeholder agreement/disagreement on conservation priorities. The initial qualitative approach (workshops) complemented the quantitative process by providing rich information (Patton, 2015) and allowed for stakeholders to participate and co-design the research that defined priorities and the subsequent research focus.

### 3.2.2. Objective 2: Federalism and Biodiversity Governance; and
### Objective 3: Protected Area Governance

For these two objectives, qualitative research methods were used, grounded in a constructivist philosophical position that highlights the complexities

34

of the socioeconomic and cultural world experienced and interpreted in a particular context (Hay, 2010). It was my intention to use qualitative methods for these two objectives as quantitative research approaches would not be able to generate the rich data (depth) required to address the aim of this research (Bryman, 2012; Maxwell, 2013).

This section of research has clear features such as (a) the need for contextual understanding of the issues; (b) understanding events and process that influence the issues being studied; (c) the need for researcher-participants interaction; (d) enabling design flexibility; and (e) allowing for an interpretive stance, which are the fundamental qualifiers for qualitative research (Bloomberg and Volpe, 2016).

Among the qualitative research methods, I used the case study approach. Case study allows for in-depth description, discovery and analysis of the issues being studied (Hancock and Algozzine, 2011; Creswell, 2013). The rich data and insights of a case study positions it as a powerful tool to directly influence policy, practice and future research of the area of study (Creswell, 2013; Yin, 2014) which is my aim for this government funded Ph.D. study.

These two objectives (Federalism and PA Governance) had in-depth review chapters (Chapter Five and Seven) and empirical research chapters (Chapter Six and Eight) which analysed primary data that was obtained. For the in-depth review chapters, document analysis was conducted by referring relevant documents. The specific chapters (Chapter Five and Seven) details out the documents that were analysed.

The methods used for empirical research chapters ─ Chapter Six and Eight, were Semi Structured Interviews (SSIs), Focus Groups, Expert view, Secondary Data and Observations. The participants for the SSIs were government officials from both federal and state governments, NGOs, indigenous and local communities (ILCs), private sector, academics and researchers.

All interviews (SSIs) were carried out face to face. Participants were encouraged to use their own words and at times local language to unravel potential *in-vivo* and *emic* categories (Maxwell, 2013; Patton, 2015) which was important in understanding their particular perspective and provide depth to the research.

Focus groups facilitated group interaction in their natural situation and made it possible to capture group dynamics ('check and balance'). The focus groups revealed insights on attitudes, perceptions and the opinions of the participants which were not obtainable from other methods such as secondary data, observation or SSIs (Hay, 2010; Rob and Tate, 2013; Patton, 2015). The use of focus groups allowed me to probe and explore issues in depth. Krueger & Casey, (2009) have suggested that focus group methods have high face validity and their results are more reliable due to the 'check and balance' process within group interactions. I acted as the facilitators of the focus groups to manage and minimise 'power dynamics' and 'group think' in the sessions (Bloomberg and Volpe, 2016).

Observations were made following the methods prescribed by Flick (2014) and Hay (2010) at the three PAs sites during field work and while conducting interviews. I made notes and took photographs to mitigate fatigue or memory loss. These observations facilitated the generation of rich non-verbal data and information about the people and the surroundings.

The mobilisation of different research methods allowed for triangulation of data to verify the validity and credibility of the information obtained (Bryman, 2012).

## 3.3.    Analysis of Data

### 3.3.1.   Objective 1: Identifying Conservation Priorities

From the first survey, differences in perceptions of the state of wildlife and PA conservation in Peninsular Malaysia were undertaken using non-parametric statistics based on (a) stakeholder groups (i.e. sectors); (b) age groups (younger = 21-30 years old vs. older = above 50); and (c) nationality (Malaysians and non-Malaysians). A 'priority score' was created to analyse the results of the prioritization exercise in the second online survey. For each respondent, the issues within each theme were given a score (4-0) based on the priority given by the respondent (top priority = 4, to lowest priority = 0). The priority score for each issue within a theme was obtained by adding all the individual scores and dividing them among the number of respondents.

From the second survey, differences were studied in (d) priority scores across all issues within each theme; and then for differences in perceived priorities (priority scores) among different groups of respondents by: (e) stakeholder groups, (f) age groups (as before in two groups: younger (21-30 years old) vs. older (above 50)), and (g) seniority categories among government officers (senior = those above 25 years of working experience vs. junior = those below 10 years of working experience).

A Kruskal Wallis H test was used to analyse (a), (d) and (e); and a Mann-Whitney U test was administered on (b), (c), (f) and (g). To control for potential

37

Type 1 error, the Bonferroni correction procedure was applied, where the appropriate significance level (α) level was calculated by dividing α by the number of comparisons (where there were more than two comparisons). The coefficient of variation (CV) was also computed to measure dispersion in priority scores within issues and themes. All tests were conducted on IBM SPSS Statistics Version 22.

Radar Plots were generated to visually represent stakeholder agreement/disagreement on conservation priorities. To do this a similarity index was developed by computing the average priority scores for each issue by the different stakeholder groups and calculating the difference in average priority score between two stakeholder groups. This was repeated by pairing all the different combinations of stakeholder groups. The ranked priority issue under each theme was also mapped out with the relevant Aichi Target.

### 3.3.2. Objective 2: Federalism and Biodiversity Governance; and Objective 3: Protected Area Governance

All data were transcribed and where recordings were not available (on occasions when the informant declined to be recorded), interview notes were used and analysed using NVivo (version 10), a computer-assisted qualitative data analysis (CAQDAS) software. The transcribed data was originally manually analysed by hand coding. Hand coding was useful in identifying preliminary organizational categories as well as themes and facilitated subsequent analysis using NVivo 10.

The transcripts were coded and analysed through an iterative and inductive approach influenced by grounded theory to identify themes (Urquhart, 2013). A two-prong approach was used as suggested by Patton (2015) and Saldana (2016)

by firstly performing initial (open) coding to break down the information into categories to examine for differences and commonalities. Subsequently in the second cycle, pattern coding was performed to identify themes.

Verbatim quotes were used (where relevant they were translated to English) anonymously from our transcripts to illustrate participants' perceptions on key issues. Observation in the field was captured as notes and used in making sense of the data from the interviews (Flick, 2014).

## 3.4. Ethical Considerations

Ethical consideration was central to this study, especially the protection of the participants. The participants to the workshop and survey, participated voluntarily and were given prior information about the workshop and what was expected out of them as well as their rights. The survey also gave details about the expected duration as well as information about confidentiality and contact information if they required any further clarifications. All data obtained from participants were confidential and reported in an aggregate format. All responses and data collected from the surveys were stored in the HIPAA-compliant, Qualtrics-secure database, protected by passwords which only I as the primary investigator had access to.

A Plain Language Statement (Appendix G) was also sent to the informants before the Semi Structured Interview process to explain the purpose of the research, their rights and all informants signed a Consent Form, which was made available in both English and Malay (Appendix G & H) as part of the ethical procedures approved for this research. Except for interviews with ILCs, due to logistic reasons, the Plain Language Statement could not be sent earlier. Nevertheless, while meeting with ILCs, they were briefed about the research and

their consent was obtained before the interview. Approval from the Ethics Committee at the School of Environmental and Geographical Sciences, University of Nottingham was obtained, and contact details of the Research Ethics Coordinator appear in the Plain Language Statement if the need arose for the participant to get in contact.

All interviews including focus groups were conducted voluntarily, and participants were assured confidentiality. Once they agree, only then the interviews were done in a location and time to suit their convenience. All interviews were carried out face to face. In the interview process, I did not give participants my personal view on issues discussed. All the interviews were recorded and translated verbatim. For two participants who preferred not to be recorded during the interview, I made notes and cross checked with the participants to ensure I captured their views accurately.

Approvals from the Department of Wildlife and National Park Malaysia, Perak State Park Corporation and Department of Orang Asli Development was obtained before research was carried out as it involved getting into certain National Parks (Belum State Park, Taman Negara Pahang and Penang) and interviewing ILCs as well as rangers and officials of these Parks.

# CHAPTER 4: A multi-stakeholder strategy to identify conservation priorities in Peninsular Malaysia

## [Published paper]

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# A multi-stakeholder strategy to identify conservation priorities in Peninsular Malaysia

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**Abstract:** Malaysia, with its rapidly growing economy, exemplifies the tensions between conservation and development faced by many tropical nations. Here we present the results of a multi-stakeholder engagement exercise conducted to (1) define conservation priorities in Peninsular Malaysia and (2) explore differences in perceptions among and within stakeholder groups (i.e. government, academia, NGOs and the private sector). Our data collection involved two workshops and two online surveys where participants identified seven general conservation themes and ranked the top five priority issues within each theme. The themes were: (1) policy and management, (2) legislation and enforcement, (3) finance and resource allocation, (4) knowledge,

## ABOUT THE AUTHORS

K. Nagulendran is a PhD candidate at the University of Nottingham Malaysia Campus. His area of research is in biodiversity governance with a special focus on protected area management. Nagulendran has been involved in policy formulation while working for the Government of Malaysia on biodiversity conservation and related matters.

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## PUBLIC INTEREST STATEMENT

Malaysia is a biologically megadiverse country that exemplifies the tension between biodiversity conservation and economic development faced by many tropical nations. Here we present the results of a multi-stakeholder exercise to identify conservation priorities in Peninsular Malaysia. We involved several hundred participants from four stakeholder groups—government, academia, NGOs and industry—to produce a list of 35 issues ranked within seven general themes. Besides identifying and ranking conservation priority issues, we identified differences in priority perceptions among and within stakeholder groups (e.g. showing differences between academics and government officers, or between junior and senior government officers) and found a high (94%) level of agreement among the different stakeholder groups. This high level of agreement is important as indicator for policy-makers, practitioners and researchers on the areas to focus to ensure conservation is mainstreamed in the development process.

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research and development, (5) socio-economic issues, (6) public awareness and participation and (7) rights of nature. In spite of their very different backgrounds and agendas, the four stakeholder groups showed general agreement in their priority preferences except for two issues. Respondents from government and private sector differed the most from each other in their priority choices while academia and NGO showed the highest degree of similarity. This ranked list of 35 conservation priorities is expected to influence the work of policy-makers and others in Peninsular Malaysia and can be used as a model to identify conservation priorities elsewhere.

**Subjects: Conservation - Environment Studies; Biodiversity & Conservation; Environmental Policy**

**Keywords: governance; priority issues; protected areas; wildlife; stakeholder engagement; science–policy interface; Peninsular Malaysia**

## 1. Introduction

The first objective of the convention on biological diversity (CBD), adopted in 1992, is to conserve the earth's biodiversity. After almost two decades of implementation, the effectiveness of CBD was questioned when the world collectively failed to meet the 2010 Biodiversity Targets to significantly reduce biodiversity loss (Adenle, 2012; Ritter, 2010). This failure prompted CBD Parties to adopt a new set of targets (Aichi Biodiversity Targets) with a renewed mandate to address and halt biodiversity loss by 2020 (CBD Secretariat, 2010). To ensure the Aichi Biodiversity Targets are achieved—in absence of a strict compliance regime—the case has been made for a prioritisation of conservation actions guided by science that is participatory, inclusive and involving a wide set of stakeholders (Armitage, de Loë, & Plummer, 2012; Sutherland & Woodroof, 2009). Indeed, in recent years, prioritisation has become one of the pillars of conservation science (Game, Kareiva, & Possingham, 2013).

Several recent initiatives have attempted to address conservation priorities at global (Sutherland et al., 2009, 2014), regional (Walzer et al., 2013) and national scales (Fleishman et al., 2011; Rudd et al., 2011; Sutherland et al., 2010; Varma et al., 2015), most of them focusing on developed countries in temperate regions (but see Varma et al., 2015). There is therefore a need for conservation prioritisation exercises in developing countries, especially in biodiversity hotspot areas.

Inclusiveness and multi-stakeholder participation are important factors in the identification of conservation priorities since they can generate ownership of the issues and potential solutions (Sutherland et al., 2010) whilst reducing bias from specific stakeholders (Varma et al., 2015). While it is difficult to engage all relevant stakeholders in the process, some diversity can help increase the overall impact of the prioritisation exercise (Sutherland, Fleishman, Mascia, Pretty, & Rudd, 2011).

Engaging different stakeholders in a meaningful manner, however, is difficult because stakeholders bring new ideas and agendas to the exercise shaped by a predisposition to social, cultural and political factors (Sutherland et al., 2011; Wesselink, Buchanan, Georgiadou, & Turnhout, 2013). Stakeholders from various backgrounds and agendas, including different subsets within broad stakeholder groups—e.g. junior vs. senior government officers—are likely to have contrasting perceptions about conservation priorities. Recognising differences in perception and the ways in which perceptions are influenced can be helpful in the overall process of defining conservation priorities and providing potential solutions to facilitate policy response and decision-making.

Here we present a multi-stakeholder engagement exercise to define conservation priorities in Malaysia, a country rich in biodiversity and a rapidly growing economy that exemplifies the tension between conservation and economic development faced by many tropical countries. Malaysia is part of the Sundaland Biodiversity Hotspot area (Myers et al., 2000) and ranked 12th globally in terms of its National Biodiversity Index (CBD Secretariat, 2015). Its wealth of biodiversity includes 306 species

of mammals, 742 species of birds, 567 species of reptiles and over 15,000 plant species, with over 26% of the tree species being endemic (NRE, 2014). Geographically, Malaysia is divided into Peninsular Malaysia (131,800 km²) in mainland Asia and east Malaysia (198,523 km²) in Borneo, with a population of 30.7 million in 2014, nearly 80% of whom live in Peninsular Malaysia (DoS, 2014; EPU, 2016).

Malaysia, formed in 1963, is a federation of 13 states that became independent from colonial rule in 1957 and practises a political system of parliamentary democracy with a constitutional monarchy. The supreme law of the country is the Federal Constitution, where some subject matters pertaining to natural resource management (e.g. land and forest) fall under the responsibility of each state government (Aiken, 1988; Ling, 2011). In recent decades, Malaysia has experienced rapid economic transformation and is generally considered an example of success in its smooth transition into modern economy (Rasiah, 2011). For example, the distribution of Malaysians below the poverty line has been drastically reduced from 52% in 1957 (Yukio, 1985) to 0.6% in 2014 (EPU, 2016). The process of poverty alleviation and economic development, however, has come with a high environmental cost. In 1940, almost 80% of Peninsular Malaysia was under forest cover but this figure has declined to 44% in 2014 (Aiken & State, 1994; FDPM, 2016). As of December 2015, the coverage of terrestrial protected areas (PAs) was about 13.8% of the total land area in Peninsular Malaysia (NRE, 2015). In line with the Aichi Targets of 17% of land coverage by PAs by 2020, the revised National Policy on Biological Diversity (2016–2025) has a target to increase terrestrial PAs to 20% of the country by 2025 (NRE, 2016). At the same time, wildlife has also experienced a serious decline with the loss of Sumatran rhinos (*Dicerorhinus sumatrensis*) and a steady decline of Malayan tigers (e.g. Clements et al., 2010; Havmøller et al., 2015; Hance, 2014).

Malaysia faces important trade-offs in its aim to conserve biodiversity while balancing the need for economic development. Although the country has in place broad policy approaches for the conservation of biodiversity, such as the National Policy on Biological Diversity (1998, revised in 2016), there is a lack of clear priorities for conservation. For example, the lack of funds allocated for the environment and related sectors in the 2016 Federal Budget could be interpreted as low priority or focus on environment and biodiversity sector (WWF Malaysia, 2015). In this context, a prioritisation exercise would be useful to guide conservation policy and practice, optimising the limited available resources, especially if it involves the participation of key stakeholders such as government agencies, non-governmental organisations (NGOs), academics and the private sector.

In this exercise to define conservation priority issues we focus on Peninsular Malaysia since states in east Malaysia (Sabah and Sarawak) have a higher degree of autonomy in managing land, forest and wildlife, and different political economy contexts which might affect conservation priorities (Aiken, 1988; Maidin, 2005). Furthermore, the states in Peninsular Malaysia are more homogenous in terms of their biodiversity governance (NRE, 2009). Through a series of workshops and online surveys, the objectives of our exercise were to: (1) engage relevant stakeholders in the identification of conservation priority issues in Peninsular Malaysia; (2) produce a list of ranked conservation issues; and (3) test differences in priority perception among the stakeholders involved in this exercise.

## 2. Methods

### 2.1. Stakeholder engagement and data collection
Our data collection involved a series of steps that included two multi-stakeholder workshops and two online surveys (Figure 1). Both workshops were held at the University of Nottingham Malaysia Campus and co-hosted by the Malaysian Ministry of Natural Resources and the Environment (NRE).

In October 2013, a half-day multi-stakeholder workshop was conducted in order to identify the general conservation priority themes relevant for Peninsular Malaysia. A total of 64 participants attended representing four sectors: (1) government agencies at both federal and state level; (2) NGOs; (3) academic and research organisations; and (4) the private sector. The participants were divided into four multi-stakeholder working groups and asked to identify general themes under which to

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**Figure 1. Process for data collection to generate, prioritise and analyse issues.**
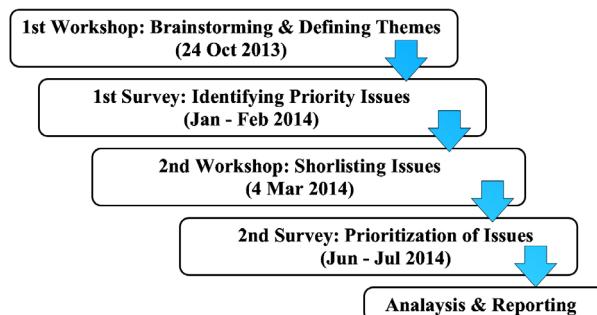


categorise high-priority conservation issues in Peninsular Malaysia. Later, the workshop convened into a plenary session whereby the list of general conservation themes produced by the four working groups were compared and openly discussed. The list and wording of the themes were finalised once a consensus amongst the stakeholders was reached. Consensus was achieved by allowing stakeholders in the plenary session to comment on or raise concerns about the themes and their wording via an iterative process and with careful moderation the themes were subsequently refined until there was general agreement amongst the stakeholders.

Based on the themes identified, an online survey was conducted using the online survey platform Qualtrics (www.qualtrics.com). The survey was administered using the snowball sampling strategy (Atkinson & Flint, 2004; Oliver, 2006), i.e. the survey link was circulated to the participants of the workshop, who were also requested to forward it to their relevant networks. Similar approaches have been previously used in other stakeholder consultation processes (Brown et al., 2010; Padfield et al., 2014). The survey described the process in which the conservation themes had been identified and respondents were asked to list as many relevant conservation issues as they considered appropriate under each theme. Respondents had the option of answering the survey anonymously but we requested information on their age, nationality (Malaysian vs. non-Malaysian) and the sector they represented (government, NGO, academia or private sector). The survey also included two questions about the respondents' perception on the current state of wildlife and PA conservation in Peninsular Malaysia. The survey was conducted from January to February 2014 (1 month). From this process a long list of conservation priority issues embedded within a series of conservation themes was obtained.

In March 2014, a second half-day multi-stakeholder workshop was conducted to identify the top five conservation priority issues within each theme. Forty-two participants representing the same four sectors attended and following the approach taken in the first workshop participants were divided into four working groups. Each group was asked to consolidate the issues collected through the online survey and to choose the top five priority issues (without a rank) within each theme.

Finally, we conducted a second online survey using the same platform (www.qualtrics.com). Respondents were requested to rank the top five conservation issues identified within each theme according to their perceived order of priority and to provide the same basic demographic descriptors as in the first survey. We conducted this survey from June to July 2014 (1 month).

### 2.2. Data analysis
From the first survey, we analysed differences in the perception on the state of wildlife and PA conservation in Peninsular Malaysia based on (a) stakeholder groups (i.e. sectors); (b) age groups (we compared two groups: younger = 21–30 years old vs. older = above 50); and (c) nationality (Malaysians and non-Malaysians).

We created a "priority score" to analyse the results of the prioritisation exercise in the second online survey. For each respondent, the issues within each theme were given a score (4–0) based on the priority given by the respondent (top priority = 4, to lowest priority = 0). The priority score for

each issue within a theme was obtained by adding all the individual scores and dividing them among the number of respondents.

From the second survey, we first tested for differences in (d) priority scores across all issues within each theme; and then for differences in perceived priorities (priority scores) among different groups of respondents by: (e) stakeholder groups, (f) age groups (as before in two groups: younger (21–30 years old) vs. older (above 50)) and (g) seniority categories among government officers (senior = those above 25 years of working experience vs. junior = those below 10 years of working experience).

We used Kruskal–Wallis H test to analyse (a), (d) and (e); and Mann–Whitney U test on (b), (c), (f) and (g). To control for potential Type 1 error, we applied the Bonferroni correction procedure, where the appropriate significant level ($\alpha$) level was calculated by dividing $\alpha$ by the number of comparisons (where there were more than two comparisons). Moreover, we calculated the coefficient of variation (CV) to measure dispersion in priority scores within issues and themes. All tests were conducted on IBM SPSS Statistics Version 22.

To visually represent stakeholder agreement/disagreement on conservation priorities, we used a stakeholder similarity index and radar plots. The stakeholder similarity index was developed by computing the average priority scores for each issue by the different stakeholder groups and calculating the difference in average priority score between two stakeholder groups. This was repeated by pairing all the different combinations of stakeholder groups. We also mapped the ranked priority issue under each theme with the relevant Aichi target.

## 3. Results

The first and second workshop had 64 and 42 participants, respectively. The distribution of participants by stakeholder groups was very similar in both workshops, with government officers making the largest group (43–44% of attendants) and the private sector the smallest (11–12%; Figure 2). The two online surveys also received a high response rate with 150 and 123 complete responses, although the distribution of respondents by stakeholder group was rather different between surveys and different to the representation in the workshops (Figure 2). In both online surveys, the respondents were predominantly Malaysian (84% of respondents in the first survey and 86% in the second). In terms of age distribution, the most common group was 31–40 years of age (36% in the first survey and 37% in the second survey), followed by 41–50 years old (24%) in the first survey and by the

**Figure 2. Distribution of participants and respondents by sector for both workshops and online surveys. Number of participants/respondents = 64, 152, 42, 123, respectively.**
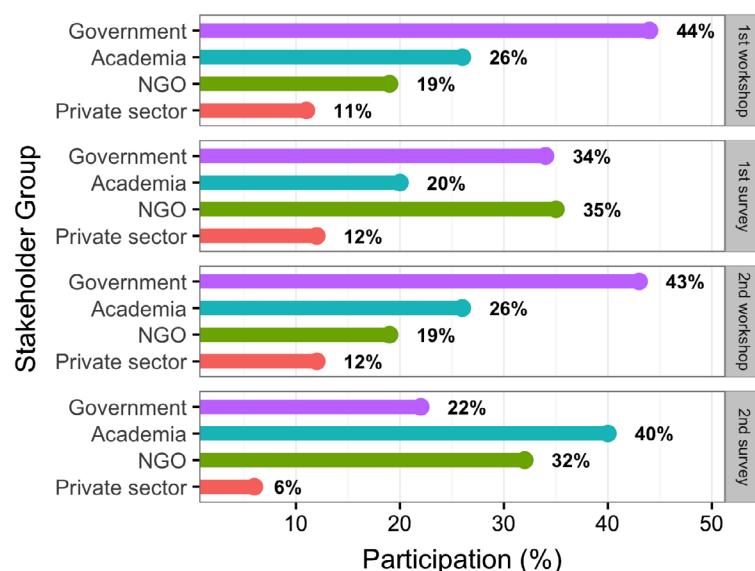
51–60 years old (23%) in the second. In both surveys, the highest number of respondents came from the 0–5 years of experience group (24% in the first survey and 19% in the second survey), followed by 6–10 years (21%) in the first survey; and by the 6–10 years (18%) and above 30 years (18%) groups in the second survey. In both surveys there was a relatively even gender balance with 45% of female respondents in both surveys.

### 3.1. Perception on current management of PAs and wildlife

In terms of the perception of the current conservation state of PAs in Peninsular Malaysia, 46% of respondents ranked it as "very poor" or "poor" and 35% ranked it as "fair" (Figure 3). Sixty-one per cent of respondents ranked the current status of wildlife conservation in Peninsular Malaysia as "very poor" or "poor" and about 20% ranked it "fair" (Figure 3). The perception on the current management of PAs and wildlife varied by stakeholder group (PA: $H = 27.5$, $p = 0.000$; wildlife: $H = 35.6$, $p = 0.000$) and nationality (PA: $U = 498$, $z = -3.039$, $p = 0.002$; wildlife: $U = 559.5$, $z = -2.572$, $p = 0.01$). Different age groups on the other hand had only statistically marginal differences in their perception (PA: $H = 9.5$, $p = 0.05$; wildlife: $H = 8.5$, $p = 0.076$). By stakeholder group, government officers had a much more positive perception of the current status of the management of PAs and wildlife (Figure 3). After removing government officers from the analyses, there was no difference in the perception of the other three groups (PA: $H = 0.59$, $p = 0.74$; wildlife: $H = 0.35$, $p = 0.84$; Figure 3). Participants with different years of working experience also did not differ in their perception (PA: $H = 3.28$, $p = 0.77$; wildlife: $H = 3.15$, $p = 0.79$).

### 3.2. Conservation themes and priority issues

The participants in the first workshop identified seven general conservation themes: (1) policy and management; (2) legislation and enforcement; (3) finance and resource allocation; (4) knowledge and research and development (R&D); (5) socio-economic issues; (6) public awareness and participation; and (7) rights of nature (including heritage).

The respondents to the first online survey identified a total of 1,151 conservation issues. By themes, 23% of the issues corresponded to "public awareness and participation", 18.5% to "policy and management", 16% to "legislation and enforcement", 12.5% to "finance and resource allocation", 12% to "knowledge and R&D", 11% to "socioeconomy" and 7% to "the rights of nature". The top five priority issues within each theme and their priority scores from the second online survey as well as the corresponding Aichi Targets are shown in Table 1. Priority scores ranged from 3.14 to 0.94, with a CV of 0.30 across all issues. By themes, the lowest dispersion was for "finance and resource allocation", "knowledge and R&D" and "public awareness and participation" (CV = 0.17 in all cases) and the highest for "socio-economy" and "rights of nature" (CV = 0.38 in both cases; Figure 4).

**Figure 3. Perception on the status of PAs and wildlife management in Malaysia.**

Note: PAs: Protected areas.



| | PAs | | |
|---|---|---|---|
| Govt | 16% | 49% | 35% |
| Academia | 64% | 29% | 7% |
| NGO | 65% | 31% | 4% |
| Private | 60% | 27% | 13% |

| | Wildlife | | |
|---|---|---|---|
| Govt | 27% | 33% | 41% |
| Academia | 82% | 11% | 7% |
| NGO | 83% | 17% | 0% |
| Private | 80% | 13% | 7% |

Response: very poor, poor, fair, good, very good

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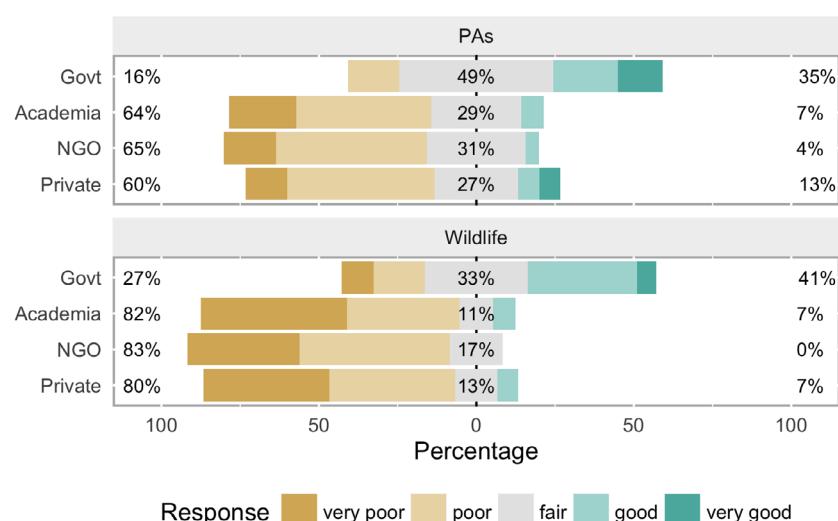
| | Table 1. Issues under each theme and their ranking | | | | |
|---|---|---|---|---|---|
| | **Theme and issues** | **PS** | **CV** | **R** | **AT** |
| 1 | *Policy and management* | | | | |
| 1.1 | There is a lack of strong national leadership on sustainable development which limits the effective implementation of consistent policies and necessary championing of biodiversity issues | 2.66 | 0.13 | 1 | 1, 17 |
| 1.2 | The existing policy framework for conservation and management of PAs and wildlife is sound but there is ineffectiveness in the current implementation and monitoring of these policies | 2.52 | 0.13 | 2 | 17, 5, 6, 12 |
| 1.3 | There are inconsistent and conflicting policies between the Federal and State authorities and a lack of effective inter-agency coordination, including federal–state coordination mechanisms to manage PAs and wildlife | 2.18 | 0.34 | 3 | |
| 1.4 | There is currently an absence of a "National Framework / System" to standardise PAs management practices in Malaysia | 1.69 | 0.13 | 4 | 11 |
| 1.5 | Economic value of biodiversity and ecosystem services (natural capital accounting) has not been taken into account in meeting current economic development goals | 0.95 | 0.13 | 5 | 2 |
| | *Theme's CV* | *0.31* | | | |
| 2 | *Laws and enforcement* | | | | |
| 2.1 | There is a lack of enforcement of legal instruments and laws, including insufficient human resources to perform enforcement duties | 3.14 | 0.13 | 1 | 20 |
| 2.2 | The Malaysian Judiciary does not view environmental crimes as serious as other forms of crime, which results in in light and inadequate sentences | 2.27 | 0.16 | 2 | 1 |
| 2.3 | The enforcement of PAs and wildlife issues is currently too compartmentalised due to jurisdiction boundaries and a lack of joint operations among agencies | 1.85 | 0.12 | 3 | 17 |
| 2.4 | There is a lack of training for enforcement, prosecuting / investigating officers and judges | 1.60 | 0.14 | 4 | |
| 2.5 | The general public perceive conservation agencies to be inefficient and susceptible to corruption | 1.13 | 0.36 | 5 | 17, 1 |
| | *Theme's CV* | *0.34* | | | |
| 3 | *Socio-economic issues* | | | | |
| 3.1 | There is a lack of consultation and participation of Indigenous and Local Communities (ILCs) in PAs and wildlife management which raises conflict, such as the use of resources by ILCs | 2.90 | 0.10 | 1 | 18, 19, 11 |
| 3.2 | There is considerable pressure for development which exacerbates encroachment into PAs and wildlife poaching | 2.84 | 0.11 | 2 | 1–11 |
| 3.3. | Access and Benefit Sharing Rights to Genetic Resources (ABS) as provided for by the Convention on Biological Diversity (and Nagoya Protocol) has not been fully implemented and there is lack of understanding on ABS among all stakeholders especially ILCs | 2.02 | 0.29 | 3 | 16, 18 |
| 3.4 | Though Malaysia is promoting tourism including eco-tourism in a big scale, ILCs do not receive adequate benefits from this activity to supplement their income | 1.41 | 0.19 | 4 | 18 |
| 3.5 | Eco-tourism and other socio-economic activities in PAs have led to the erosion of indigenous culture and local value systems of ILCs | 0.94 | 0.44 | 5 | 18, 1, 11 |

(*Continued*)

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| | Theme and issues | PS | CV | R | AT |
|---|---|---|---|---|---|
| | *Theme's CV* | *0.39* | | | |
| 4 | *Funds and resource allocation* | | | | |
| 4.1 | There is a lack of funds from both the Federal and State Governments to manage PA and wildlife | 2.68 | 0.11 | 1 | 20, 11 |
| 4.2 | There is a lack of effective usage of resources in managing PAs which are governed by different actors (i.e. State, Federal, NGOs and Communities) | 1.90 | 0.23 | 2 | |
| 4.3 | Policies/laws formulated for PAs and wildlife lack resource mobilisation plan/strategy to ensure effective implementation | 1.89 | 0.11 | 3 | 17, 20 |
| 4.4 | There is a lack of adaptive management approaches and strategies to increase the effectiveness of managing PA and wildlife, especially considering the limited resources | 1.83 | 0.20 | 4 | 17, 5, 6, 11 |
| 4.5 | The use of alternative and innovative funding schemes, such as Payment for Ecosystem Services (PES) and Reducing Emissions from Deforestation and Forest Degradation plus (REDD+) programmes have not been fully implemented | 1.69 | 0.26 | 5 | 2, 14, 15 |
| | *Theme's CV* | *0.17* | | | |
| 5 | *Knowledge and R&D* | | | | |
| 5.1 | Knowledge sharing and interaction between researchers and other stakeholder groups is lacking and uncoordinated which leads to weak science–policy interface | 2.49 | 0.15 | 1 | 19, 5, 6, 12, 13 |
| 5.2 | There is a lack of collaboration amongst research institutes, universities and agencies for continuous training and capacity building | 2.15 | 0.09 | 2 | |
| 5.3 | There is a lack of consorted effort to make research in PAs and wildlife attractive and complimented by clear career paths | 2.07 | 0.07 | 3 | |
| 5.4 | There is a shortage of local researchers in PAs, wildlife and in basic biodiversity sciences | 1.80 | 0.08 | 4 | |
| 5.5 | There is a decline in quality and application of research findings to conserve and manage PAs and wildlife | 1.49 | 0.14 | 5 | |
| | *Theme's CV* | *0.17* | | | |
| 6 | *Rights of nature including heritage* | | | | |
| 6.1 | There is a lack of a country wide holistic approach in the protection, preservation and documentation of traditional knowledge and cultural practices which protect rights of nature and the sustainable use of biodiversity | 2.74 | 0.12 | 1 | 18 |
| 6.2 | Natural heritage, inter-generational issues, sustainability and the overall well-being of the people have not been successfully incorporated into the country's planning processes | 2.58 | 0.10 | 2 | 18, 2, 13 |
| 6.3 | Formal and informal education systems lack the emphasis on the "value-system" to respect and recognise the rights of nature | 2.57 | 0.09 | 3 | 1 |
| 6.4 | The National Heritage Act 2005 has not been explored to designate PAs and endangered species | 1.11 | 0.31 | 4 | 12, 11 |
| 6.5 | There is a lack of using religious influence as a means to drive and instil the message of "rights of nature" | 1.01 | 0.12 | 5 | 1, 18 |
| | *Theme's CV* | *0.39* | | | |
| 7 | *Public awareness and participation* | | | | |
| 7.1 | There is a general overall lethargy and lack of passion for biodiversity or environmental related issues among Malaysians | 2.55 | 0.22 | 1 | 1, 5, 6, 11, 12 |
| 7.2 | There is no dedicated and passionate personality/icon on championing and promoting PAs and wildlife conservation | 2.22 | 0.16 | 2 | |

*(Continued)*

**Table 1. (*Continued*)**

|  | Theme and issues | PS | CV | R | AT |
|---|---|---|---|---|---|
| 7.3 | Officers in charge of CEPA (Communication, Education, Participation and Awareness) lack proper training and capacity building programmes to execute their job effectively | 1.81 | 0.12 | 3 | 19 |
| 7.4 | A lack of trust between different stakeholders has led to a lack of public engagement and participation in relation to PA and wildlife issues | 1.76 | 0.15 | 4 | 17, 5, 6, 1 |
| 7.5 | There are limited funds to undertake a consolidated, holistic and effective approach on CEPA with regards to PAs and wildlife | 1.66 | 0.29 | 5 | 20, 1, 11, 12 |
|  | *Theme's CV* | *0.17* |  |  |  |

**Summary of Aichi biodiversity targets (2011–2020)**

| Target | Target summary |
|---|---|
|  | People aware about the value of biodiversity |
|  | Biodiversity values incorporated in national plans and accounting |
|  | Incentives and subsidies harmful to biodiversity eliminated |
|  | Sustainable production and consumption |
|  | Loss of natural habitat halved |
|  | Fish harvested sustainably within ecological limits |
|  | Agriculture, aquaculture & forestry are sustainable |
|  | Pollution and excess nutrients do not harm biodiversity |
|  | Invasive alien species & their pathways managed |
|  | Anthropogenic pressure on reefs & other ecosystem minimised |
|  | At least 17% terrestrial PA and 11% marine PA |
|  | Extinction prevented and conservation status improved |
|  | Genetic diversity plants and domesticated animal & cultural valuable species safeguarded |
|  | Essential ecosystem services safeguarded |
|  | Restoration of biodiversity for mitigation and adaptation to climate change |
|  | Nagoya Protocol in force with national implementation |
|  | NBSAP updated through participatory approach |
|  | TK of ILC respected & participation of ILCs at all levels |
|  | Knowledge and science base of biodiversity improved and shared widely |
|  | Resource mobilisation for effective implementation of these targets |

Notes: PS—priority score, CV—coefficient of variation, R—rank, AT—relevant Aichi targets.
For full details for these Targets: https://www.cbd.int/sp/targets/.

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**Figure 4. Coefficients of variation (CV) of priority scores for the different conservation issues identified within each general theme.**
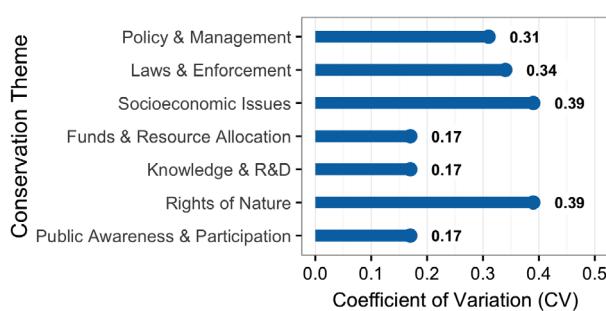


### 3.3. Priority ranking of issues across themes

The respondents to the second survey showed clear priorities among the top five issues of most themes (priority scores in Table 1)—within themes, the priority scores of the different issues were statistically different ($p \leq 0.007$) in all cases except for "finance and resource allocation" ($H = 7.6$, $p = 0.107$) and "public awareness and participation" ($H = 5.9$, $p = 0.207$). Nevertheless, the *lack of funds from both the Federal and State governments* was voted as the top priority issue for "finance and resource allocation" and the *general overall lethargy and lack of passion for biodiversity issues among Malaysians* was ranked as highest priority for "public awareness and participation".

### 3.4. Differences across stakeholder groups

The four stakeholder groups showed little differences in their priority preferences and their priority scores were significantly different in just two of the 35 issues: issue 3.3 under "socio-economy" (regarding access and benefits sharing rights to genetic resources, $H = 35.6$, $p = 0.003$) and 7.1 under "public awareness and participation" (public's lethargy and lack of participation, $H = 14.8$, $p = 0.002$; Table 1). $\alpha$ level was set to 0.0125 by applying the Bonferroni correction.

The radar plot (Figure 5) illustrates priority preferences across stakeholder groups. In general, respondents from the government and private sector differed the most from each other in their priority choices, followed by NGO vs. government and academic vs. private sector (Figure 5). Academia and NGO respondents showed the highest similarity index, with very close agreement in "policy and management" (0.14), "socio-economy" (0.16) and "knowledge and R&D" (0.16), among others (Figure 5). In "knowledge and R&D", there was a general high level of agreement among stakeholders but respondents from the private sector differed above all other groups (Figure 5).

### 3.5. Differences by nationality, age and seniority

Malaysians and non-Malaysians differed in their priority scores of just two of the 35 issues: issue 2.4 under law and enforcement (lack of training for enforcement, prosecuting /investigating officers and judges, $U = 624$, $z = -2.120$, $p = 0.034$) and issue 4.2 under finance and resource allocation (ineffective use of resources to manage PAs, $U = 491$, $z = -3.085$, $p = 0.002$). Non-Malaysians gave higher priority to the issue of pressure for development and ineffective use of resources for conservation.

Younger and older participants differed in their priority scores of just three issues: issue 2.5 (perception that conservation agencies are inefficient and susceptible to corruption, $U = 201$, $z = -2.501$, $p = 0.012$), 4.3 (lack of resource mobilisation for policy and law implementation, $U = 199$, $z = -2.496$, $p = 0.013$) and 6.4 (underutilisation of the National Heritage Act, $U = 221$, $z = -2.122$, $p = 0.034$). Older participants gave higher priority to the issues of indigenous and local communities (ILCs) not receiving adequate benefit from tourism and the National Heritage Act 2005 not being explored to designate PAs and protect endangered species. Younger participants, in line with the overall survey results, gave a higher priority to the lack resource mobilisation plan/strategy to ensure effective implementation of policies.

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**Figure 5. Star chart highlighting the relationship among stakeholders by comparing the similarity index.**

Note: Lower values represent higher similarity.
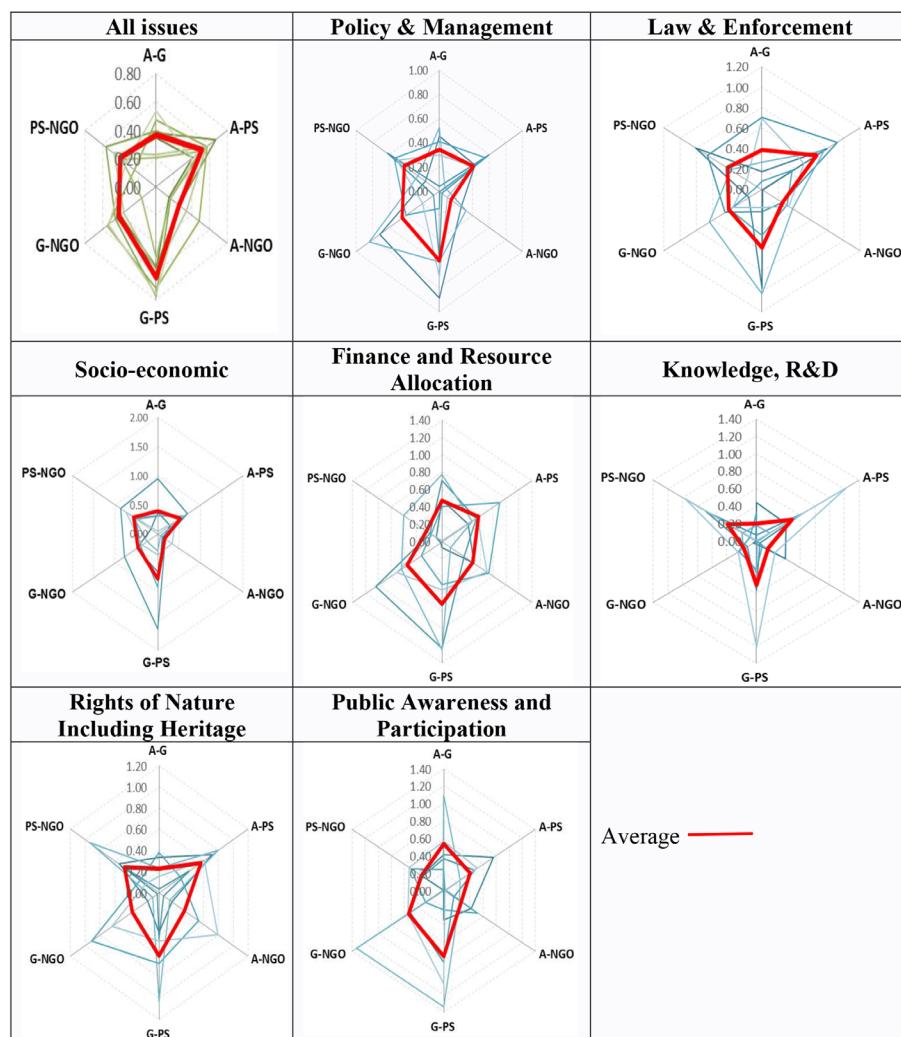


Among the government officials, senior and junior officials differed in their priority scores of six out of 35 issues (issues 1.1, 2.2, 4.4, 5.5, 6.1 and 6.3; Table 1). Junior officials, consistent with the overall survey results, stressed the lack of effective leadership, inadequate penalties and the lack of emphasis on the value and rights of nature in the current education system. Conversely, senior officials ranked a lack of leadership as the lowest priority in the policy and management theme and concurred with the overall survey results in that there is a lack of protection, preservation and documentation of traditional knowledge and cultural practices.

## 4. Discussion

The lack of clear science-based inputs to identify conservation priorities is often a hurdle to enable effective conservation (Wilson et al., 2007). Here, we were able to effectively engage a broad spectrum of stakeholders—including the "powerful and influential" stakeholders (Padfield et al., 2014; Sutherland et al., 2010)—to identify 7 themes and 35 conservation priority issues for Peninsular Malaysia. Additionally, we managed to rank the issues under each theme, which we feel will be useful to advise decision-makers and other stakeholders more effectively than by just providing a menu of issues. Below we discuss each of the seven themes, highlighting their relevance within the frame of the Aichi Targets, as well as levels of agreement among different stakeholder groups involved in the prioritisation exercise.

### 4.1. Policy and management

Policy and management form the core for biodiversity governance yet this study has shown that management of PA and wildlife in Peninsular Malaysia is perceived to be inadequate (Figure 3). The issues highlighted in this study—*lack of leadership, ineffective implementation, conflicting policies*—are highly influenced by the "Malaysia Plans", five-year national-level polices established after the country's independence in 1957. The first four Malaysia Plans (1966–1985), had a predominant focus on economic development and poverty eradication, with low consideration of environmental sustainability (EPU, 2013). In the Fifth Malaysia Plan (1986–1990) a new chapter was dedicated to the environment (EPU, 1985). However, the focus on actual conservation activities was limited; instead Malaysia prioritised investment in the prevention and mitigation of natural disasters, such as floods and landslides (Murad, 2013; NRE, 2009).

Leadership and political will (issue 1.1) are essential for the effective conservation of biodiversity. In Nepal, for example, high-level political commitment has been key in the successful curbing of poaching, even though the country is far more limited in resources than many other developing countries (Martin, Martin, & Vigne, 2013). Yet, Malaysia's federal system of government leads to jurisdictional conflicts that often compromise conservation efforts (issue 1.3). According to Malaysia's constitution, states should obtain their revenue from the exploitation of land-based resources, such as timber and minerals. While the exploitation of natural resources was highly profitable in the 1950s and 1960s, in the last two decades states have increasingly resorted to the overexploitation of land resources, such as logging and the conversion of forests into oil palm and rubber plantations (Padfield et al., 2016). Furthermore, dependence on land resources leads states to be particularly reluctant to relinquish land for conservation in the form of protected areas. Wildlife, conversely, is managed by the federal government. Wildlife conservation policies—designed at federal level—face serious implementation challenges due to the incapacity of the federal government to influence land management issues, including PAs management, where the state governments have overall authority. This issue was further highlighted by our respondents in the need for a National PA framework (issue 1.4) to align and streamline the management of PAs by different actors.

### 4.2. Laws and enforcement

Weak enforcement of policies and laws due to lack of capacity by the implementing agencies have hampered conservation efforts in Peninsular Malaysia (issue 2.1). This can be observed in PAs managed by state governments. The Royal Belum State Park (1,175 km$^2$) in northern Peninsular Malaysia, for example, is managed by the Perak State Parks Corporation, with a team of just eight rangers (Rayan & Linkie, 2015). Tropical PAs are recommended to have between 3 (Bruner, Gullison, Rice, & da Fonseca, 2001) and 10 (Rambaldi, 2000) rangers per 100 km$^2$; accordingly, Royal Belum State Park would require a minimum fivefold increase in the number of rangers.

Enhancing the enforcement capacity and training for enforcement, prosecuting and investigating officers and judges were also identified as high priorities (issues 2.2 and 2.4). The new Wildlife Conservation Act 2010 establishes fines of up to RM500,000 (approx. USD120,000) and/or imprisonment of 10 years for wildlife-related crimes (Government of Malaysia, 2010), compared with maximum fine of up to RM15,000 (approx. USD3,600) or five years jail in the repealed 1972 Protection of Wildlife Act (Government of Malaysia, 1972). In spite of this increase in penalties, wildlife crime is not perceived as a serious crime in court and offenders have been discharged with much lower penalties or jail sentences than what the act would allow (Christy, 2012).

Corruption is an important driver of biodiversity loss in tropical countries leading to high economic losses for the nation (Laurance, 2004). Corruption within Malaysian conservation agencies was also identified as an important issue (issue 2.5) although ranked at the lowest priority in this theme. The Malaysian Anti-Corruption Commission (MACC) revealed that in Sarawak State alone, more than USD15 million were lost to illegal loggers from May to August 2014 (Othman, 2014). In 2015, a former district forestry officer from the northern state of Perak was found guilty of accepting bribes from timber contractors and ordered to return his extraordinary wealth of more than USD670,000 to the government (The Star, 2015).

### 4.3. Socio-economic issues

Interestingly, the majority of the socio-economic issues identified in this exercise focused on ILCs. At present ILCs are rarely involved in the management of PAs and wildlife in Peninsular Malaysia (Aziz, Clements, Rayan, & Sankar, 2013). Our participants identified access and benefit sharing (ABS) to genetic resources and ecotourism as ways to integrate and benefit ILCs (issues 3.1, 3.3 and 3.4). Ecotourism was also considered a *problem* for ILCs due to the potential negative impact on their culture (issue 3.5). Ecotourism initiatives involving and affecting ILCs should consult them to respect cultural norms and ensure meaningful benefits for these communities (Johnston, 2014).

### 4.4. Funding and resource allocation

The lack of funds, ineffective use of resources, absence of resource mobilisation and the potential of innovative funding initiatives were raised as issues under this theme. Malaysia has been ranked as the seventh most underfunded out of 198 countries for biodiversity conservation, and one of four countries to be both in the bottom quartile of relative conservation funding and in the top quartile of threatened biodiversity (Waldron et al., 2013). In Malaysia, the public budget remains the primary mechanism for financing conservation. In 2013, only 0.15% of the total federal government budget (RM249 billion or ~USD59 billion; EPU, 2016) was allocated to the two key agencies directly involved in protecting terrestrial biodiversity—the Department of Forestry and the Department of Wildlife and National Parks (DWNP, 2014; FDPM, 2016).

While Malaysia has policy documents in place, the agencies entrusted to implement them are crippled by a lack of resources, including funds, manpower and equipment (issues 4.1 & 4.2) (MNF for Rio+10, 2003). To complement Malaysia's newly revised policy on biodiversity, it is envisaged that a resource mobilisation plan will be adopted to ensure that the new policy is implementable (UNDP, 2012). Additionally, Malaysia has not sufficiently embraced alternative funding for conservation, such as payment for ecosystem services (PES) and reducing emissions from deforestation and forest degradation plus (REDD+; issue 4.5).

### 4.5. Knowledge and research and development

Our results highlight the need for better and stronger collaboration and cooperation amongst research institutes, universities, governments and other agencies and to foster a science–policy interface (issues 5.1 and 5.2). Research organisations in Malaysia tend to work in isolation from policy matters as reflected by Hansen et al. (2015), who highlighted the disconnect between universities, government and industry on the topic of sustainable palm oil. The shortage of local scientists in fundamental sciences (issue 5.4) and lack of clear career prospects in conservation science (issue 5.3) were also highlighted. While Malaysia's R&D expenditure has been growing steadily from 0.5% of the GDP in 2000 to 1.13 in 2012, the emphasis has been on applied research such as biotechnology (MASTIC, 2015).

### 4.6. Rights of nature (including heritage)

The need to document traditional knowledge was identified as a priority (issue 6.1), which in turn can be capitalised to better manage biodiversity (Norini, Lim, Latif, & Nagulendran, 2013). Malaysia has a National Heritage Act of 2005 that has not been sufficiently used to protect PAs and important flora and fauna (issue 6.4). Importantly, the National Heritage Act can help overcome jurisdiction and constitutional limitations. Participants also highlighted the important and powerful role religion can play in Malaysia's conservation efforts (issue 6.5). In the state of Terengganu, for example, Islamic sermons infused with turtle conservation themes increased concern for turtles among mosque-goers (Clements et al., 2009). Muslim clerics in Terengganu have recently issued a "fatwa" against illegal hunting of animals in general (Actman, 2015).

### 4.7. Public awareness and participation

Despite a recent study suggesting that Malaysians in urban areas may be willing to pay for forest protection (Vincent et al., 2014), the apathy towards biodiversity and environmental issues among Malaysian was the top priority (issue 7.1) under this theme. Similar attitudes towards environmental issues have been reported in other countries (e.g. Curry, Ansolabehere, & Herzog, 2007). Our participants highlighted the lack of high-profile and widely recognisable champions or icons for conservation (issue 7.2). This may be influenced by the fear of being labelled as an activist with anti-government sentiments. For example, the NGO Friends of the Earth Malaysia claim that activists have been arrested due to their objection to the building of the world's largest rare earth refinery in Malaysia by an Australian company (SAM, 2014).

### 4.8. The relevance to Aichi targets

We cross-referred and mapped out the 7 themes and 35 conservation issues with the Aichi Biodiversity Targets (Table 1). Priority issues identified in our study under "policy and management" and "laws and enforcement" relate mainly to policy coherence (Target 17), resource mobilisation (Target 20) and increasing PAs (Target 11). The "socioeconomic" and "right of nature" issues link to a wide range of the Aichi Targets, especially Target 18 on traditional knowledge and participation of ILCs and Target 16 on Nagoya Protocol on ABS. Addressing issues related to "funding and resource allocation" will assist in meeting Aichi's Target 2 on the need to incorporate the value of biodiversity in national plans as well as Target 20. "Knowledge and R&D" issues will help achieve Aichi Target 19 on improving knowledge base, as well as Targets 12 and 13 on preventing extinction on known species and safe guarding genetic erosion of cultivated plants and domesticated animals as well as culturally valuable species. Issues in the "public awareness and participation" theme relate to a number of Aichi Targets, including Targets 1 (awareness) and 4 (participation of different stakeholders in sustainable use of natural resources; Table 1). Cross referencing our issues with the Aichi Targets shows the interlinkage nature of some of these issues, where one issue addresses one or more targets. This ranked priority issues will assist Malaysia in focusing actions (Marques et al., 2014) as stipulated in the revised National Biodiversity Policy (2016–2025) to meet its Aichi Targets.

### 4.9. Priority differences among stakeholders

To our best knowledge, this is the first study to explicitly compare inter-stakeholder differences in national conservation priorities. The high level of concordance in the ranking of issues within themes is a positive sign, since it indicates that priorities can be agreed between stakeholders with different agendas. In particular, we found the private sector to differ the most among the four groups of stakeholders (Figure 5). Differences can likely be explained by the fact that the private sector is focused predominantly on business and economic profit as compared with conservation. Similarly, other studies (Padfield, Tham, Costes, & Smith, 2016; van den Burg & Bogaardt, 2014) reveal that businesses are unlikely to incorporate biodiversity conservation in their overall business plan unless there is pressure from actors within the supply chain.

### 4.10. Other factors affecting conservation priorities

We found that nationality (Malaysians vs. non-Malaysians), age and seniority (among government officials) of respondents had minimal impact on the way they prioritised the different conservation issues. Non-Malaysians only differed from Malaysians in their higher prioritisation in the lack of training for enforcement, prosecuting /investigating officers and judges and the lack of effective use of resources. Younger respondents ranked higher the need of an effective resource mobilisation strategy to complement policies and laws that are formulated for better implementation.

Interestingly, junior government officials indicated a lack of effective leadership as their top priority in the theme "policy and management", while senior government officials ranked this issue as the lowest priority. Leadership in public sector, including at state level, plays a central role in facilitating bottom-up communication to enhance efficiency and innovation (Borins, 2002; Elagupillay, 2004). Compared to their seniors, junior government officials also stressed the need to recognise the rights of nature in formal and informal education systems.

### 4.11. Limitations

Although we were able to engage a wide range of individuals and organisations, not all stakeholder groups were equally willing or available to participate. In all the stages of our study, the private sector was less engaged than the other groups (Figure 2) as it has happened in previous similar initiatives in Malaysia (Padfield et al., 2014). Furthermore, not all relevant stakeholder groups were invited to participate in this prioritisation exercise. Farmers, indigenous communities and poachers were not involved and their views are likely to differ compared with those of the four groups involved. Overall, the stakeholder reach of our surveys cannot be accurately quantified since we employed a snowball approach to circulate the online survey. It is possible that both surveys reached a wide audience yet some may have chosen not to participate.

An important limitation of our approach is that the resulting 35 priority conservation issues are not always as distinct from each other as we had expected. For example, issues 1.3 and 6.2 contain multiple issues within one; and issues 5.1 and 5.2 have a high level of overlap making it difficult to distinguish between them. We attribute this to an intrinsic limitation of the group thinking used in our approach. In the second workshop, we asked participants to consolidate issues and choose the top five within each theme. In this process the participants tried to capture as much information as possible within five issues, which resulted in a lack of clarity and distinctness, and the overlap among some of the issues. For similar exercises in the future we recommend to specify very clearly the need to maintain distinctiveness across issues, even if that means that many issues do not make the final cut. We also recommend allocating more time to the second workshop to allow the revision and polishing of resulting issues while still retaining the group views on them.

### 5. Conclusion

Stakeholder engagement in the identification of priority issues was an effective approach that enabled a wide range of stakeholders to participate in an open, transparent, inclusive and participatory manner to generate a list of 35 conservation priority issues within 7 general themes for Peninsular Malaysia. We found a generally high level of concordance among the different stakeholders involved. The resulting list of ranked priority issues will enable policy-makers and other stakeholders to prioritise policy implementation as well as address Aichi Targets. In order to facilitate the uptake of these findings by policy-makers, the general media and other stakeholders, the results should also be translated into more accessible formats, such as policy summaries and articles in national magazines and newspapers (Walsh, Dicks, & Sutherland, 2014). The results of this study were presented to Malaysian policy-makers and partially incorporated in the "pursuing green growth for sustainability and resilience" section of the 11th Malaysia Plan (2016–2020; EPU, 2015). This exercise can also be used as a model to identify conservation priorities in other countries.

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# CHAPTER 5: A Policy Review of Federalism on Biodiversity Governance in Peninsular Malaysia

**Abstract**

Convention on Biological Diversity (CBD) is a treaty that addresses the rapid decline of global biodiversity. Its implementation is highly dependent on actions by Parties according to national circumstances and governing structure. Federalism is one form of government which has clear authority delegated to the federal and state governments. Malaysia has a federal system and previous studies have revealed despite having progressive national policies on biodiversity, implementation is lacking. The aim of this policy review is to assess the impact of federalism on biodiversity governance in Peninsular Malaysia with the objectives to (i) understand the historical context; (ii) its consequences on biodiversity governance; and (iii) derive insights from Australia and India which are also former British colonies. Key documents such as constitution of all three countries, policy documents, reports to CBD as well as relevant reports from agencies related to biodiversity were reviewed and analysed. Deriving experience of Australia and India, to strengthen Malaysia's biodiversity governance, it could either amend its constitution or/and have a standalone law for biodiversity conservation. This must be complemented with adequate funding including new and innovative funding streams. There is also an urgent need for Malaysia to mainstream biodiversity conservation in the national development agenda for the long-term conservation of Malaysia's biodiversity and meeting the global biodiversity agenda.

*Keywords: federalism, biodiversity governance, Peninsular Malaysia, conservation*

## 5.1. Introduction

Global biodiversity governance is primarily administered through the United Nations (UN) Convention on Biological Diversity (CBD). The CBD however has limited success to alter policies and practices of the various biodiversity related problems faced by the world today (Bryant, 1998; Butchart, Di Marco and Watson, 2016) as its success highly depends on national and sub national level implementation. Countries have their own unique domestic administrative procedures, jurisdictional rights and priorities that make it challenging to implement international agreements related to environment and biodiversity such as CBD (Pamela and Lynn, 2012). A collective report by five major international non-governmental organisations shows that only 5% of countries are on track to meet the 2020 Aichi Biodiversity Targets set out by CBD in 2010 to halt biodiversity loss (BirdLife, 2016). Understanding national and subnational biodiversity governance is therefore essential to improve the chances of achieving the Aichi Targets.

Federalism is a form of government in which there is division of powers between two levels of government: a central (or 'federal') government and regional or other type of sub-units (e.g. 'states'). The central government binds and coordinates the association of states through power sharing which is clearly defined in a constitution. Importantly, in a federation there are independent sources of authority for both federal and state governments with policy sovereignty at each level (Bednar, 2009). Federations are often formed through the association of formerly independent states (Jayum, 2009). The federal system of governance is widespread; salient examples include the United States of America, Brazil, Nigeria, Germany, Australia, India and Malaysia, among many others.

Malaysia is a tropical country located in the Southeast Asian biodiversity hotspot of the Sundaland (Myers *et al.*, 2000). Malaysia, is blessed with rich biodiversity; actually it is one of the so-called megadiverse countries (NRE, 2016). It is also a young nation that obtained independence from colonial rule in 1957 and since then has achieved remarkable success in fighting poverty (below 0.6%: 2014) and has recorded average growth of more than 7 percent per year for 25 years or more (Commission on Growth and Development, 2008; EPU, 2016). This upper middle income country with a land area of 330,803km$^2$ has a population of 31.4million and GDP per-capita of USD9,766 (EPU, 2016).

Historically, various kingdoms flourished on the Malay peninsula. The earliest kingdoms (2$^{nd}$ century) were influenced by Hindu culture, the most notable being Langkasuka located in the north west region of the Malay peninsula (now known as the state of Kedah) (Cavendish, 2007). Another important kingdom was Malacca which was a vibrant trading port in the 15$^{th}$ century and its strategic location connecting the east (China) and west (India, Persia, Europe). Islam was introduced to the Malay Peninsula in the 15th century with the arrival of traders from the Middle East and took root with rulers in Malacca. Subsequently and other kingdoms in the Malay peninsula took on Islamic teachings and the rulers adopted the title 'Sultan' (Andaya and Andaya, 2001).

Malaysia was formed by the merging of these formerly independent 'sultanates' (kingdoms). At present, the system of governance is a federation, with a central federal government, and 13 states – 11 of them located in mainland Southeast Asia (Peninsular Malaysia) and two in Borneo (*Figure 1.1* in Chapter 1). Malaysia practices a system of parliamentary democracy with constitutional monarchy known as Yang DiPertuan Agong (YDPA) (Andaya and Andaya, 2001).

The Malaysian bicameral parliament is based on the Westminster system and made up of the Dewan Negara (Senate) with 70 members and the Dewan Rakyat (House of Representatives) with 222 members. The general election for the lower house is held every five years with the last  general elections held in 2013 (EPU, 2016).

The YDPA is the federal head of state and his symbolic roles include being the Commander-in-Chief of the Malaysian Armed Forces and the head of Islam in his own state, the four states without rulers (Penang, Malacca, Sabah and Sarawak) and the Federal Territories. Each of the nine rulers (Sultans) serve as the head of state of his own state, as well as the head of the religion of Islam in his state (Heufers, 2002). A unique feature of the constitutional monarchy in Malaysia is the Conference of Rulers, consisting of the nine rulers and the four Yang di-Pertua Negeri which convenes tri-annually and its role among others is to elect the YDPA every five years or when a vacancy occurs. As with other constitutional monarchs around the world, they do not participate in the actual governance which at Federal level is undertaken by the Prime Minister and at state level by the Chief Minister *(Menteri Besar)* (Bari, 2009).

The constitution clearly assigns power and responsibility to the federal and the state governments. The constitution gives rights over land, forest and water for example to state governments (Loh, 2010). Malaysia is a party to CBD and has in place good national policies for biodiversity conservation (Nagulendran *et al.*, 2016).The implementation of these policies however, has not been very forthcoming at sub-national (state) level. Indeed, it can be said that good national policies related to biodiversity conservation are failing at the implementation phase at both federal and state level (Aiken and Leigh, 1988; Maidin, 2005). This is often attributed to (1) the constitutional rights the states have over natural resources and

(2) the misaligned economic incentives for many states to over-exploit their natural resources (Hezri and Dovers, 2012). The federal-state dichotomy provided in the Malaysian constitution has created challenges in the relationship between the federal and state governments over the management of biodiversity and natural resources (Padfield *et al.*, 2016) and has been identified as a priority issue to be addressed in strengthening biodiversity conservation in Malaysia (Nagulendran *et al.*, 2016).

In this review, our aim is to assess the impact of federalism and jurisdiction conflicts between federal and state governments on biodiversity governance in Malaysia. Specifically, our objectives are to (i) visit the historical context in which Malaysia's current federal system of government developed; (ii) review the current federal system of government and its consequences on biodiversity governance; and (iii) compare Malaysia's biodiversity governance with that of two other federations with historical parallelisms (India and Australia, both former British colonies).

## 5.2. Methodological approach

Relevant publications in relation to federal government systems and biodiversity governance in Malaysia and elsewhere were examined. Particularly, I examined the federal constitutions of Malaysia, India, and Australia. Government reports such as annual reports of the Department of Wildlife and National Parks (DWNP), Forestry Department Peninsular Malaysia (FDPM), relevant state government reports (budget and finance), Auditor General's report, reports by Malaysia to UN bodies such as country reports to CBD and reports about Malaysia by UN specialised agencies such as UNDP were also analysed. I also referred to available literature including published policy documents on biodiversity and environmental

46

management in Malaysia. India's and Australia's reports to CBD were also analysed. See Appendix D for a list of relevant policies and reports reviewed.

## 5.3. Federalism and biodiversity governance in Malaysia

### 5.3.1. Biodiversity governance during the British rule

What is now Malaysia, was under some form of colonial rule between 1511 – when the Portuguese occupied the city of Malacca (then a huge empire) – and 1957 – when the British-ruled territories in the Malayan peninsula gained independence. During their colonial rule, the British established laws pertaining to flora and fauna. One of the earliest laws on wildlife was the Wild Animals and Birds Ordinance of 1904, which replaced the 1894 Straits Settlement Ordinance 111 on wildlife.

The British rulers also documented Malaya's biodiversity and an important work in this area was 'The Wildlife Commission Report', a three-volume document by T. R Hubback, who was then appointed Malaya's Honorary Chief Game Warden in 1928. This report, as well as Hubback's leadership, were key factors in the creation in 1939 of King George IV National Park (now Taman Negara), the largest national park in Malaya (Hilsop, 1961). At the same time, Malaya's rich wildlife was popular among the British as game animals. Sport hunting in this period had a negative impact on the country's charismatic megafauna, such as driving the Javan rhinoceros (*Rhinoceros sondaicus*) to local extirpation in 1932 (Loch, 1937).

### 5.3.2. The formation of modern Malaysia

The British at first tried to impose a unitary government (governed as a single power in which the central government is ultimately supreme) system in Malaysia by proposing the Malayan Union (MU) in 1946. The idea of MU was opposed by

the Malay Rulers and the Malay community (Aun, 2007). To get the support of the Malay Rulers and the majority of the citizens, the British then through the Reid Commission proposed a Federal system of government where the Rulers will still have some autonomy of powers in their respective states (Fernando, 2002). Modern Malaysia was formed on 16 September 1963 by the merging of four former British colonies: the Federation of Malaya (Peninsular Malaysia, composed of 11 states), Singapore, and the Bornean territories of Sabah, and Sarawak (Andaya & Andaya, 2001; Bari, 2003). Singapore left the Federation in 1965 due to many issues raising from ideology differences and financial matters (Lim, 2015) and Malaysia acquired its current composition – a central federal government and 13 States

### 5.3.3. Drafting Malaysia's Federal constitution

Malaysia's constitution and legal system were shaped by the British colonial rulers, although there are important differences between the governance systems of both countries – while in the British system the parliament is supreme, in Malaysia the constitution is supreme (Bari, 2003). Malaysia's federal constitution was drafted by the Reid Commission, a team of five people appointed by the British. Remarkably, the Reid Commission was entirely composed of non-Malaysian members, which contrasts with the processes to draft the constitutions of other British colonies such as Australia, Ghana, India, and Pakistan, which always had autochthonous representation (Fernando, 2002). The Reid Commission's terms of reference, inter alia, included the provision of a strong central government with measures of autonomy for the states.

When the Reid Commission presented its draft in February 1957, just six months before independence, the main focus of deliberation and negotiation was on communal issues such as the special position of the Malay ethnic majority and

the rights and privileges of other communities (mainly the Chinese and Indian minorities). In this context, environmental matters were seen as a minor and local issue (Shamsul, 2000) and, as a consequence, jurisdiction over land and forest were considered state matters without much debate (Fernando, 2002).

### 5.3.4. Division of powers between state and federal governments

The division of powers and responsibilities between federal and state governments is stipulated in Article 74, and its ninth schedule, of the constitution (*Table 5.1*). The federal government has jurisdiction over 27 headings, including external affairs, defence, civil and criminal law, health care, citizenship, trade, education, and tourism. States have jurisdiction over 12 headings, including land matters, agriculture and forestry, water (including rivers), and 'turtles' and riverine fishing. Turtle is the only wildlife mentioned in the Federal Constitution due to cultural and traditional use of its eggs among the Malay community and the ruling class (Tusin, 2010).

There is also a concurrent list of issues where both federal and state governments have jurisdiction and need to cooperate. The concurrent list has nine headings that include the protection of 'wild animals and wild birds' as well as National Parks, animal husbandry and veterinary services, town and country planning, drainage and irrigation, and the rehabilitation of mining lands (*Table 5.1*; Government of Malaysia, 2010). In the case of issues under the concurrent list, both federal and state governments can legislate, although the federal government needs to consult the state governments to do so. According to Article 75 of the federal constitution, when there are inconsistencies between federal and state laws, the state law shall be void to the extent of the inconsistency.

Article 76 of the federal constitution stipulates that the federal government can make laws pertaining to a state matter (i.e. issues under state jurisdiction) if it is in the context of (a) implementing an international treaty, agreement, or convention; (b) promoting uniformity of laws; and (c) being requested by a State Assembly. Moreover, Article 77 of the constitution states that states "shall have power to make laws with respect to any matter not enumerated (residual powers) in any of the lists set out in the Ninth Schedule" (Saleem, 2005). Terms such as 'environment' and 'biodiversity' are not specifically listed in the federal constitution and are therefore open to interpretation, especially by the Courts (Nijar, 1997).

### 5.3.5. Revenue streams for federal and state governments

The federal constitution also establishes that the federal government has a wider revenue flow, obtained from all matters in the federal list and matters subject to federal law (Government of Malaysia, 2010a). The federal government receives revenue among others from direct taxes from corporate bodies and individuals, customs, import and export duties (including timber exports), excise duties, goods and service tax, licence for motor vehicles, as well as capital gain tax (Hui, 2006).

As provided for under the federal constitution (Article 110 and Part III of the Tenth Schedule), the states are assigned residual revenues from land, real estate, mines, forest, and liquor shops (*Table 5.2*; Government of Malaysia, 2010). States also receive funding from the central government. Article 109 of the constitution establishes five types of grants that the federal government provides to states: (i) capitation grants; (ii) state road grants, for maintenance of state roads; (iii) specific purpose grants; (iv) contingency funds; and (v) state reserve funds (Government of Malaysia, 2010).

*Table 5.1: Distribution of powers as per Malaysia's Federal Constitution, Article 74 and the Ninth Schedule*

| Federal List | State List |
|---|---|
| 1. External affairs.<br>2. Defence of the Federation or any part thereof.<br>3. Internal security.<br>4. Civil and criminal law and procedure and the administration of justice.<br>5. Federal citizenship and naturalization; aliens.<br>6. The machinery of government, subject to the State List.<br>7. Finance.<br>8. Trade, commerce and industry.<br>9. Shipping, navigation and fisheries.<br>10. Communications and transport.<br>11. Federal works and power.<br>12. Surveys, inquiries and research.<br>13. Education.<br>14. Medicine and health including sanitation in the federal capital.<br>15. Labour and social security.<br>16. Welfare of the aborigines.<br>17. Professional occupations other than those specifically enumerated.<br>18. Holidays other than State holidays; standard of time.<br>19. Unincorporated societies.<br>20. Control of agricultural pests; protection against such pests; prevention of plant diseases.<br>21. Newspapers; publications; publishers; printing and printing presses.<br>22. Censorship.<br>23. Subject to item 5(f) of the State List: theatres; cinemas; cinematograph films; places of public amusement.<br>24. *(Repealed).*<br>25. Co-operative societies.<br>25 A. Tourism.<br>26. Subject to item 9a of the Concurrent List, prevention and extinguishment of fire, including fire services and fire brigades.<br>27. All matters relating to the Federal Territories, including the matters enumerated in items 2, 3, 4 and 5 of the State List and in the case of Federal Territory of Labuan, the matters enumerated in items 15, 16 and 17 of the Supplement to State List for States of Sabah and Sarawak. | 1. The determination of matters of Islamic issue, law and doctrine and Malay custom.<br>2. Land matters.<br>3. Agriculture and forestry.<br>4. Local government.<br>5. Other services of a local character (markets, burial grounds etc).<br>6. State works and water.<br>7. Machinery of the State Government.<br>8. State holidays.<br>9. Creation of offences in respect of any of the matters included in the State List/law<br>10. Inquiries for State purposes.<br>11. Indemnity in respect of any of the matters in the State List or dealt with by State law.<br>12. Turtles and riverine fishing.<br>12A. Libraries, museums, ancient and historical monuments and records and archaeological sites and remains, other than those declared to be federal by or under federal law |

| Concurrent List |
|---|
| 1. Social welfare.<br>2. Scholarships.<br>3. Protection of wild animals and wild birds; National Parks.<br>4. Animal husbandry; prevention of cruelty to animals; veterinary services; animal quarantine.<br>5. Town and country planning, except in the federal capital.<br>6. Vagrancy and itinerant hawkers.<br>7. Public health, sanitation (excluding sanitation in the federal capital) and the prevention of diseases.<br>8. Drainage and irrigation.<br>9. Rehabilitation of mining land and land which has suffered soil erosion.<br>9a. Fire safety measures and fire precautions in the construction and maintenance of buildings.<br>9B. Culture and sports.<br>9C. Housing and provisions for housing accommodation; improvement trusts.<br>9D. Subject to the Federal List, water supplies and services.<br>9E. Preservation of heritage. |

Source: (Government of Malaysia, 2010a)

In 2015, the federal government had a revenue of RM219.1 billion out of which only RM6.7 billion (i.e. 3% of the total) were channelled back to the 13 state governments (EPU, 2016; MOF, 2016).

*Table 5.2: Revenue streams for State Governments*

| Revenue for State Governments as provided for in the Tenth Schedule, Part III of the Federal Constitution |
|---|
| 1. Revenue from toddy shops. |
| 2. Revenue from <u>lands, mines and forests</u>. |
| 3. Revenue from licences other than those connected with water supplies and services, mechanically propelled vehicles, electrical installations and registration of businesses. |
| 4. Entertainments duty. |
| 5. Fees in courts other than federal courts. |
| 6. Fees and receipts in respect of specific services rendered by departments of State Governments. |
| 7. Revenue of town boards, town councils, rural boards, local councils and similar local authorities other than— <br> (a) municipalities established under any Municipal Ordinance; <br> (b) those town boards, town councils, rural boards, local councils and similar local authorities which have power under written law to retain their revenues and control the spending thereof. |
| 8. Receipts in respect of <u>raw water</u>. |
| 9. Rents on State property. |
| 10. Interest on State balances. |
| 11. Receipts from <u>land sales</u> and sales of State property. |
| 12. Fines and forfeitures in courts other than federal courts. |
| 13. *Zakat, Fitrah* and *Baitulmal* and similar Islamic religious revenue. |
| 14. Treasure trove. |

### 5.3.6. <u>A centralized and asymmetric system</u>

Due to the federal constitution division of powers and funding revenues, Malaysia's governance system is often considered to be highly centralized (federal-centric; e.g. Kok Wah, 2015; Bari, 2003). The argument is due to the skewed number (and relevance) of headings under federal jurisdiction (Article 74), federal predominance in case of law inconsistencies (Article 75), and the right for the federal government to make laws even under the state list (Article 76). A second argument is the centrality of revenue streams, largely channelled to the federal government (up to 90%) and then partially redistributed to states (Kok Wah, 2015).

Most of the states in the pre-independence era struggled financially; hence, the Reid Commission stipulated that issues such as education and health care

should be the role of the federal government as this would ease the financial burden of the states (Fernando, 2002). Such centrality was in line with the Reid Commission's mandate, with the most sensitive issues such as defence, education, trade, and citizenship falling under federal purview. Matters that are nowadays key for biodiversity conservation, such as matters related to land, forest, and water, were considered of local relevance and assigned solely under the purview of the states.

### 5.3.7. Federal-state constraints in the implementation of biodiversity and environmental laws and policies

Malaysia has now specific polices for the environment, biodiversity, and climate change (Appendix C) but their implementation is often ineffective, especially in issues that are under state jurisdiction (Hezri, 2016). This can be illustrated with examples from Malaysia Plans. Malaysia Plans are macro-policy documents for the strategic holistic development of the nation, which have been undertaken every five years since 1966 (EPU, 2013). The Third Malaysian Plan document (1976-1980) highlighted the need for the establishment of new national parks in Malaysia.

Initially, the federal government considered this would be an easy task since 'national parks' is in the concurrent list of the federal constitution (*Table 5.1*; (Aiken and Leigh, 1988; Ling, 2011). Hence, in 1980 a National Parks Act was formulated and passed by the Parliament with the purpose of creating new parks as stipulated in the Third Malaysian Plan (DWNP, 1996). Despite this, no state could be convinced to designate any of the candidate areas as national parks under this Act, because land and forest are state matters and source of income for states. The National Parks Act remained dormant for nearly 23 years. In the meantime states were designating parks using their own state laws (Schwabe *et al.*, 2014a). Only in

53

2003, the Penang state government agreed to gazette Penang National Park (a small protected area of just 12 km$^2$; *Figure* 8.1) under this Act, with the federal government agreeing to allocate sufficient operational and development budget and with a federal agency (DWNP) managing it.

### 5.3.8. Environment as a state matter

Another example of federal-state jurisdiction conflict in the implementation of environmental policies is Malaysia's 1974 Environment Quality Act (EQA). The EQA has a provision that applies throughout Malaysia and governs matters such as dam construction. But the Court of Appeal in 1997, while hearing the case of the Bakun dam (a mega hydroelectric project) in Sarawak state made an interpretation that since the dam is tied to land and rivers, which are state matters, the issue of the environment in this context should be considered as a state matter (Nijar, 1997).

The decision as argued by the Court of Appeal is in line with Article 77 of the constitution (state predominance on residual powers; Saleem, 2005). Besides relegating the EQA, this decision took a very simplified approach to environmental regulation since environmental and biodiversity issues are not always localised and may have impact on areas beyond state boundaries such as river pollution and forest fires (Saleem, 2005).

With this decision, the government amended the EQA to exclude the application of the Environmental Impact Assessment (EIA) Order 1987 to the State of Sarawak, which also inevitably took away the rights of the public, especially the affected communities, to participate in the EIA approval process (Maidin, 2005). This decision set an important precedent for issues pertaining to biodiversity and environment.

### 5.3.9. Misaligned incentives and the overexploitation of natural resources

The governance of biodiversity is further complicated by the fact that states continue to struggle financially. Policies rolled out by the federal government do not have resource mobilisation plans for effective implementation (Nagulendran *et al.*, 2016) nor have provisions to provide funds to states for implementation. This means that states lack the financial resources to implement policies decided at federal level. Moreover, limited revenue opportunities have pushed states to exploit natural resources under their jurisdiction through logging, mining, and land use change, often in an unsustainable manner. As an illustration, in the 1990s, states revenue from timber harvesting varied between 35-70% of the state budgets (Jomo, Chang and Khoo, 2004).

The extraction of timber and conversion of forest areas to rubber and oil palm plantation has resulted in a sharp decline in forest cover – e.g. in 1940 almost 80% of Peninsular Malaysia was under forest cover but this figure declined to 68%, 55% and 44% in 1966, 1997 and 2012 respectively (Chuan, 1982; Aiken and State, 1994; FDPM, 2013). The loss of forest cover has consequences beyond state level as it not only impedes Malaysia's implementation of CBD but also the loss of important ecosystem services. In tandem with declining of forest cover, states revenue from logging has been declining but still forms a significant amount for less developed states such as Kelantan and Pahang (*Table 5.3*). In a recent interview, the Chief Minister of the state of Kelantan said that "forest revenue is the biggest contributor to the state government" (The Star, 2016).

*Table 5.3: Percentage of forestry's contribution to State revenue in 2015*

| State | Revenue from forestry 2015, RM (million) | Total State Revenue 2015, RM (billion) | % of revenue from forestry |
|---|---|---|---|
| **Pahang** | 107.74 | 0.88 | 12.2 |
| **Kelantan** | 104.26 | 0.39 | 26.9 |
| **Selangor** | 71.59 | 1.93 | 3.7 |
| **Perak** | 66.3 | 1.03 | 6.6 |
| **Kedah** | 44.2 | 0.721 | 6.1 |

Note: Data calculated from FDPM Annual Report, 2015 and various state Auditor General's Report

The Federal government under the present financial procedures cannot channel funds to States directly on matters not under the Federal list (Sham, 1993). Due to the lack of funds and little priority given to biodiversity conservation, state governments have invested little in terms of funds and human resource to the sustainable management of natural resources and conservation of biodiversity (Hezri and Hassan, 2006; Nagulendran *et al.*, 2016). This situation creates jurisdiction conflicts and misaligned incentives that clearly require some ways to move forward to strengthen the conservation of biodiversity at all levels.

## 5.4. Dealing with federal-state conflicts and funding revenues in other countries

### 5.4.1. The Australian approach

Australia is also a former British colony with a federal system of governance. In Australia, the environment has always been a state-level responsibility and the Commonwealth (the federal government) has always tried to carve out an environmental protection role beyond the constitutional limits (Crowley, 2001). To deal with the growing international commitments on biodiversity as well as to

strengthen biodiversity conservation, the Australian government introduced in 1999 the Environment Protection and Biodiversity Conservation Act (EPBC Act).

While this Act does not take away state powers, it allows the Commonwealth, through its Department of Environment, to manage all areas that come under international listing such as World Heritage sites and Ramsar sites (wetlands of international importance). This legislation also provides protection for matters of national environment significance including natural and cultural places. The EPBC Act also regulates the international movement of wildlife and plants (including products thereof) and the control of alien species and access of biological resources in Commonwealth areas (Brown, 2002; Government of Australia, 2013). The introduction of the EPBC Act created better governance of biodiversity in Australia because it provided a national framework and promoted uniformity, e.g. having a one-stop agency (Department of Environment) with adequate resources to implement the law.

Besides having the legal and institutional framework in place, Australia has also put in place resource mobilisation mechanisms mainly through the 'Caring for our Country' initiative established in 2008, which replaced the Natural Heritage Trust. 'Caring for our Country' planned a budget of USD2.25 billion for conservation initiatives in the period of 2008-2013 (Government of Australia, 2009). Another initiative is the National Landcare Programme, a federal-funded programme to promote sustainable agriculture as well as supporting the protection, conservation and rehabilitation of Australia's natural environment (Australian Government, 2016). A third funding stream for biodiversity conservation is the Revolving Funds, a joint federal-state government investment to purchase properties with natural or cultural values and reselling the land to conservation-

minded individuals or organizations. The proceeds from the sale of properties are used to buy more areas for conservation (Carter, 2002).

### 5.4.2. The Indian approach

India obtained independence from the British in 1947. Originally, India's constitution had no explicit mention of the environment. In its early years, India did not accept that industrialisation and urbanisation had brought environmental degradation. It was due to the influence of United Nations Conference on the Human Environment (Stockholm Conference, 1972) and later the local events such as the Chipko movement that brought about changes in the governance of environment and biodiversity in India (Pathak, 1994; Chandiramani, 2004).

In 1976, the Indian constitution was amended, including a direct reference to protect and improve the environment (Joseph G. Jabbra and Dwivedi, 1998). The Article 48A of the Indian constitution (forty second amendment) reads as following: *"The state shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country"*. During the 1976 amendments, another new article (Article 51A(g)) was also inserted, instructing every citizen of India to protect and improve the natural environment including forests, lakes, rivers, and wildlife, and to have compassion for living creatures (Government of India, 2015).

In India's constitution, unlike in Malaysia's, forestry is under the concurrent list of jurisdictions. This provides the opportunity for check-and-balances because prior approval from the central government is required for the diversion of forest lands to non-forestry purposes in any state. When forests are developed, India has established the Compensatory Afforestation Fund Management and Planning Authority (CAMPA). This fund, CAMPA, is not part

58

of the Consolidated Fund of India (Consolidated Fund - the revenue is channelled to Treasury and can be used for any purpose). Contributions to CAMPA are made by private and public agencies to compensate for the diversion of forestlands. From 2009 to 2011 a total of Rp 9.8 million (~ USD 0.3 million) were released to state governments under the CAMPA scheme (MOEF, 2012). India also reported that the total funding for biodiversity conservation for the year 2013-2014, amounted to Rp 92 billion (~USD 1.4 billion), with nearly 55% channelled to state governments (MOEF&CC, 2014).

A comparison of Malaysia's, India's and Australia's constitutional provisions related to biodiversity and the jurisdictional assignment is as in *Table 5.4.*

## 5.5.    Lessons learned and way forward

### 5.5.1.  Jurisdiction conflicts

The delicate balance between conservation and economic development is often a matter of discussion in rapidly developing countries (Pathak, 1994; Adenle, 2012), such as Malaysia. Malaysia's federal constitution was written in a time (1950s) when environment and biodiversity conservation were not a pertinent part of the public discourse. Nearly 60 years later, this study points to the need for constitutional and legal reforms to address the current context of biodiversity loss which has far reaching implications for wellbeing and socioeconomic progress.

India, for example, took a bold step in 1976 to introduce explicit mention of the environment in its constitution. Australia on the other hand, came up with a standalone law (EPBC Act) especially pertaining to matters of national and international importance to enhance its biodiversity governance and promote

regulatory uniformity. Malaysia could also choose to take one of these pathways or a combination of both.

The legal, institutional and funding framework as seen above is a just one dimension to a more complex issue which involves people and local livelihood. As argued by Adams *et al.* (2004), often in conservation actions, local communities will be negatively impacted due to their activities being curtailed by new rules which could further drive socioeconomic imbalances. In Malaysia though the situation is rather different as many of the local communities have benefited from the government socioeconomic reform schemes (Robertson, 1984) as can be seen in 2014, poverty in rural areas is only at 1.6% with hardcore poverty at 0.2% (EPU, 2016)

*Table 5.4: A comparison of Malaysia's, India's and Australia's constitutional provisions related to biodiversity*

| | Forest | Land | Biodiversity | Wildlife | International Treaties |
|---|---|---|---|---|---|
| **Malaysia** | S | S | ND | C | F |
| **India** | C | S | ND | C | F |
| **Australia** | Not defined but it's regarded as State matter | | | | F |
| | The Commonwealth Parliament (Federal) has no specific power in relation to the environment but it can, under its external affairs power, prohibit a State from activities that give effect to an international agreement on the environment. Subject to a few exceptions, the Australian Constitution does not confine the matters about which the States may make laws. (The most important exceptions are that the States cannot impose duties of customs and excise and cannot raise defence forces without the consent of the Commonwealth Parliament.) | | | | |
| Legend: C= Concurrent; F=Federal Government; ND= not defined; S=State Government | | | | | |

Source: Adapted from the constitution of Malaysia, India and Australia

### 5.5.2. Funding streams

Malaysia is considered to face acute underfunding for biodiversity conservation (Waldron *et al.*, 2013). When cascaded down to state and local levels only 0.15% of the federal government's 2013 budget is allocated for biodiversity management

and conservation activities (DWNP, 2014; FDPM, 2016). There is a need to identify and create funding streams that are compatible with biodiversity conservation.

Australia has placed incentives to be given to the states and other stakeholders in the form of 'Caring for our Country' initiative, National Landcare Programme and Revolving Funds. In Malaysia, recently (2014) the National Conservation Trust Fund for Natural Resources (NCTF) was established with a one-off seed allocation of RM10 million, managed by the Ministry of Natural Resource and Environment Malaysia (NRE, 2014b). The one-off allocation to NCTF would deplete if a business model and strategy is not applied to generate and refurbish its funds.

To enable the NTCF to be effective, it can be restructured like the Bhutan Trust Fund for Environment Conservation (BTFEC). The BTFEC is the world's first environmental trust fund, established in 1992 as a collaborative venture between the Royal Government of Bhutan, United Nations Development Program, and World Wildlife Fund. An endowment of US$20 million was set up as an innovative mechanism to finance conservation programs over the long term in Bhutan. Donors to the trust fund include the World Wildlife Fund and the Global Environment Facility, the governments of Bhutan, Denmark, Finland, the Netherlands, Norway and Switzerland. In May 1996, the trust fund was legally incorporated in Bhutan under Royal Charter. Today, it is an effective conservation grant-making organisation, autonomous of the government. The revenue received for the period 1996-2012 is about USD 33.4 million and have approved 130 conservation projects amounting to USD 13 million (Phuntshog Karma, 2009; Secretariat BTFEC, 2016).

61

The NCTF, if it manages to obtain more funds by following a similar model as BTFEC, can be an important instrument in funding biodiversity conservation at national and state levels. Hezri, (2016) has proposed that the NCTF can be used to encourage private sector and business to contribute to this fund and be given tax exemptions as well as NCTF can be used to lease environmentally sensitive areas from the states. It will be an incentive for the states as these areas have already been identified under the National Physical Plans (JPBD, 2012).

States too could explore alternative sources of income such as Payment for Ecosystem Services (PES) as well as REDD+ (reducing emissions from deforestation and forest degradation) schemes (Philip, 2015; Yassin and Ariffin, 2016). It was recently reported that Kelantan state government had come into an agreement with a private firm to trade carbon from 360,000 ha of its forest area and Kelantan state is expected to obtain RM 10 million (USD 2.35 million) in the next two years (The Star, 2017), though at the moment this thesis was written, it was unclear if this will form part of Malaysia's REDD+ initiative.

### 5.5.3. A Common Vision on Biodiversity to move beyond political constraints between federal and state governments

Ever since independence Malaysia has been ruled by the same political party at the centre but in recent years especially after the 2008 elections, the opposition party secured rule over five state governments, though later the ruling party managed to secure back one state (Hutchinson, 2014). This creates difficulties and tensions in cascading national policies to local levels including resources as well as making reforms at local levels. Depending on the level of economic development and which party is in power, lesser developed states, ruled by opposition tend to rely

heavily on natural resources for their source of income as they get very little direct support from the centre (Musa, Nawi and Alias, 2014).

Both federal and state governments tend to myopically view biodiversity conservation as adjunct to the development process and not part of sustainable development, though there are many policy documents such as the 'Common Vision on Biodiversity' that was adopted by the government in 2009 which calls for mainstreaming of biodiversity in national planning and development process (NRE, 2009a). Since environment and biodiversity issues transcends geographical boundaries such as the haze and water supply, it's about time that the constitution is amended under the spirit of this 'Common Vision' to also include incentive payments by the federal to state governments to conserve biodiversity in the form of protected areas or habitats with important ecosystem services, such as for agriculture.

### 5.5.4. Local actions with global impact

It's recognised that all parties to CBD are required to take appropriate national actions to ensure the decisions of CBD such as the Aichi Biodiversity Targets are met. One fundamental ingredient is the need for governance system to be in placed backed by adequate legal and financial measures (Pisupati, 2012). The new National Policy on Biological Diversity (2016-2025), gives renewed impetus for governance change. This new policy compared to the 1998 has implementation indicators as well as a robust implementation framework which among others monitors implementation. Its implementation framework sees the participation of not only the government but also other stakeholders (see NRE, 2016). If this policy is implemented according to the time line indicators built into the document it will reinvigorate biodiversity conservation at all levels with the much needed

constitutional, legal, financial and implementation reforms. This will enable Malaysia not only meet her sustainable development agenda as enshrined in the 11th Malaysian Plan (EPU, 2015b) but also broader international goals such as the Aichi Biodiversity Targets and the 2030 Sustainable Development Goals..

### 5.5.5. Limitations

This policy analysis may be criticised for is inability to be generalised as it focuses on Malaysia, but this was not the intention of this study as my intention was to give an in-depth focus on the impact of federalism in Peninsular Malaysia. Nevertheless, this research addressed the issue of transferability by the way of thick description as well as detailed information (Patton, 2015), which makes this study applicable to be applied in studying biodiversity governance in other countries with similar governmental system and challenges.

## 5.6. Conclusions

Since Malaysia has recently unveiled its newly revised biodiversity policy (2016-2025), now is an opportune time to explore ways to improve and strengthen its biodiversity governance. This is important as Malaysia is a mega biodiverse country and has a role to play in biodiversity conservation not only nationally but also internationally especially in the context of CBD. Limitations posed by the federal constitution and colonial legacy should be addressed, the business as usual approach undermines the conservation of biodiversity.

This paper highlighted approaches used in two other commonwealth countries ─ Australia and India. Malaysia could take the path way of constitutional amendments or having a standalone law for biodiversity conservation or a combination of both approaches. But what is equally important is for Malaysia to

mainstream biodiversity conservation in national development process. This must be complemented with adequate funding including new and innovative funding for the long-term conservation of Malaysia's biodiversity and meeting the global biodiversity agenda.

# CHAPTER 6: Perspectives on Federalism and Biodiversity Governance in Peninsular Malaysia – Voices from the Field on Issues and Way Forward

**Abstract**

The success of global biodiversity governance depends on implementation at national and sub national level. This study aims to understand the impact of federalism on biodiversity governance in Peninsular Malaysia, with a two-fold objective: (i) understand issues and perspectives from stakeholders on the impact of the federal constitution on biodiversity governance; and (ii) their insights for improvement. This research was framed on a political ecology approach while deriving insights from post-colonial theory to study the relationship of federal and state governments as well as the colonial legacy on biodiversity governance. This study is based on 24 semi-structured interviews, expert views and observation. Findings of this research have shown that the colonial legacy has influenced the governance of biodiversity given the dichotomy of powers in the constitution. While the constitution is skewed towards the federal government, the states have rights over land, forest and water. States too have very narrow revenue streams as the bulk of the revenue is channelled back to federal government. This research proposes a cooperation federalism approach by proposing law reforms, increasing incentives to states to conserve biodiversity as well as strengthening the intuitional set up at both federal and state levels. Status quo is not an option if Malaysia would like to realise her aspirations to be a developed nation while ensuring she meets her international commitments by moving towards a sustainable development trajectory pathway.

*Keywords: governance, federalism, postcolonial, political ecology, biodiversity*

## 6.1.    Introduction

There are many causes for the continued decline of biodiversity in Malaysia and a recent paper had identified 35 priority issues for conservation in Peninsular Malaysia (Nagulendran *et al.*, 2016). One major issue as underlined by this paper and several other studies (Aiken and Leigh, 1988; Jomo, Chang and Khoo, 2004; Saleem, 2005; Musa, Nawi and Alias, 2014; Hezri, 2016) is a systemic issue in the governance of biodiversity in Peninsular Malaysia given its federal system of government.

As described in detail in Chapter Five of this thesis, a federation has a central government which binds and coordinates this association with other state governments which have clear geopolitical divisions, independence of authority and power sharing between federal and state with both having direct governance of its citizens  as defined in a constitution (Bednar, 2009; Jayum, 2009). However, having these basic building blocks, federations vary widely as in how power and revenue is distributed between federal and state. Malaysia is said to be one of the most centralised federation in the world as most powers and revenue streams (up to 90%) are attributed to the federal government (Hutchinson, 2014; Kok Wah, 2015).

Prior to independence in 1957 and the formation of Malaysia in 1963, the states in now independent Malaysia were all independent units. Malaysia was under colonial rule for nearly 450 years (Andaya and Andaya, 2001). The British were the last colonial power and had a profound effect on the formation of Malaysia and in shaping the socio-economic structure by the British 'divide and rule' approach (Andaya and Andaya, 2001; Ali, 2013). The formation of Malaysia was a British agenda to form one nation rather than to deal with various

governments (the different state rulers). The British initial proposal for a unitary government (Malayan Union) was opposed by the Malay Rulers and the Malay community (Aun, 2007).

To obtain support of the Malay Rulers and the majority of the citizens, the British then through the Reid Commission proposed a Federal system of government where the Rulers would still have some autonomy of powers in their respective states (Fernando, 2002). Given this historical backdrop, the prevailing interest of the British and elite Malay nationalist agenda to drive socioeconomic development, the federation of Malaysia was skewed to the centre. The Malay rulers and the state's powers were restricted to religious matters, forest, water and land (Hutchinson, 2014). The details of the formation of Malaysia in 1963 are described in detail in Chapter Five of this thesis.

Studying the underlying context how the Federation of Malaysia was formed, many scholars (Nijar, 1997; Jomo, Chang and Khoo, 2004; Aun, 2007; Hutchinson, 2014; Hezri, 2016) highlighted a number of structural and systemic challenges which also had an impact on biodiversity governance, namely; a) the disproportionate attribution of power between federal and state in the constitution where 27 matters ranging from health care, trade, international relations, defence, education comes under federal control. Only 12 matters such as forestry, land, agriculture and water are under state purview with another 9 matters under the concurrent list such as wildlife and national parks where both can cooperate to legislate; b) the bulk of government revenue from direct taxes such as income taxes, capital gains taxes, import and export duties are federal revenue (Jomo and Hui, 2003). The state is assigned residual revenues such as those related to land, real estate, agriculture and forestry; and c) given the structure of the constitution,

the institutional set up in federal and state governments vary in terms of biodiversity management where state governments lack manpower and capacity.

Malaysia is also a party to many international treaties on environment and biodiversity such as the Convention on Biological Diversity (CBD). Acceding international treaties is a federal power. But in the case of the CBD, the subject matter mainly is within the jurisdiction of respective states, making implementation of treaties such as CBD a challenge (Ling, 2011).

This chapter aims to from an empirical study informed by political ecology and postcolonial frameworks as discussed in the conceptual framework of this thesis, on the impact of federalism on biodiversity governance in Peninsular Malaysia. The objective of this study is to; (i) understand issues and perspectives from relevant stakeholders on the impact of the dichotomy in the federal constitution for biodiversity governance; and (ii) their insights for improvement. With these objectives, three main research questions were addressed: First, what is the perception of the stakeholders of the current state of biodiversity governance in a federalised system? Second, what are the main issues and challenges in biodiversity governance given the dichotomy in the federal constitution? Third, how could governance of biodiversity be enhanced in Peninsular Malaysia?

## 6.2.    Methodology

See Chapter Three on Methodology that underscores the methods used and the rationale. Here I present the details about the sample and chapter specific details where three main methods were used ─ semi structured interviews, expert views and observations.

### 6.2.1. Semi Structured Interview

The data collection involved 24 semi structured interviews (Appendix C) using purposeful survey approach by identifying key informants from government sector (both Federal and State including park rangers), academia, non-governmental organisations and local communities including orang asli (hereinafter referred as ILCs) (see *Table 6.1*). The interviews were conducted from September 2015 to June 2016.

*Table 6.1: Interview Participants by Stakeholder Groups*

| Stake holders | |
|---|---|
| Government | 11 participants: *G1-G11 (GI, G2, G9, G10 and G11 –Federal officers, the rest were State officials including 2 park staff)* |
| Academic and Researchers | 5 participants: *A1-A5* |
| NGOs | 4 participants: *N1-N4* |
| ILCs | 4 participants: *L1-L4 (L1-Belum State Park; L2 & L3-Taman Negara Pahang; L4- Penang National Park)* |

The interviews were used to explore experiences, views and perceptions of the stake holders and covered issues such as policy, institutional set up and governance effectiveness in context of the Federal Constitution and biodiversity governance.

The sample size of 24 was used two main reasons: first from a practical perspective as this issue is rather complex and sensitive, not many participants approached were keen to discuss this matter and the difficulty in getting high ranking officials' time for the interview. Secondly data saturation was reached and additional interviews would provide diminishing returns (Bazeley, 2013).

### 6.2.2. Expert views

A half day forum on 20 January 2016 on federal state issues pertaining to natural resource and biodiversity management was held at University of Nottingham Malaysia Campus. During the forum, 3 experts shared their views on this topic. The experts were government personnel from the federal Ministry of Natural Resources and the Environment, an environment consultant and a lawyer. Their views and presentations were also captured as expert views for this research. Expert #1 presented on revenue streams under the federal consultations. Expert #2, gave a legal opinion on the federal constitution and ways to improve biodiversity management. Expert #3 presented on land matters and its administration in Peninsular Malaysia. For this chapter, insights from Expert #1 and Expert #2 were analysed. Their talk including the question and answer session was recorded and transcribed verbatim.

### 6.2.3. Observations

I made observations when I visited the study sites as well as ILCs settlements as described in Chapter Three.

## 6.3. Findings

This study is based on the voices from the field to identify perceptions, understand issues as well as recommendations in enhancing biodiversity governance in a federalised system. The data from the interviews were analysed as highlighted in Chapter Three and the three main themes that emerged were grouped under the following headings: 'Laws and Policies', 'Incentives for States' and 'Institutional Reforms' as in *Table 6.2*.

### 6.3.1. Perception of the stakeholders

The general perception from majority of the participants was that the current level of biodiversity governance is rather weak. The participants attributed this weakness mainly due to the dichotomy in the federal constitution. The issue of not having uniform laws and streamlined institutions on matters related to biodiversity across the states in Peninsular Malaysia came up very often in the interviews.

*Table 6.2: Summary of key issue and recommendations highlighted by interviewees and experts*

| Laws and Policies | |
| --- | --- |
| **ISSUES** | **RECOMMENDATIONS / VIEWS** |
| • Polices by the Federal Government does not get translated into implementation at State level <br> • International environmental agreements are hardly known or implemented at State level <br> • National Biodiversity Council decisions not fully implemented <br> • Different laws on biodiversity related matters at each State is the problem <br> • States will not want to give up their right of land and natural resources. <br> • Absence of constitutional provision on biodiversity and environment. <br> • De-centralised governance of biodiversity and related policies is the main problem, particularly in Peninsular Malaysia <br> • Absence of a nation-wide PA System/Framework brings about different standards in PA management quality and overall biodiversity management. | • Compliance and monitoring of policies/laws <br> • Monitoring and reporting of National Biodiversity Council (NBC) decisions <br> • Harmonisation of laws /polices <br> • Amend the Constitution to have a new subject matter (i.e. Biodiversity and or Environmental management) in the concurrent list of the Ninth Schedule <br> • Amend the Constitution by moving subject matters like 'Forestry' from State to Concurrent list <br> • Amending the constitution given the political scenario now, is very unlikely to happen <br> • The need for PAs to have management plans to enhance biodiversity management and conservation. <br> • Explore using Schedule 9 of the Constitution to harmonise PA management by reviewing the National Parks Act 1980 |

| Incentives for States to manage Biodiversity | |
| --- | --- |
| **ISSUES** | **RECOMMENDATIONS** |
| • States have other priorities and do not see the long-term benefit of keeping forest. <br> • States may want to manage biodiversity differently. <br> • Benefit sharing of biodiversity conservation and sustainable use (returns from activities shared by Federal and state). | • Need to demonstrate benefit to the states to conserve biodiversity <br> • Explore new and alternative sources of funding such as Payment for Ecosystem Services (PES) and Reducing emissions from deforestation and forest degradation (REDD+) (both federal and state) |

| | |
|---|---|
| • No incentive for the states- so they develop | • Empower States to manage and be given the adequate resources and empower them with proper check and balance, including performance-based incentives to carry out conservation and management on some of the state lands. |
| • The pressure over resource extraction for socioeconomic development is high | |
| • States would never give up their land rights as worry they will lose control and revenue | |
| • Amending the Constitution is a big task and would require huge political will to include or transfer 'revenue streams' from federal to state | • The current structure can be explored to incentivise the State by providing funds and secondment of personnel. |
| • The provisions of the constitution may limit funds from federal to state | • The National Conservation Trust Fund for Natural Resources (NCTF) to explore ways to channel funds to states for conservation. |
| • ILCs have limited resources and opportunity to derive income from conservation initiatives | • Include ILCs in management and provide alternative livelihood options |

**Institutional Reforms**

| ISSUES | RECOMMENDATION |
|---|---|
| • State have weak institutions for biodiversity management | • Secondment of Federal officers to State agencies |
| • State lack capacity on biodiversity issues | • Co-management with State as an option (Cooperative Federalism) |
| • Weak mechanism for federal state coordination on biodiversity issues | • Establish a state level biodiversity committee |
| • ILCs currently do not participate adequately in biodiversity management | • NBOS[*] approach for better management and enforcement |
| • Private sector and other stakeholders participation inadequate | • Other stakeholders especially ILCs can assist in management of biodiversity especially in PAs as they have traditional knowledge (TK) and know the area the best. |
| • Weak science policy interface in biodiversity management | |
| • Optimise the use of manpower in Department of Wildlife and National parks (DWNP) and Forestry Department Peninsular Malaysia (FDPM) | • Create a science advisory platform on biodiversity (national IPBES) |
| | • Manpower redeployed and streamlined in DWNP and FDPM |
| • Lack of coordination and cooperation between FDPM and DWNP | • Restructure DWNP and FDPM to be a single biodiversity technical and enforcement agency |
| • Ministry of Natural Resources and Environment (NRE) not fully equipped to implement biodiversity related activities | • Pursue the establishment of National Biodiversity Centre |

This has made the translation of international commitments under the CBD as well as national polices related to biodiversity such as the National Policy on Biological Diversity (1998, revised 2016) difficult to be implemented at state level. One of the federal officers explained that due to the provisions in the constitution:

*"Malaysia has signed nearly all the international treaties with regard to environment and biodiversity. It's we the Federal officers that mainly attend these meetings. We try to translate these international commitments to national policies where relevant, but the uptake by the state governments is not forth coming as they lack resources and the institution at state level for implementation. They (the State) do not have to follow our national policies as forestry and land is State matter."* (Interview, senior federal officer #G2, September 23, 2015)

A participant from the indigenous community picturised the degradation of biodiversity over the years by describing of his 'home' (forest) has changed so much over the years:

*"Our way of life is threatened as the rivers are murky due to logging upstream. We can't get enough fish supply and the deer we used to hunt for food is a rare sight. When I was a kid, this forest was our Tesco – we get everything from food to medicine but now we have to go to 'pekan' (town) to get things."* (Interview, indigenous community elder and medicine man #L1, October 08, 2015)

This perception of the poor management and conservation of PAs and wildlife in Peninsular Malaysia is also reflected in the literature (Clements *et al.*, 2010; Nagulendran *et al.*, 2016).

## 6.4.    Main issues and recommendations

### 6.4.1.  Laws and policies

Since Malaysia is federation made up of 13 states, there are different laws as well as power to manage biodiversity.

> *"While in Malaysia we have national polices for biodiversity, environment, climate change, eco-tourism and many others but the implementation suffers especially if touches upon state matters."*
> (Expert #E2, January 20, 2016)

It was observed that the States fear of giving up their power on land. All the State government participants interviewed, were unanimous about this matter. The 3rd Malaysian Plan 1976-1980 (a federal document), it was proposed 22 new PAs be formed in Peninsular Malaysia (EPU, 1975). For example, it was proposed that an area in the state of Johor and Pahang known as Endau Rompin be made a national park and for federal government to manage (Aiken & Leigh, 1984). But the state government of Johor developed their own state law, Johor National Parks Corporation Enactment, 1989 to make this area a national park under state jurisdiction - the Endau-Rompin National Park was established in 1993 under the Johor State jurisdiction (NRE, 2015). Although it uses the word 'national' it is a state park as it is managed by the state of Johor. One officer from the federal government had this observation:

> *"Although in the 3rd Malaysian Plan, the federal government identified new areas as protected areas and parks. The federal government also drafted the National Parks Act in 1980 to facilitate*

*this policy call, but no state came forward to designate any parks*

*under this federal law.”* (Federal officer #G11, June 18, 2016)

This view was echoed by an academic:

*“The federal act [referring to National Parks Act 1980] was not used for a*

*long time. Only much later [in 2003] due to political intervention at high*

*level mooted by the strong campaign from NGOs and some of us at the*

*university, the Penang State Government agreed to save a portion of the*

*Penang Hill area. Since the state had little funds to manage this area, the*

*state agreed to gazette the Penang National Park under this Federal Act.*

*This was done with the condition that the Federal allocates sufficient*

*operational and development budget and for the DWNP [a federal agency]*

*to manage the national park.”* (Academic #A4, November 25, 2015)

A state official highlighted the following on the reluctance of the States to designate areas under a federal law:

*“As it is, most of the matters (in Federal Constitution) are under*

*federal government, we have only matters like land and forest under*

*us and we can’t give that up. It’s a source of important revenue for*

*the state.”* (Senior state official #G5, October 30, 2015)

This sentiment was also shared by another state participant about why states tend to use state legislations to designate a protected area:

*“If we designate under a federal law, we may not get the revenue*

*from entry fees as well as ecotourism activities and may lose control*

*over the area.”* (State park official #G7, October 06, 2015)

The issue about federal-state conflict about land matters has also been cited in literature in the creation of the Belum State Park (in State of Perak) as well as the Endau Rompin National Park in Johor (Aiken & Leigh, 1988; Schwabe et al., 2014). The creation of PAs by different States using their own laws has brought about jurisdictional conflicts. The Department of Wildlife and National Parks, a federal agency which oversees wildlife in Peninsular Malaysia, is unable to operate in parks managed by states under state laws. This makes enforcement of the Wildlife Conservation Act, 2010 weak. Some states parks have very limited personnel as rangers to effectively curb poaching. A participant said:

> *"The different laws make enforcement weak and ineffective as some state parks have very few men to do patrolling and this makes some parks very vulnerable to poaching."* (NGO #N1, October 06, 2015)

When highlighted to the participants that the implementation of international treaty is a federal matter and the constitution has given the federal government power to enact laws regarding its obligation to implement treaties such as CBD, interestingly most of the federal government officials were rather unanimous on highlighting that this is a sensitive issue and may pose problems in federal-state relations as highlighted in Chapter Four of this thesis. A senior federal officer had this to say:

> *"You are right, we* (referring to federal government) *have Article 76 to implement international treaties, the Federal Government is very cautious to use this right as it does not want to upset the states and the state rulers as this are very sensitive and delicate matters."* (Senior federal officer #G1, September 28, 2015)

A few participants from government, academia and NGO, suggested it is about time the Federal Constitution be amended. They felt it was a document prepared by the British that had served its intended purpose during the time of independence and needs to be updated with emerging issues as reflected by a participant:

*"... the constitution has no reference to biodiversity. Probably nobody even spoke about it in the 50s. But in present day we need some supreme direction on this important issue. Hence, it's time to amend the constitution which was written by the British. We got to take charge.....if not, we just be talking and talking about this issues with no concrete solution."* (NGO #N4, March 22, 2016)

While most of the participants felt the constitutions needs to be amended, they also highlighted given the current political scenario there is currently very little political will to amend the constitution for environment and biodiversity matters. One of them said this is because federal government wants to *'jaga hati'* (a local expression, meaning to please someone) states for political mileage.

While amending the constitution as reflected may take time and political will, the participants suggested to also explore harmonising laws related to biodiversity such as on PAs. This would require a comprehensive review of existing laws related to environment and biodiversity (Hezri, 2016) to address biodiversity governance adequately while meeting Malaysia's international obligations under CBD. A few academics and an expert suggested a cooperative federalism approach among others by having an overarching national law on biodiversity as the approach taken by Australia:

*"...we could take the approach similar to Australia by having a national law, Environment Protection and Biodiversity Conservation Act (EPBC Act, 1999) to address internationally and nationally important biodiversity. This will not take state rights and we can get them to co-manage the area."* (Expert #E2, January 20, 2016)

In the long run however, most of the academics and NGOs including some federal officers felt, if there is adequate political will we should amend the constitution by including a specific clause on biodiversity and/or environment with clear definitions. This idea was also supported recently by the outgoing Chief Justice of Malaya, during his opening remarks at the Legal Year 2017 Forum, when he said "it would be ideal if our Federal Constitution is amended to expressly include a right to a clean and healthy environment as is found in numerous other modern constitutions" (Koshy, 2017). The respondents also felt it may be viable to follow what India did in 1976 to move 'forest' from state list to concurrent list (Chandiramani, 2004). This would give better check and balance on forest clearing activities.

6.4.2.   Incentives for States to manage biodiversity

The states have narrow revenue streams as provided for under the constitution and many still depend highly on natural resources as source of income.

*"......the proportion of revenue federal and state obtain is 9 to 1 and states obtain their revenue mainly from land related matters."* (Expert #E1, January 20, 2016)

This sentiment was generally echoed by participants from the government, academia and NGO sector. It was reported that in 2015, according to the chief minister of the state of Kelantan, 29.12% of the state revenue came from logging activities (The Star, 2016). A NGO observed:

> *"We have been lobbying to get an adjacent forest area to this park* [had to remove parks name, to not compromise identity of respondent] *to be protected, but the state government is very reluctant, and that area is a production forest. But we have highlighted that that area is rich in biodiversity such as tigers, elephants and 10 hornbill species is found there. The state needs funds and the federal government is also not giving any incentive for conservation. So states have not much choice but to harvest the forest and other natural resources."* (NGO #N2, December 04, 2015)

States have also been more cautious after the enactment of the 1974 Petroleum Development Act which gave exclusive rights to PETRONAS as the federal government owned company to exploit petroleum resources in all states in Malaysia (Musa, Nawi and Alias, 2014). Originally all natural resources were state matters, this 1974 law gave the rights over petroleum to federal through PETRONAS. Under this law, states where petroleum is found gets 5% royalty payment from the federal government.

> *"Given the political scenario, it may be difficult to amend the constitution, to enable Federal to strengthen biodiversity management for example in protected areas. The buy-in from states is difficult. The states must be shown some tangible benefits in terms*

*of dollars and cents. Just telling them conservation is for ecosystem*

*services or for their grandchildren will not work. They need money*

*and development. They have voters to look after."* (Senior lecturer

#A1, May 06, 2016)

Malaysia, in a recent study was highlighted as 7th in terms of underfunding

for biodiversity conservation compared to other countries (Waldron *et al.*, 2013).

This means there is not much funding available to be channelled to states to fund

conservation and Malaysia may need to look at alternative sources of funding as

highlighted by the following NGO:

*"To start off, very little funds go for conservation. The government*

*has other priorities. It's time we seriously looked at alternative*

*sources of funding for conservation. I suggest we should look at PES*

[payment for ecosystem services] *and other mechanisms or not we*

*will continue to lose forest."* (NGO #N3, October 29, 2015)

Participants from the indigenous community agreed in their response that

they feel they have lost the right over their land and felt they should not be

restricted to sell forest produce to make a living. The depletion of resources for

their consumption requires them to have cash to buy household items:

*"When our land is conserved, we face problems. Authorities do not*

*let us sell forest produce claiming it's against the law. Many of our*

*youths have left to work in towns for very low wages. I am lost on*

*how to survive as this is the only thing I know."* (ILC #L3, December

21, 2015) [note: this participant used to sell herbal vegetable called

'petai' (*parkia speciose*), rattan, honey and bird nest – now his relatives supply him food and basic needs]

ILCs who were met during this study lamented that they have been marginalised from the entire picture. In many cases, their 'homes' (the forest) had been degraded and if an area is changed to a PA, they are hardly consulted and do not participate in the management of the area and deprived of potential revenue streams from eco-tourism. One ILC participant had this to say:

*"It does not matter who [federal or state] manages. We are the original people of this land. When authorities come to our 'home' (forest) they must respect our ancestral grounds. We should be consulted and given opportunity to participate in the management of the area (our 'home') as well as given the opportunity to be involved in ecotourism. We do not want to be just show case for tourist and get very little in return from tour operators. This makes life difficult as government agencies tend to control what we can do in our own 'home' once it is a PA" and the adjacent forest has been degraded by loggers. What do we do?* (ILC #L1, October 7, 2015)

These findings do correspond to a recent study about ILCs in water shed area, where poverty levels are high and it makes these communities very vulnerable in the absence of alternative sources of income for them (Kari and Masud, 2016). From the observations, the quality life and socio-economic situation in several settlements that he visited show clear signs of poverty (see *Figure 6.1*). Nevertheless, there are also some ILCs settlements that have embraced mainstream development and culture, have much more 'material' progress and facilities such as schools, clinics and paved roads.

*Figure 6.1: Photos from field work on the living conditions of ILCs*

*A: Orang Asli woman and children fishing as fish is an important protein source; B: a dilapidated toiled that was built by the government; C: A typical Orang Asli house; D: interior of Orang Asli's house.*

Expert (#E1) felt that the only way forward is to enable the better conservation of biodiversity is for a scheme to be developed within the existing framework and using the National Conservation Trust Fund established in 2013 to channel more funds to the states for biodiversity. The need for more funds to be channelled to states was also the view of majority of the participants from the state governments, NGOs and academics. A senior researcher in agreement noted the following:

> *"If we maintain status quo, biodiversity will lose. Federal must compensate states for conservation. A scheme can be drawn up*

*regardless of who (which Party) is ruling the state, if not states will*

*continue to exploit their resources despite what the polices at*

*federal level say, as states have very little income."* (Senior lecturer

#A2, April 01, 2016)

The above sentiment is also reflected in the actions of states in pursuit of socio economic development  where in recent years more than 50% of all the new oil palm areas in Malaysia, were from forest conversion (Hansen et al., 2015).

### 6.4.3.  Institutional Reforms

In Peninsular Malaysia, due to the dichotomy in the federal constitution, state governments have right to govern over land and forestry matters.

*"You must understand we are crippled by the lack of staff and a*

*proper mechanism or set up to manage biodiversity. Our hands are*

*already full. The federal comes up with many policies but how are*

*we to implement. We just do what we can. They [federal] must assist*

*us."* (State Executive Council (EXCO) member #G3, November 25,

2015)

Most of the State officials as well as park staff echoed the above sentiments. Previous studies have shown that there is acute  shortage of park personnel in PAs managed by states (Clements *et al.*, 2010; Schwabe *et al.*, 2014b). Expert #2 also observed that in the 2004 restructuring of the Cabinet which saw the creation of NRE, where DWNP and FDPM placed under this ministry. Nevertheless, over the years cooperation among these agencies are somewhat limited due to legacy issues and FDPM is still very dependent on state government instructions. These views were also shared by a participant from the federal government;

*"…. we need to work much closer. We need the forest landscape secured to secure wildlife. But there seems to be a hurdle to work together. Sentiments aside, maybe it's about time we merge these two departments [FDPM and DWNP] as a single technical and enforcement agency for biodiversity… what you think?"* (Senior federal official #G9, February 19, 2016)

Many participants from the government, academia and NGOs felt that more cooperation between these two departments (FDPM and DWNP) is required to avoid redundancy and to optimise the use of personnel. A few participants felt that even NRE lacks qualified personnel to effectively manage biodiversity and NRE does not have an effective mechanism to use science to guide policy:

*"….. generalists make policies in NRE. Many of them hardly stay on for more than three years and they get posted elsewhere. This high turn over makes management of biodiversity very difficult. Since those who handle biodiversity come from various backgrounds, the job learning curve is long. Many have no science background and lack empathy for science and makes science policy interface weak. We scientist often get frustrated…."* (Senior researcher #A3, December 10, 2015)

Most of the participants also felt that private sector and NGOs should also support biodiversity conservation. Most of the NGOs, ILCs and academics felt we need to enhance the participation of ILCs in biodiversity conservation:

*"…they live there [PAs], only fair they be given a voice and role in the management. There are many models of successful CBNRM.*

*This approach, I believe will be win-win for all.*" (NGO #N4, March 22, 2016)

Most of the respondents called for more cooperation between federal and state governments in a cooperative federalism framework to enable governance. This will facilitate co-management by sharing of resources including manpower by secondment of federal officers at state agencies. It was also suggested by many to have management plans and explicitly include the participation of ILCs while recognising their traditional rights.

The participation of ILCs is crucial as they have not been actively participating in conservation initiatives (Nagulendran *et al.*, 2016) and it is very optimistic to see the revised NPBD has dedicated provisions to facilitate their participation (NRE, 2016). The participation of ILCs is important for a win-win scenario to enable conservation to go alongside development (Jewitt *et al.*, 2014).

Most of the academicians and NGOs also called for the need for more science policy interface. Two respondents from academia proposed the idea for a national IPBES. IPBES is the acronym for Intergovernmental Panel for Biodiversity and Ecosystem services establish in 2012 by the United Nations as a mechanism to provide scientific information on biodiversity and ecosystem services in response to requests from policy. In Europe similar platforms have been established to integrate the broad range of interdisciplinary knowledge relating to biodiversity and ecosystem services, to inform decision-making (Carmen *et al.*, 2015).

Most of the respondents from the government sector felt at least a state level biodiversity committee should be established for coordination with the federal and

guide implementation of relevant policies at state level. The recommendations are captured by the word cloud generated with NVivo 10 as in *Figure 6.2*.

*Figure 6.2: Word cloud (filtered) showing key areas recommended for strengthening biodiversity governance*



## 6.5. Discussion

Biodiversity loss is a global phenomenon which requires action at local levels. This study focused on governance of biodiversity in a federalised system and it provided an opportunity to bring to the forefront ground level perspectives on this complex issue.

Framing the discourse, by analysing the findings from a postcolonial and political ecology framework, three main arguments emerge to explain the issues and the way forward to strengthen biodiversity governance in Peninsular Malaysia.

### 6.5.1. Government Administration in a postcolonial era: 'Malaysian hardware, British software!''

The British colonial imprints in the formation of Malaysia are still felt to this day. In forwarding the British interest to curtail communist insurgence after World War II, they had to speed up the independence of Malaya. To appease the Malay Rulers of each state who were against a unitary government (as originally proposed by the British), they suggested a federal system where the State Rulers were given power

over land and forest. This dichotomy has challenging consequences on biodiversity conservation in the present day Malaysia as emerged from the findings of this study and analysis of secondary data as in Chapter Five. States in fear of losing rights over their land have come up with State laws to manage PAs for example, with very little capacity in terms of manpower and financial resources. The assignment of the bulk of the revenue streams to the federal government in the constitution, give States very little choice but to exploit their natural resources.

The present day government service in Malaysia is very much based on the British template and the ethos of the 1845 Northcote–Trevelyan Report recommendations (Siddique, 2013). The Northcote–Trevelyan Report (1845) recommendations were the foundation to improve the UK civil service including areas colonised during that period (including Malaysia) (Commission, 2012). As a continuity of the colonial legacy since 1904, the Federal Ministries are being staffed at the officers' level from the Diplomatic and Administrative Service Scheme (PTD) (Poocharoen and Lee, 2013). These officers are well trained in administrative, financial, diplomatic and human resource matters.

The problem lies when they are in a technical/policy section of a Ministry (for example Biodiversity and Forestry Division in NRE) as these officers come from diverse backgrounds and not trained in these technical areas. This poses problems in the effective management of biodiversity at federal level. At state level, usually it's just one or two officers (PTD scheme – depending on State) at the State Economic Planning Unit in charge for all biodiversity and environment matters. This acute lack of capacity impedes biodiversity management at state level. The system inherited from the British of not having technical experts in policy sections of government (especially at federal ministries and State Economic

Planning Unit) that deal with technical issues must change. The 'subject matter expert' programme introduced recently by the Public Service Department which is clarified in  Service Circular 7/2016 dated 20th December 2016, provides an innovative approach that is very much welcomed to address this issues (PSD, 2016).

### 6.5.2. The 2020 Dream: Socioeconomic development and conservation in a postcolonial era

Malaysia has a vision to be a fully developed nation by 2020.  In pursuit of this vision, Malaysia has made much economic progress in the recent years (Rasiah, 2011) but there are states especially in the east of Peninsular Malaysia that are lagging behind (Musa, Nawi and Alias, 2014). For example in 2011, about 8% of the people in Kelantan State were living under the poverty line compared to the national average for the same year of 3.7% (The Star, 2011; Hatta and Ali, 2013). Early mining areas and rubber plantations as well as trading ports were located in west coast where colonial infrastructure development concentrated (Jomo and Hui, 2003). In present day Malaysia, this uneven development poses even more challenges where lesser developed states depend on their forest and natural resources as main revenue streams compared to states in the west coast, which have devastating effects on biodiversity (Saadatkhah *et al.*, 2016).

### 6.5.3. The way forward: Reforms towards a sustainable development trajectory

A temporal intervention is proposed based on the findings of this study to enhance biodiversity governance in Peninsular Malaysia. In the short term (5 to 10 years), coordination mechanisms between federal and state agencies can be established or

strengthened. At the same time, at the Federal level, NRE could establish a National Biodiversity Centre (NBC) with technical and policy expertise. The setting up of NBC was agreed at the National Biodiversity-Biotechnology Council (now known as National Biodiversity Council) meeting in 2009 and a blueprint has been produced on the establishment of this centre (FRIM, 2012). Now a task force in NRE has been established to oversee the establishment of this centre. The NBC model can be replicated by the states at a smaller scale, with the assistance of the federal government in terms of funding. A national science-policy platform should also be established under the national biodiversity council to strengthen decision making and policy formulation with regards to biodiversity. The newly proposed 'subject matter expert' by the Public Service Department could also serve as an interim measure to retain expertise.

In the medium term (7 to 15 years), laws at state and federal government level could be harmonised. A Co-Federalism approach can be applied to enable better sharing of resources for the management of biodiversity. A similar approach taken by Australia that came up with the EPBC Act, 1999 is also worth examining further to be applied here in Peninsular Malaysia. The approach by Australia as reported in their 4th report to CBD has a win-win situation for not only federal and state governments but also biodiversity conservation. Clear provision for the participation of ILC must be created in PAs (Adams and Hutton, 2007). A national framework on PES and REDD+ is recommended to be in place to enable states to obtain new sources of funding for conservation as described in Chapter Four.

In the long term (12 to 20 years), Malaysia could update its constitution to include biodiversity and environment with clear definitions and be placed in the concurrent list for better buy in by the states. Probably by this time the idea for the

merger of the forestry and wildlife department as a single agency will be palatable as what has taken place in other countries such as Thailand (MNRE, 2014). Having a clear provision in the constitution will pave the way for a co-federalism approach in biodiversity governance to ensure Malaysia polces and laws on biodiversity can be translated to concrete actions for a sustainable future.

## 6.6.    Conclusion

This study provided insights on the impact of federalism on biodiversity governance in Peninsular Malaysia. The data from the interviews as well as experts seem to have high level of agreement and enable us to triangulate the findings and provided us with a holistic view of the current situation with a plethora of issues as well as recommendations coming from the respondents.

Admittedly this study is not without limitations. Given that this study focused on Peninsular Malaysia which has a federal system of government, our findings may not be applicable to governments with other systems of governance. Nevertheless, this study will be useful for governments with a federal system and this study provides useful empirical information to expand the current literature on biodiversity governance in a federal government setting.

This study will be useful for furthering the theoretical and practical applications of its findings. It adds on the literature of the political ecology framework as well as post-colonial theory in the context of biodiversity governance in a former British colony which is witnessing rapid economic growth, balancing environment and biodiversity concerns with development is a constant challenge as surfaced in this study.

# CHAPTER 7: Terrestrial Protected Areas in Peninsular Malaysia – Overview and Analysis

**Abstract**

Protected areas have been promoted in the recent years for the long-term conservation of biodiversity. During the British colonial period in Peninsular Malaysia, to arrest the growing problems associated with biodiversity loss, terrestrial protected areas (PAs) were created. By the end of the colonial era, PAs covered 4.7% of Peninsular Malaysia. In the present context, if 'protection forest' was not included in the definition of PAs, there has only been around a 1% increase in PAs. Hence, the aim of this review is to obtain better insights on the establishment of PAs and the challenges in designating new PAs in present day Peninsular Malaysia. This review is guided by the following objectives: (i) examine the establishment of PAs over the years; (ii) review policies on PAs; and (iii) challenges in establishing PAs. The methodological approach involved analysing relevant documents such as related policies and reports on PAs. A very important catalyst that moved the colonial power in creating PAs was the Wildlife Commission Report (1932). This report facilitated: a) the establishment Taman Negara National Park (1939); and b) the formation of the Game Department (1937) later renamed to Department of Wildlife and National Parks (1978). The interim Malaysian PA Masterplan Report (draft, 2015) with the inclusion of 'protection forest', PA coverage for Peninsular Malaysia is 13.2% (Malaysia: 12.1%) while the global Aichi Biodiversity target is 17% by 2020. It looks certain; Malaysia will not achieve this target by 2020. In this regard, much must be done to strengthen PAs and the challenge is a lack of incentives to create PAs due to economic development and lack of understanding of the values of PAs. The different laws

and institutional framework at State and Federal level with varying capacity, further complicates PA governance. This chapter concludes by providing some possible way forward to strengthen PA governance in Peninsular Malaysia for the long-term conservation of biodiversity.

*Keywords: protected areas, Aichi Targets, political ecology, postcolonial, biodiversity governance*

## 7.1. Introduction

Protected areas (PAs) are the cornerstones for biodiversity conservation (Dudley *et al.*, 2005; Lausche, 2011). PAs have been part of many cultures and some historians have highlighted for example in India, areas known as sacred groves which include mountains and forest areas protected way before 4th century BCE for their cultural and spiritual significance (Kent, 2013). The tradition of protecting biodiversity (landscape such as mountains, springs and certain tress and animals) have been in existence in other cultures also such as in Japan, Africa, Latin America and Europe (Dudley, Higgins-Zogib and Mansourian, 2005). In Malaysia the indigenous communities have traditionally protected their ancestral burial grounds and surrounding forested areas including sacred ecosystems like mountains (Nicholas, 2006) .

It was only in the 19th century that the modern approach to PAs emerged with the English poet William Wordsworth in 1810, conveying his view of the Lake District in England as a "national property." In 1832, the American poet, explorer and artist, George Catlin, called for *"... a national park, containing man and beast, in all nature and the freshness of the beauty of their nature."* In response, the US Congress in 1864 gave a small portion of the current Yosemite National

Park to the state of California for "public use, resort and recreation". The first 'real' national park was established in 1872 when US President Ulysses S. Grant signed the Act of Dedication law that created the Yellowstone National Park (Phillips, 2004).

At the same time many countries and colonial governments were also establishing areas preserved for natural beauty to be enjoyed by current and future generations and reduce environmental degradation by *in-situ* conservation measures. For example the British in Australia established the Royal National Park in 1879 near Sydney (Government of Australia, 1998). In Malaysia to reduce the impact on environment due to clearing of land for the introduction of rubber and mining activities as well as establishing areas for licensed hunting, the British introduced areas for protection, with the Chior Game Reserve in Perak (4,330ha) established in 1903 as the first PA in Malaysia (Aiken and State, 1994; NRE, 2015). The definition of PAs was first universally introduced by the Convention on Biological Diversity (CBD) in 1992 as *"a geographically defined area which is designated or regulated and managed to achieve specific conservation objectives"* (CBD Secretariat, 1992). In 1994 IUCN came up with a slightly refined definition for PAs and in 2008 IUCN revised the definition and was adopted at the World Conservation Congress 2008 as following (Lausche, 2011):

> *"A protected area is a clearly defined geographical space recognized, dedicated and managed, through legal and other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural value."*

The 2014 UN List of PAs has shown that over the years PA numbers and coverage have grown significantly. When this list was first published in 1962, there

were just over nine thousand PAs covering some 2.4 million km$^2$. In 2014 the number of PAs globally was over two hundred thousand PAs covering an area over 32.8 million km$^2$ (Deguignet *et al.*, 2014). The exponential growth of PAs can mainly be attributed to the global movement calling for the need for more PAs with the first World Parks Congress in 1962 (Watson *et al.*, 2014). The 3$^{rd}$ World Parks Congress in 1982 in Bali recommended all countries to have at least 10% of their land as PAs (Naughton-Treves *et al.*, 2005). This momentum was further augmented by the adoption of CBD in 1992 and more recently in 2010 at the CBD's 10$^{th}$ Conference of Parties, where the world adopted the twenty Aichi Biodiversity Targets 2011-2020, which has a dedicated target (Target 11) on PAs as following (CBD Secretariat, 2010):

> *"By 2020, <u>at least 17 per cent of terrestrial</u> and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, <u>ecologically representative</u> and well-connected systems of <u>protected areas</u> and <u>other effective area-based conservation measures</u>, and integrated into the wider landscapes and seascapes."*

The Aichi Targets can be interpreted as having two pathways to contribute to achieving the 17%: a) by establishing PA; or b) by 'Other Effective Area-based Conservation Measures' (OECMs). While there is clear definition on PAs globally, there is lack of understanding and definition on OECMs (WCPA, 2016). At the thirteenth Conference of Parties (COP) to the CBD held in Mexico in December 2016, the COP had requested, for more technical guidance and definition to be

developed on OECMs and presented to the next COP in 2018 (CBD Secretariat, 2016).

The above shows as argued by many that the Aichi Target is vague in its prescriptions (Butchart, Di Marco and Watson, 2016; Hagerman and Pelai, 2016) and in this case Target 11, more work has to be undertaken to bring clarity while there are only three years left to meet these targets. The current global status of PAs is 14.8% (CBD, 2016) which does not include OECMs since the global definition for OECMs is still work in progress (WCPA, 2016). Nevertheless, according to the Global Biodiversity Outlook 4, even without including the OECMs areas, the world collectively has potential to achieve the 17% PAs target by 2020, if current commitments stay (CBD Secretariat, 2014).

Malaysia is a biodiversity hotspot and PAs play a crucial role in biodiversity conservation of this rapidly growing economy (Myers *et al.*, 2000; NRE, 2014a). Malaysia is a tropical country with an average temperature of 28°C and houses some of the world's oldest rainforest and is recognised as a megadiverse country. Malaysia since independence in 1957 has seen rapid economic growth with current GDP at USD 296.2 billion - ranked 36 in the world (World Bank, 2016). Malaysia's pronounced economic success had an impact on the environment as seen with the loss of nearly half of its forest cover since the 1940s (Aiken & State, 1994; FDPM, 2013). It also has witnessed the rapid decline of the charismatic Malayan Tiger (*Panthera tigris jacksoni*) with only 300 individuals left in the wild − 10% remaining compared to 1950s (Lee, 2014; Nagulendran, 2014).

In Peninsular Malaysia, PAs cover 13.2% of the land area. PAs are either managed by federal or state governments (NRE, 2015). To this date, a national PA

system has not been established and there is an absence of a national PA definition and the CBD or IUCN definition of PAs has been used as a guide (though not officially) (NRE, 2009). The challenge with establishing PAs is due to the fact that land and forest is a state matter under the Malaysian Constitution (Government of Malaysia, 2010a) and states view them as well as natural resources as revenue streams to fuel development in their respective states (see Chapter Five of this dissertation). A recent study highlighted the federal-state tension and absence of national PA framework as priority issues for conservation in Peninsular Malaysia (Nagulendran *et al.*, 2016).

This review focuses on PAs in Peninsular Malaysia, with the aim to obtain a better perspective in the establishment of PAs and the challenges in designating new PAs while prescribing some ways forward. This review derives insights from the postcolonial and political ecology frameworks as described in Chapter Two and has threefold objective as following: (i) to examine the establishment of PAs over the years since colonial times to present day Peninsular Malaysia; (ii) to review policies on PAs; and (iii) challenges in establishing PAs.

## 7.2.    Methodological approach

The general methodological approach was highlighted in Chapter Three.

Government of Malaysia's policy documents on biodiversity such as the National Policy on Biological Diversity 1998 (revised 2016); Assessment of Biological Diversity in Malaysia (1996); the 1996 Master Plan on Capacity Building & Strengthening of the Protected Areas System in Peninsular Malaysia prepared by Department of Wildlife and National Parks (DWNP); the draft Interim Master List of Protected Areas in Malaysia prepared by the Ministry of Natural

Resources and Environment Malaysia (NRE) (2015, unpublished); Common Vision on Biodiversity prepared by NRE, 2009; Project Document of the project Enhancing Effectiveness and Financial Sustainability of Protected Areas in Malaysia (a national project funded by the Global Environment Facility), 2009; The Wildlife Commission Report, 1932; annual reports of the Department of Wildlife and National Parks (DWNP) and Forestry Department Peninsular Malaysia (FDPM), were referred to and analysed

I referred to Malaysia's reports to the Convention on Biological Diversity (CBD) and the report of the 3rd Consultative Workshop on National Framework for PAs held from 14 to 16 November 2016 which I participated. See Appendix I for a list of relevant policies and reports reviewed and analysed.

## 7.3.    Protected Area Governance in Peninsular Malaysia

### 7.3.1.   PA in Peninsular Malaysia: pre-independence era

Malaysia was under colonial rule for 4 centuries and just before independence in 1957, it was under British rule. In the early 20th century when modern PAs were being established in many western countries, The British also established areas for conservation as well as game areas in their colonies. In Peninsular Malaysia there was a surge of PAs creation especially in 1920s and 30s due to the concerns of the British on biodiversity loss as the Javan Rhinoceros (*Rhinoceros sondaicus*) became extinct in Peninsular Malaysia in 1932 (Loch, 1937). The expansion of plantation areas and the indiscriminate killing of wildlife prompted the British to establish a commission of enquiry headed by T.R Hubback (first honorary chief game warden) in 1930/31 to protect the flora and fauna of Peninsular Malaysia. This commission's three volume report is known as the 'The Wildlife Commission

Report. This report's main recommendations related to PAs are: (i) appointment a Chief for wildlife and national parks; (ii) a department be established to coordinate activities among the states; (iii) establishment of a Wild Life Fund; (iv) a national park be created around Gunung Tahan located in Pahang State which is Peninsular Malaysia's highest peak as the area has rich flora and fauna; (v) the Krau Game reserve be converted to a national park; and (vi) wild bird protection areas should be created (Hubback, 1932; DWNP, 1996).

Many of the Commission's recommendation were not implemented immediately due to the Great Depression in 1930s. In following the recommendations of the commission, in 1939 the largest PA was created in central Peninsular Malaysia known as King George IV National Park (now named Taman Negara National Park). This national park (4,343km$^2$), sits on an area covering three states, Kelantan, Pahang and Terengganu (Hilsop, 1961). Hubback proposed for a separate and centralised Game Department but due to the effects of the recession, Game Department was instead established in each State in 1937. Until Hubback's report was published, Peninsular Malaysia had only seven PAs (Hubback, 1932; DWNP, 1996). But after the commission's report there was a surge of PAs being established. During the British rule 24 PAs were established from 1903 to 1957 covering about 4.7% of the land area (Aiken & State, 1994; NRE, 2015). This coverage however excluded forested areas which were not protected for wildlife and birds, as many of the forest areas were involved in logging activities.

The Japanese Occupation (1942-45) and the rise of the communist party disrupted the momentum for conservation (Andaya and Andaya, 2001; Kathirithamby-Wells, 2005). There were no PAs created in the 1940s and only in

1954 PAs were created again (see DWNP, 1996). The British returned in September 1945 after the brief Japanese occupation and formed the Federation of Malaya in 1948 (Andaya and Andaya, 2001). In 1955 the Wild Animals and Wild Birds Protection Ordinance was introduced to the whole federation. However the administration of wildlife and PAs were still under respective state governments (DWNP, 2016).

To date (as of March 2017), nearly a century later a couple of key recommendations of Hubback's 1932 report did not materialise namely the creation of a Wildlife Fund and the upgrading of Krau Game Reserve in Pahang to a national park.

### 7.3.2. PAs in Post-Independence Era

At independence when the constitution was drawn, Malaysia had a federal system of government where land and forest are under state purview and national park and wildlife are concurrent matters where either federal or state government can legislate (Government of Malaysia, 2010a). The dichotomy had posed challenges in post-colonial years for biodiversity conservation in PAs. This can be reflected with only an extra 1% of the land area of Peninsular Malaysia was added as PAs after independence as reported in the DWNP published document "Capacity Building & Strengthening of the Protected Areas System in Peninsular Malaysia: A Master Plan (1996)". This document reported total PAs as of 1996 is 5.7% of total land area in Peninsular Malaysia. This document also did not include forest areas which were not protected for wildlife and birds (DWNP, 1996).

### 7.3.3. The Steven's Report, 1968 and Malaysian Nature Society Blue Print, 1974

In 1966-1968 with assistance of the Colombo Plan, a study was carried out by W.E. Stevens "The Conservation of Wild Life in West Malaysia". This study completed in 1968 found that many of the recommendations of the 1931 Wildlife Commission's report have yet to be implemented. Steven's in agreement with Hubback, recommended the centralisation of the Game Department equipped with adequate staff and funds. In 1978 the Game Department was renamed to Department of Wildlife and National Parks (DWNP) (Kathirithamby-Wells, 2005; National Archives Malaysia, 2012). Subsequently the Protection of Wildlife Act was passed in 1972 and the federalisation of DWNP was completed in 1979 and housed under MOSTE (DWNP, 1996). Though the administration of wildlife and national parks was centralised, DWNP still required the approval of States to gazette reserves, sanctuaries and national parks (Government of Malaysia, 1972, 2010b).

On 13 May 1969, racial riots broke out and Malaysia as a young nation promulgated the New Economic Policy in 1970 as a vehicle to foster national integration. The Malaysian Nature Society (a local NGO) which was formed in 1940, saw this as an opportunity to use fostering nature protection as a catalyst for national integration (MNS, 2013). In 1972, MNS organised a national Symposium on 'Biological Resources and National Development'. This symposium provided the basis for the 1974 MNS Blueprint which set the platform for environmental advocacy in Peninsular Malaysia (Kathirithamby-Wells, 2005; NRE, 2015). The Blueprint proposed the need for key representative habitats of the country to be

preserved and this recommendation was incorporated in the Third Malaysian Plan (1976-1980) (Kathirithamby-Wells, 2005).

### 7.3.4. The Third Malaysian Plan (1976-1980)

The Third Malaysian Plan (1976-1980)-3MP had a dedicated chapter on "Development and the Environment" which clearly recognised *"the interdependence of social, cultural, economic, biological and physical factors in determining the ecology of man"* (EPU, 1975:219). The 3MP was ahead of its time even before the Brundtland Report 1987, to highlight and recognise this synergy of environment with economic development and social (including culture) pillars which later became the building blocks of sustainable development as enshrined in the Rio Declaration on Environment and Development adopted at the Earth Summit in 1992.

The 3MP recognised the need to create more PAs to protect the nation's environment and conservation of different important ecosystems found in Malaysia (EPU, 1975) (see *Table 7.1*). To date all the proposed PAs under 3MP have not been fully established, such as the Ulu Muda Wildlife Reserve (Kedah), Mersing Nature Monument (Johor), Grik Wildlife Reserve (Perak) and Sungai Nenggiri Wildlife Reserve (Kelantan). However, two PAs proposed in the 3MP was established by State Governments. The proposed Belum Wildlife Reserve was established under a state law (Perak State Park Enactment, 2001) as Royal Belum State Park (117, 500ha - almost half of what was proposed in 3MP) (Schwabe *et al.*, 2014a).

*Table 7.1: Proposed PAs under 3rd Malaysian Plan 1976-1980*

## PENINSULAR MALAYSIA: PROPOSED NATIONAL PARKS, NATURE RESERVES, NATURE MONUMENTS AND WILDLIFE SANCTUARIES

| State | Reserve or park | Approximate area (acres) |
|---|---|---|
| Perak | Belum Wildlife Reserve | 531,000 |
| | Grik Wildlife Reserve | 168,000 |
| | Segari Wildlife Reserve | 3,450 |
| | Selama Wildlife Sanctuary | 55,000 |
| | Kuala Gula Bird Sanctuary | 2,200 |
| | Gunong Tempurong Nature Monument | 3,000 |
| Selangor | Batu Caves Nature Monument | 385 |
| | Templer Park Nature Monument | 7,500 |
| | Kuala Selangor Nature Monument | 1,400 |
| Negri Sembilan | Pasoh IBP Research Reserve | 6,000 |
| Johor | Mersing Nature Monument | 46,000 |
| | Padang Mulud Nature Reserve | 5,320 |
| | Johor State (Gunong Blumut) National Park[4] | 128,000 |
| Johor-Pahang | Taman Endau-Rompin National Park[4] | 500,000 |
| Pahang | Tasek Bera Nature Reserve | 82,000 |
| | Menchali Nature Reserve | 1,000 |
| | Tasek Chini Nature Reserve | 12,000 |
| Trengganu | Ulu Trengganu Wildlife Reserve | 288,000 |
| | Dungun Turtle Sanctuary | 800 |
| | Trengganu Bird Sanctuary | 730 |
| Kedah | Ulu Muda Wildlife Reserve | 285,000 |
| Penang | Batu Feringghi Wildlife Reserve | 3,620 |
| Kelantan | Sungai Nenggiri Wildlife Reserve | 91,000 |

The State of Johor also used a state law to gazette the Endau-Rompin National Park (48,905ha – 40% of what was proposed in 3MP) (Aiken & Leigh, 1984). The Johor's action exemplifies the difficulties in enabling federal government to gazette PAs although wildlife and national parks are under the concurrent list of the federal constitution (Government of Malaysia, 2010a). This augments the argument that states do not want to lose their constitution rights over land and forest (Ling, 2011).

### 7.3.5. Capacity Building & Strengthening of the Protected Areas System in Peninsular Malaysia: A Master Plan, CBPAS (1996) and A Common Vision on Biodiversity, 2009

In 1995, the federal Economic Planning Unit in cooperation and financial assistance from Danish Cooperation for Environment and Development (DANCED) undertook the CBPAS project from September 1995 to August 1996 (DWNP, 1996). This is the first project with external assistance on PAs ever since the Colombo Plan Technical Assistance Program in 1966/68 (Steven's report). The CBPAS project produced a master plan focusing on Peninsular Malaysia, which captured and listed all PAs in Peninsular Malaysia. It proposed that a PA System in Peninsular Malaysia be established guided by a PA Policy. CPBAS unveiled that PAs covered 5.7% of Peninsular Malaysia's land area (DWNP, 1996). This report did not include "Protection Forest" of the Permanent Reserved Forest (PRF) established under Section 10 of the Forestry Act 1994 citing difficulty in getting actual data, though it proposed that Protection Forest (approximate 14.4% of Peninsular Malaysia land area) has potential to be counted as PAs once all the overlap with other legal gazettements (such as wildlife reserve) have been refined and actual classification of the Protection Forest have been determined (DWNP, 1996).

CPBAS proposed the need to revise relevant legislation at federal and state government level to enable a harmonised PA System in Peninsular Malaysia. It further called for the increase of DWNP staff to strengthen the management of PAs in Peninsular Malaysia (from 758 to 1,070 staff based on 1995 staffing of DWNP). The report also suggested three specific follow up pilot projects: (1) protected areas policy and review of legislation; (2) integrated land use planning in Johor and

Pahang; and (3) preparation of management plants for four PAs (Krau, Sungkai, Sungai Dusun and Tioman) as well as conducting applied research and public awareness on PAs and capacity building in DWNP. From the available published reports and documents, as to date the pilot activity (1) and (2) have not been carried out though the Protection of Wildlife Act 1972 was repelled and replaced with Wildlife Conservation Act 2010, it did not make any significant changes to the legal framework on PAs. Pilot project (3) has been undertaken where DWNP has gone through a restructuring exercise over the years and as of 2015 there are 1520 positions at DWNP (double the number in 1995) (DWNP, 2016). The management plans have been developed in early 2000 for the sites identified in CBPAS with the support of DANCED but require updating (UNEP-WCMC, 2017).

Another biodiversity project supported by Danish International Development Assistance (DANIDA) from 2007-2010, produced a policy document called the Common Vision on Biodiversity (CVB) which was adopted by the National Biodiversity and Biotechnology Council chaired by the Prime Minister in 2009 (now this Council is chaired by the Deputy Prime Minister and renamed to National Biodiversity Council). The CVB document has a three-prong strategy to strengthen biodiversity conservation: (i) strengthening the Protected Area System; (ii) Land/seascape management for biodiversity; and (iii) mainstreaming biodiversity. The CVB reiterated that as of 2008, Malaysia did not have a national definition on PAs due to the absence of a National PA System as proposed by CBPAS in 1996 (NRE, 2009a).

The CVB further added that with the creation of NRE in 2004 and the placing of DWNP and FDPM under this new ministry, there will be potential to work to strengthen PAs especially in Peninsular Malaysia with the inclusion of

"protection forest" as proposed by CBPAS. The CVB estimated that with the inclusion of protection forest, Malaysia PAs will cover 16.5% of land area (see *Table 7.2*). When this data was extrapolated for Peninsular Malaysia, PAs will cover approximately 19% of Peninsular Malaysia's land area. The CVB however cautioned that the inclusion of protection forest needs the following: (a) ensure inter-agency collaboration including at state level for the long term conservation or secured permanence of these sites; (b) a clear gazette and classification with its precise location identified; and (c) recognised common standards and principles have been complied with under a national PA framework that has to be developed (NRE, 2009a).

*Table 7.2: Present and Potential Protected Areas System as presented in the Common Vision on Biodiversity which was adopted in 2009*

| Region | Protected Areas (PAs) | | | | Permanent Forest Reserve (PFR) | | | | % of land |
| | National / State Parks | Wildlife & Bird Santuaries | Total | % of region | Protection | Production | Total | % of region | |
|---|---|---|---|---|---|---|---|---|---|
| Peninsular Malaysia | 0.54 + | 0.12 ++ | 0.66 | 5.0 | 1.90 | 2.80 | 4.70 | 35.7 | 40.7 |
| Sabah | 0.25 | 0.03 +++ | 0.28 | 3.8 | 0.59 | 3.00 | 3.59 | 48.7 | 52.5 |
| Sarawak | 0.70 * | 0.30 ** | 1.00 | 8.1 | 1.00 | 5.16 | 6.16 | 50.1 | 58.2 |
| **Total** | 1.49 | 0.45 | 1.94 | 5.9 | 3.49 | 10.96 | 14.45 | 44.0 | 49.9 |
| % of total land area | 4.5 | 1.4 | **5.9** | | 10.6 | 33.4 | 44.0 | | 100.0 |
| Potential PA System % | | | **5.9** | | **10.6** | | | | **16.5** |

Notes:
+    An additional 0.04 million ha is double-gazetted as PFR of Peninsular Malaysia
++   An additional 0.19 million ha is double-gazetted as PFR of Peninsular Malaysia
+++ An additional 0.13 million ha is located within the PFR of Sabah
*    Includes 0.57 million ha of proposed National Parks
**   Includes 0.14 million ha of proposed Wildlife Sanctuaries

### 7.3.6.   Draft Interim Masterlist of Protected Areas in Malaysia, 2015

The DANIDA project on Biodiversity (2007-2010) also funded the development of a Master list of PAs in Malaysia. This project was commissioned by NRE with technical assistance from WWF-Malaysia (NRE, 2015). The master list was developed through a multi-stakeholder consultation process involving key agencies and organisations at both federal and state level. The master list

preparation also involved in verification of the PA areas with actual gazette notifications. The IUCN definition (which is similar to CBD's definition) on PAs was used to guide this process of compiling the master list. The master list has taken recommendations from CBPAS as well as CVB and has developed a draft list of PAs for Malaysia. The listing has taken into account areas which have been double gazetted and has provided clear gazette numbers for each PA identified to eliminate doubt of inclusion of areas with inadequate or inappropriate legislative basis, proposed reserves pending gazettement or areas where gazettement was assumed rather than confirmed (NRE, 2015).

The draft master list has identified 214 PAs in Peninsular Malaysia (tabulated from NRE, 2015) under various classes of IUCN protection category as in *Table 7.3* (IUCN, 2003). The bulk (46%, *Figure 7.1*) of PAs in Peninsular Malaysia are under the IUCN category VI (Protected area with sustainable use of natural resources). This draft report recorded that for Peninsular Malaysia, 13.2% of its land area is covered by terrestrial PAs (see *Table 7.4* and *Figure 7.2*). The PAs in this report constituted of: (a) sanctuaries or reserves under the wildlife laws; (b) national parks and state parks under the parks laws; (c) Protection forests [class (b) to (k)] under the forestry laws (see *Table 7.5*); and (d) areas reserved for a public purpose under the land laws. This report among others calls for the need of a national PAs Policy, a centralised PAs registry to strengthen the role of NRE as lead coordinating agency for PAs and as custodian of PAs database. The absence of a clear definition of PAs and consensus among different actors has delayed the adoption of the master list and to this day remains as a draft document, which again signifies the need for federal-state coordination.

*Table 7.3: Number of PAs in Peninsular Malaysia based on IUCN Protected Areas Categories System*

| | IUCN Categories | | Number of corresponding terrestrial PAs in Peninsular Malaysia |
|---|---|---|---|
| I | (a) Strict Nature Reserve<br>(b) Wilderness Area | | 39 |
| II | National Park: for ecosystem protection and recreation | | 15 |
| III | Natural Monument: for conservation of specific natural features | | 0 |
| IV | Habitat/Species Management Area | | 22 |
| V | Protected Landscape/ Seascape | | 40 |
| VI | Protected area with sustainable use of natural resources | | 98 |
| | | **TOTAL** | **214** |

*Figure 7.1: Percentage of PA coverage in Peninsular Malaysia as per IUCN categories*
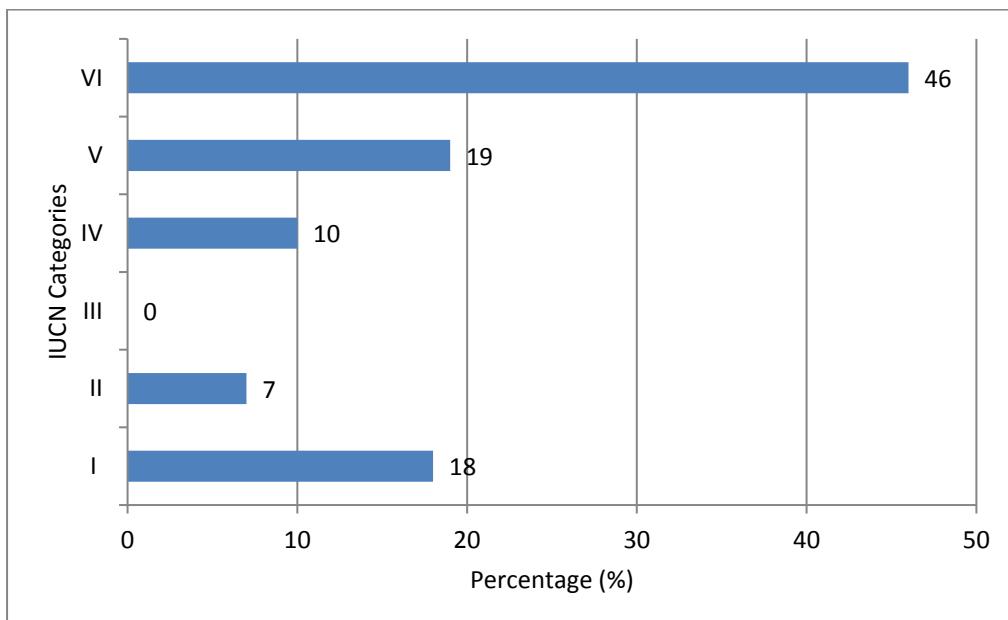
*Table 7.4: Terrestrial Protected Areas Cover in Peninsular Malaysia*

| State | Size of State (ha) | Size of Protected Area (ha) | Percentage (%) |
|---|---|---|---|
| Johor | 1,898,688 | 235,407.8 | 12.4 |
| Kedah | 942,500 | 2.0 | >0.1 |
| Kelantan | 1,510,462 | 127,946.7 | 8.5 |
| Melaka | 165,200 | 106.8 | 0.1 |
| Negeri Sembilan | 665,709 | 57,323.9 | 8.6 |
| Pahang | 3,596,500 | 855,160.9 | 23.8 |
| Perak | 2,100,500 | 286,673.2 | 13.6 |
| Perlis | 79,500 | 4,441.2 | 5.6 |
| Penang | 103,104 | 1,414.1 | 1.4 |
| Selangor | 793,020 | 106,673.1 | 13.5 |
| Terengganu | 1,295,514 | 139,844.1 | 10.8 |
| Federal Territory | | | 0.4 |
| *Kuala Lumpur* | *24,270* | *156.3* | |
| *Putrajaya* | *4,930* | *0.0* | |
| *Labuan* | *9,164* | *0.0* | |
| **Peninsular Malaysia** | **13,179,897** | **1,741,039.8** | **13.2** |

*Table 7.5: List of functional classes in Section 10(i) of the National Forestry Act 1984*

| Types of Permanent Reserved Forest Classification | Purposes |
|---|---|
| Production Forest | (*a*) timber production forest under sustained yield |
| Protection Forest | (b) soil protection forest;<br>(c) soil reclamation forest;<br>(d) flood control forest;<br>(e) water catchment forest;<br>(f) forest sanctuary for wild life;<br>(g) virgin jungle reserved forest;<br>(h) amenity forest;<br>(i) education forest;<br>(j) research forest;<br>(k) forest for federal purposes |

*Figure 7.2: Distribution of Protected Areas in Peninsular Malaysia*



## PROTECTED AREA IN PENINSULAR MALAYSIA
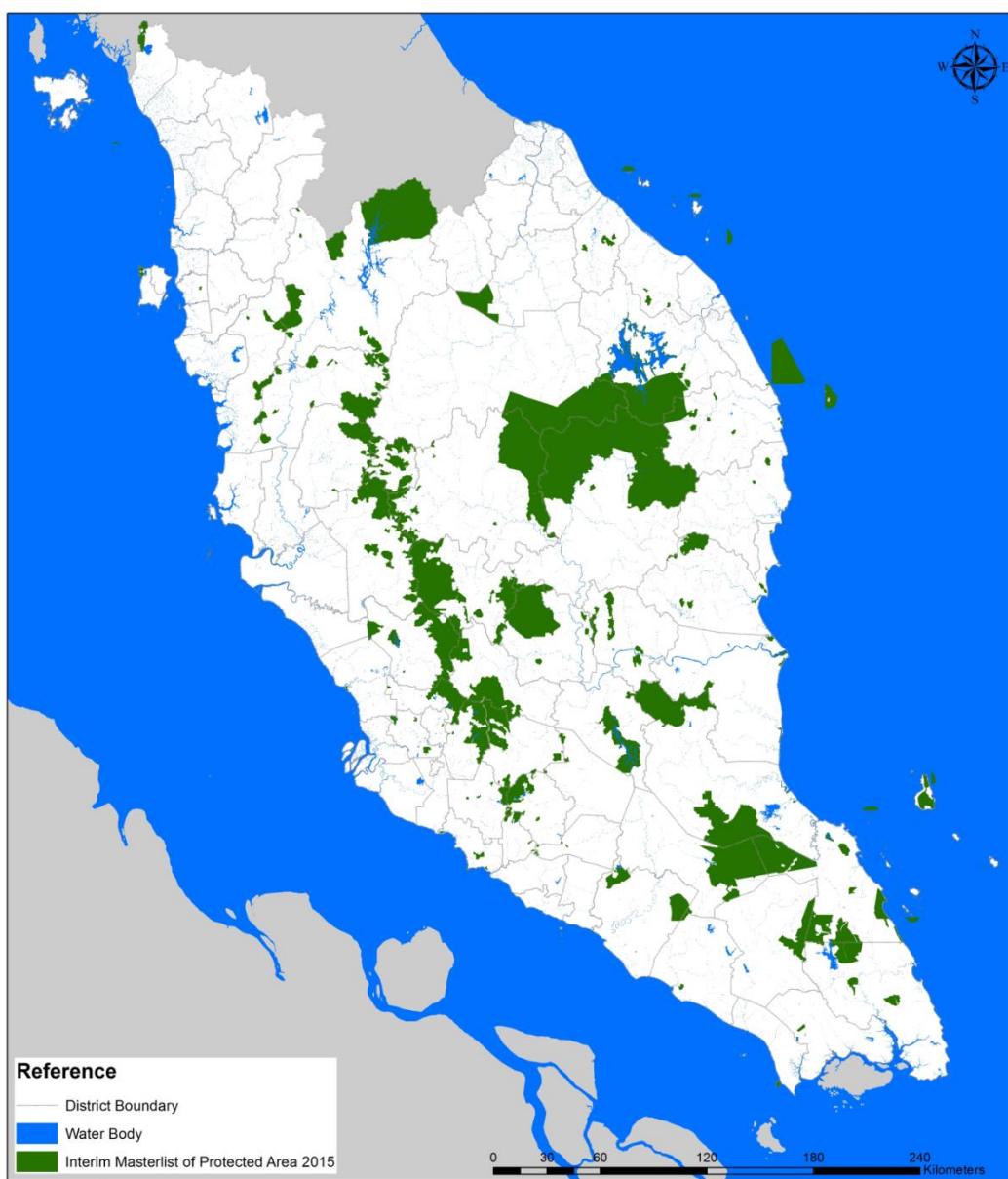
Reference
District Boundary
Water Body
Interim Masterlist of Protected Area 2015

Note: Adapted and modified from the Draft Interim PA Master List with approval
and assistance of the Department of Wildlife and National Parks (2017)

7.3.7. <u>National Policy on Biological Diversity (NPBD), 2016-2025 and the Global Environment Facility (GEF) PA Financing Project, 2012-2019</u>

Malaysia recently revised her 1998 Policy on Biological Diversity (NPBD) in line with the Global Biodiversity Aichi Targets. The current policy has 17 targets and has a clear provision and target (Target 6) on PAs and OECMs (NRE, 2016):

> *"By 2025, at least <u>20% of terrestrial areas</u> and inland waters, and 10% of coastal and marine areas, are conserved through a representative system of <u>protected areas</u> and <u>other effective area-based conservation measures</u>."*

The NPBD target indicates that Malaysia will not meet the Aichi Target 11 by 2020. Though there is a slight augmentation of Aichi Target 11 by an additional 3% (from 17% to 20%) probably due to the added five-year time frame. But what remains to be seen are how much area is contributed from actual PAs and from OECMs to make up this 20%. The target for marine PAs remains the same as the Aichi Target (10%) with the addition of 5 years to achieve this target.

The revised NPBD calls for the expansion of PA areas, highlights among others: the need to establish a Framework for a National PA System by 2018; establishment of a PA Master list that is updated from time to time; review relevant legislation to strengthen PA management; and establish and recognise Community Conserved Areas (CCAs) as part of national PA System and encourage the participation of indigenous and local communities in CCAs (NRE, 2016).

To facilitate the implementation of this policy call, DWNP is currently implementing a project funded by the Global Environment Facility (GEF) - Enhancing Effectiveness and Financial Sustainability of Protected Areas in Malaysia (NRE, 2009b). This 7 year project started in mid-2012 has embarked on an initiative to develop a National Framework PA Systems (NFPA) as called for in many previous reports. I attended a workshop on developing this National PA framework in November 2016 and at the workshop the participants agreed on the following PA definition (Elagupillay, 2016):

> *"A geographical area dedicated for the long-term protection and conservation of natural and cultural resources and managed through legal and/or other effective means for PAs in Malaysia".*

The NFPA, which is being drafted, will include strategies and actions in achieving targets spelt out in the NPBD. It is envisaged to include among others a national PA classification (developed and expended based on the IUCN categories) and a branding for PAs in Malaysia. This NFPA once adopted by Federal and all state governments will serve as the policy instrument for PAs in Malaysia in the coming future.

## 7.4.    The Synthesis

### 7.4.1.   Roaring Calls, Limping Actions

Malaysia as a biodiversity hotspot houses some amazing flora and fauna. In a rapidly growing economy, PAs increasingly play an important role for the long-term conservation of biodiversity and ecosystem services. During the British era, many PAs were designated and in the post-colonial era due to conflicting priority and rights over land and forest bestowed under state governments, the number of

PA designation has been minimal though with the inclusion of 'protection forest'. In recent reports, these numbers have shown a threefold increase (during the British era these forest areas were not included). Hence the increase of PAs (land area) has just been 1% (4.7% before 1957 to 5.7% in the 1997 masterplan report, see *Table 7.6*).

Table 7.6: A comparison of number of PAs (not including 'protection forest') established during colonial and post-colonial times.

| State | New PAs established | |
|---|---|---|
| | Colonial | Post-Colonial |
| **Federal Territory** | 3 | 0 |
| **Johor** | 4 | 3 |
| **Kelantan** | 1 | 0 |
| **Melaka** | 2 | 0 |
| **N. Sembilan** | 1 | 0 |
| **Pahang** | 6 | 1 |
| **Perak** | 3 | 2 |
| **Penang** | 0 | 1 |
| **Selangor** | 6 | 2 |
| **Terengganu** | 1 | 0 |
| **Total** | 27 | 9 |
| **% PAs of land Area in Peninsular Malaysia*** | 4.7% | 5.7% |
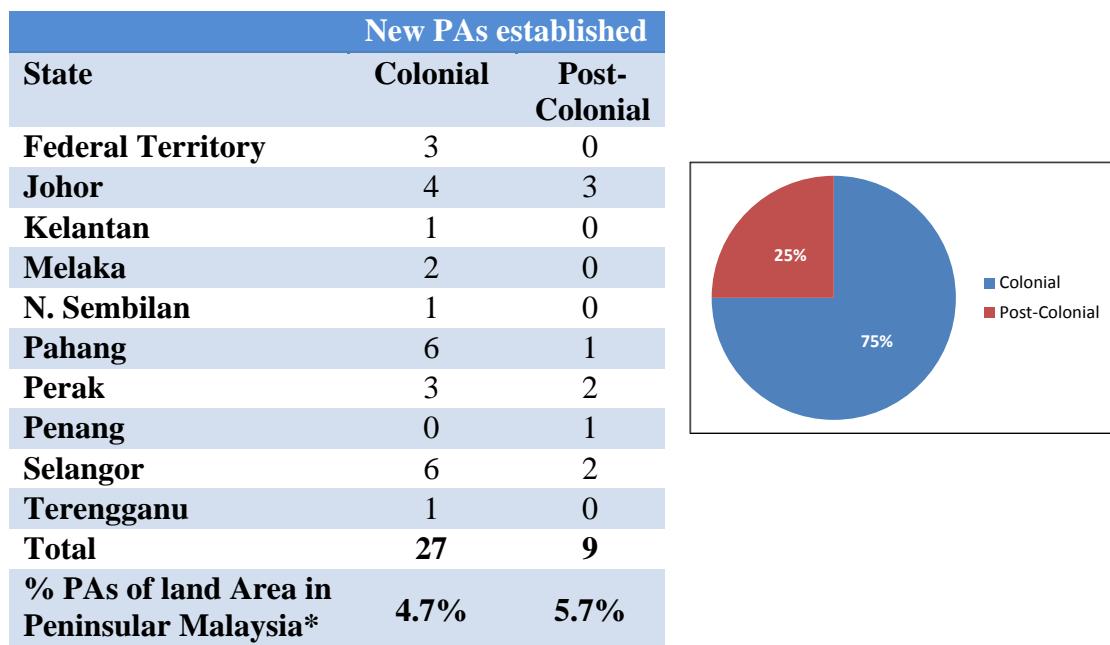
While the British introduced the concept of PAs, the actions and the trajectory of development after independence was embedded in the system the British had put in place (Kathirithamby-Wells, 2005). The British introduction of rubber and oil palm as highlighted in Chapter Two, was the main drivers of the economy in the formative years of Malaysia and still continue to play a significant economy driver to this day (Hezri, 2016). While the British, due to the persuasion of Hubback created PAs (Hilsop, 1961), forest conversion during the British era was also very high. From 1900 to 1950 alone, Malaysia's arable land had increased by 5 fold (ADB, 1994). The imprints of the colonial legacy prevail and state

governments continue to exploit land and forest for economic development as there is a void in terms of incentives for conservation.

As Malaysia got her independence, the nation was challenged with two big issues. The communist insurgence where forest was their base for operation and guerrilla attacks was a hurdle for the government to designate and effectively manage any new PAs due to security issues. Secondly, as a young nation, poverty levels were high (52% in 1957) and the government had to pay a lot of attention to eradicate poverty and to restructure the society in the formative years of nation building (Yukio, 1985). Government initiatives for socio-economic development saw huge forest areas cleared for plantation to drive the economy for the well-being of the people. The Federal Land Development Agency (FELDA) formed in 1956, often cited as one of the most successful development conglomerate (Robertson, 1984) in solving problems of socioeconomic inequality through developing the plantation sector. By 1990, FELDA had cleared over 874,000ha of forest in Peninsular Malaysia (Robertson, 1984; Aiken and Leigh, 1992). The dichotomy in the federal constitution on right over land and forest bestowed to the state government, made it difficult for the federal government to put up a convincing case to encourage the creation of new PAs as the federal government did not provide any incentives to the states for creating PAs. On the other hand, states rely heavily on natural resources including land for plantation as a major source of income (Jomo, Chang and Khoo, 2004). The federal government has been careful in maintaining its relationship with state governments and did not interfere in areas under state jurisdiction (Chin, 1997).

Furthermore, at both federal and state level there has been a lack of understanding on the value (economic, cultural, ecosystem services) of the PAs

114

and PA's important role in national development. This can be seen with the example of the 3MP, which had proposed for creations of new PAs but the uptake of this policy direction has been lacking. While the Wildlife Commission Report followed by the Steven's Report, MNS Blue Print, 3MP, the PA Master Plan and Common Vision on Biodiversity – all had very constructive recommendations and policy calls for strengthening PAs in Peninsular Malaysia but have hardly been implemented fully and reflected a trend of the same recommendations being repeated in subsequent documents on PAs mentioned above. During the colonial era, credit should be given to Hubback for his tireless efforts in convincing the colonial government for creating large landscape protected with clear management intervention. Hubback's three volume Wildlife Commission Report to this date stands as a comprehensive farsighted report that paved the way for PAs creation during colonial times.

Another challenge is most of the PAs (46%) currently identified are under IUCN class VI category, which means that there is some form of active natural resource use. While this may be the case, there may be a fine line between what is defined by sustainable use and the possibility of compromising the overall conservation priorities of an area classified under this category as it is sometimes referred to as 'soft PA' (Dourojeanni, 2002).

### 7.4.2. Reflecting on the past as inspiration for the future

Peninsular Malaysia can derive inspiration from its history on PAs and recommendation of visionary leaders like Hubback, in strengthening the governance of PAs. In order to make this happen, beyond polices what is important is leadership and champions to drive the agenda of conservation as identified in a recent study (Nagulendran *et al.*, 2016).

Hence, as proposed in the 3MP and subsequent reports and policies, there is a need for more habitat represented PAs with stricter protection in place for the long-term conservation of biodiversity. The PAs which were proposed to be established by the 3MP in 1976 must be revisited and a high-level committee such as in the form of an Ad hoc Cabinet Committee has to be formed to ensure this policy mandate which was put forth more than forty years ago is seen through. A Cabinet Committee in Malaysia is established when an important issues need urgent action and a few cabinet committees have been set up to address specific issues such as the haze problem (The Star, 2014).

This suggested Cabinet Committee on PAs should also propose reforms to the constitutions to ensure states that conserve biodiversity through PAs be given financial incentives from the federal government. In fact, this committee should also review the 1932 Wildlife Commission report and recommendation such as to make the Krau Wildlife Reserve a National Park should be followed through as it is an important area for the long-term conservation of biodiversity.

Many reports and policy documents of the past has also called for a NFPA. As the NFPA is still being developed, it is anticipated that it will be accepted by all state governments and will play an important role in strengthening the PA System and Governance in Peninsular Malaysia. NFPA will also enable the review and harmonisation of legal frameworks on PAs at both federal and state level. In this regard, the proposed NFPA needs to be complimented with a clear resource mobilisation plan. This should include new and innovative approaches such as REDD+ (reduce emissions from deforestation and forest degradation in developing countries), Payment for Ecosystem Services (PES) and bioprospecting fees and

activities to fund PAs in the long term and complement government budget streams.

In tandem with all these approaches, capacity at both federal and state agencies need to be enhanced and equipped with adequate resources and manpower. This can be down through redeployment, institutional reforms or sharing of resources and expertise, which is currently undertaken via the 1 Malaysia Biodiversity Enforcement Operation Network (1MBEON) (Nagulendran, 2014). 1 MBEON is a promising approach under the National Blue Ocean Strategy which uses the high impact, low cost and rapid execution approach by mobilising multi-agencies for a common purpose and in this case DWNP and the Malaysian Army to curb poaching in key PAs (NBOSS, 2017).

## 7.5. Conclusion

By studying available literature, much need to be done to strengthen PA governance in Peninsular Malaysia. This review which was inspired by the postcolonial and political ecology scholarship contributes to the corpus of knowledge by tracing the development since colonial times in PA establishment in Peninsular Malaysia. It also highlights issues and political tensions at national and sub national levels which challenge creation of new PAs and the overall management of PAs given the legal and institutional complexities.

The revised NPBD gives renewed hope towards this end as it has clear targets and measurable indicators for PAs by 2025. While Malaysia is in the early stages of proposing a NFPA, it will be useful to also study the issues surrounding the governance of PAs in Peninsular Malaysia. Given the various laws at both federal and state level used to manage PAs as well as different institutional

structures in place currently with varying capacity and resources, it will be useful for future work to study these aspects to strengthen PA management and enhance the overall biodiversity governance in Peninsular Malaysia.

The NPBD calls for 20% of PAs and OECMs ─ Malaysia must ensure that for effective conservation of biodiversity, the representation of habitats is important when identifying sites. A point of caution, while chasing to meet the targets in terms of quantity, quality of the area to be designated as PA is important for the long-term conservation of biodiversity in Peninsular Malaysia.

# CHAPTER 8: A Case Study on the Governance of Terrestrial Protected Areas in Peninsular Malaysia

**Abstract**

The IUCN World Conservation Congress (2016) reiterated the call for strengthening and creating more protected areas (PAs) as they are cornerstones for biodiversity conservation  The aim of this study which is focused on Peninsular Malaysia is to understand issues on PA governance with a threefold objective: (i) to investigate the effectiveness of the current governance of PAs; (ii) to investigate the role and participation of other stakeholders; and (iii) examine the use of science to guide policy and decision making. A case study approach was deployed by studying three sites- Pahang National Park, Royal Belum State Park and Taman Negara Pahang. 45 semi-structured interviews, three focus groups, observation and analysis of secondary data were used as methodological approach. This study found lack of manpower, technical capacity and funds that adversely affected the governance of PAs. It was also found that orang asli (indigenous people) are not involved in the management of PAs and they derive very little economic benefit from activities in PAs. While this study revealed policies are adequate, there is a need to review and harmonise laws on PAs at both federal and state level. The use of science in the management of the PAs is weak to guide policy and decision making.  This research concludes by suggesting some legal and institutional reforms which are to be complemented with adequate funds as well as innovative financing. Co-management involving other stakeholders including orang asli and to strengthen science-policy interface were also recommended. The findings of this study though focused on Peninsular Malaysia, can be used to inform and stimulate discussions on PA governance in a broader context.

## 8.1.    Introduction

The IUCN World Conservation Congress in Hawaii in September 2016 adopted the Hawaii Commitments, which reiterated the need to strengthen protected areas (PAs) that are well connected for the conservation of global biodiversity (IUCN, 2016). This document stressed that PAs provides a huge range of benefits for people that contribute directly to human health and wellbeing. Furthermore, the Hawaii Commitments highlighted the role of PAs in supporting the sustainable development of nations in line with the Sustainable Development Goals (SDGs) (in particular SDG 14 and 15); provide for the preservation of natural resources and promotes the adaptation and resilience of communities to changing socio-economic and climatic conditions.  The Hawaii commitments builds upon the Global Biodiversity Targets (Aichi Targets), 2011-2020 and the SDGs. The Aichi Targets for terrestrial PAs have a quantitative as well as qualitative target (by 2020) - 17% global land cover of terrestrial PAs and 'other effective area-based conservation measures' (OECMs) [14.8% achieved globally as of December 2016 (UNEP-WCMC, 2016)] and ecological representativeness (CBD Secretariat, 2010)

In Malaysia, these Aichi Targets have been translated into the revised National Policy on Biological Diversity (NPBD), 2016-2026. For terrestrial PAs including OECMs, the NPBD calls for 20% by 2025 through a representative system of PAs (NRE, 2016). Currently Malaysia's terrestrial PA coverage is 12.1% (NRE, 2015) which does not include OECMs. While Malaysia has moved its target date to 2025, it too has increased its commitments to 20%. Nevertheless, for Peninsular Malaysia it may be a challenge to achieve these targets especially in

120

terms of ecological representativeness, since much of the lowland areas such as lowland dipterocarp have been developed for plantation and urbanisation (Jomo, Chang and Khoo, 2004). Furthermore as provided by the Federal Constitution, land and forest are within state government jurisdiction (Government of Malaysia, 2010a).

As highlighted in Chapter Seven, in Peninsular Malaysia, PAs are either managed by federal or state governments which has caused lack of uniformity due to different laws and the absence of a national definition for PAs (NRE, 2009a). The challenge for Malaysia in strengthening PAs as highlighted by Nagulendran et al., (2016), are the dichotomy in the federal constitution (different laws used), lack of incentive for states to manage PAs, competing priorities especially for socio-economic development and lack of nation-wide PA framework. Since land and forest are state matter, the federal government has very little power to determine how these resources are utilised or land is developed (Hezri & Dovers, 2012). Chapter Five and Seven of this thesis provides details about federal-state issues as well as governance of PAs in Peninsular Malaysia.

Most of the existing literature about PAs in Peninsular Malaysia focuses on issues of coverage (see Aiken & State, 1994) or focuses on a particular PA to give an in depth perspective of that particular PA such as Royal Belum State Park (see Schwabe et al., 2014) and issues surrounding the creation of a specific PA (see Aiken & Leigh, 1984; Aiken & State, 1994 - creation of Endau Rompin National Park in Johor).

The word governance as defined in Chapter Two is used rather than management, because governance encompasses the realm of management (Graham, Amos and Plumptre, 2003). PA governance can be defined as "the set

of regulatory processes, mechanisms and organizations through which political actors and other stake holders interact and influence actions and outcomes that determined the effectiveness of a PA" (adapted from Lemos & Agrawal, 2006:298).

Focusing on Peninsular Malaysia there are three objectives for this study: (i) to investigate the effectiveness of the current governance of PAs, which includes the legal framework and institutional set up; (ii) to investigate the role of other stakeholders such as NGOs, indigenous and local communities (ILCs) in PAs in terms of their participation in management, enforcement and economic opportunities; and (iii) to examine the use of science to guide policy and decision making in management of PAs. The main research questions were (i) How does policy, institutional and legal framework at both federal and state levels effect PA governance and are they effective? (ii) How are PAs managed and the role of other stake holders such as NGOs, indigenous and local communities (ILCs) in PAs in terms of their participation in management, enforcement and economic opportunities? and (iii) How are policies, practices and decisions related to PA conservation derived and what role does conservation science play in PA governance?

The objectives are achieved through a comparative analysis of three PA sites in Peninsular Malaysia: (a) Royal Belum State Park, Perak; (b) Penang National Park, Penang; and (c) Taman Negara National Park, Pahang. The sites (see *Figure 8.1*) was purposefully selected to uncover similarities and differences based on diversity of attributes involved in managing these Parks. The selection was also based on the likelihood of gaining permission to each site and access to key respondents.

*Figure 8.1: Peninsular Malaysia: location of the three study sites*



Note: Adapted and modified from the Draft Interim PA Master List with approval
and assistance of the Department of Wildlife and National Parks (2017)

## 8.2. The Research Setting

### 8.2.1. Penang National Park (PNP)

The Penang National Park was created on 10th April 2003 and is the first and only TPA currently established under a federal law, the National Parks Act (1980). This PAs located in the North West region of Penang Island is 25.63km2 of which 11.90km2 is terrestrial area and 13.73km2 under marine area. PNP is mainly coastal hill dipterocarp forest with lowland dipterocarp and mangrove forest. There are no megafaunas found in this PA. PNP does not house any indigenous people (locally known as orang asli) though there are some local communities living near the park who mostly are artisan fishermen. It serves as an important biodiversity study site as well as an important area for turtle (green, olive and Ridley) nesting. PNP is managed by the federal Department of Wildlife and National Parks (DWNP) and its budget is derived mainly from federal government. As of May 2017, the park has 41 staff of which 15 are park rangers. Given its size, this area may not have significant conservation value on a national front but it's an important area for biodiversity conservation locally to promote educational, awareness, recreational and ecotourism activities due to its close proximity to the city. In 2016, PNP received 147,840 visitors and currently does not charge any fees for entry.

The above information was sourced from the official webpage of the Department of Wildlife and National Parks (DWNP, 2017) and their annual report 2015 (DWNP, 2016) as well as personal communication with the Superintendent of the park on 29 October 2015 and 4 May 2017 .

### 8.2.2. Royal Belum State Park (RBSP)

The Royal Belum State Park was established on 3rd May 2007 and is located in the northern region of the state of Perak and borders Thailand. This PA with the size of 1,175km$^2$ is the second largest PA in Peninsular Malaysia after the Taman Negara National Park. It was gazetted as a State Park under the Perak State Park Corporation Act 2001. RPSP is mainly lowland dipterocarp, hill dipterocarp and upper dipterocarp forests and has the presence of important mega faunas such as the seladang (*Bos gaurus hubbacki*), Asian elephant (*Elephas maximus*), Malayan tiger (*Panthera tigris jacksoni*) and the Malayan tapir (*Tapir indicus*). The RBSP has significant value for biodiversity conservation and is linked to Thailand's Bang Lang National Park and the Hala-Bala Wildlife Sanctuary.

The only human inhabitants in RBSP are the Jahai group which is one of the 18 orang asli tribes found in Peninsular Malaysia. There is also the Temiar tribe in the adjacent forested area (Temengor Forest Reserve) who also use the RSBP to collect herbs and non-timber products. This PA is managed by a state agency, the Perak State Park Corporation (PSC) which as of May 2017 has 47 post (as per the recruitment warrant) and with currently 5 permanent positions and the rest filled by contract staff. PSC also manages other sites in Perak. As for RBSP, there are 12 ranger positions and all have been filled. Out of these 12 positions, two are permanent and the rest are contract appointments. Its budget comes from state government and some funds from federal government for ecotourism activities. The RBSP is also important for ecotourism and scientific studies on biodiversity and in 2016, RBSP had 23,375 visitors. The entrance fee is RM10 (~USD 2.30) for Malaysians and RM20 (~USD4.60) for foreigners.

The above information was sourced from the official web page of the Perak State Park Corporation (Perak State Park Coporation, 2017) as well as personal communication with the administrative staff of the park on 6 October 2015 and 19 May 2017.

### 8.2.3. Taman Negara Pahang (TNP)

Taman Negara Pahang is part of Taman Negara (National Park) which prior to independence was known as the King George V National Park located in the centre of Peninsular Malaysia in the State of Pahang. The National Park (Taman Negara) is 4343km$^2$ and spreads across three states (Pahang, Kelantan and Terengganu). Our area of study is in the state of Pahang which houses an area of 247,551 ha (57%) of the National Park. TNP was created in 1939 under the King George National Park (Pahang) Enactment, 1939 [renamed in 1960 to Taman Negara (Pahang) Enactment, 1939]. The highest peak in Peninsular Malaysia, Gunung Tahan (2187m) is found in TNP. The TNP has significant biodiversity value as it represents all forest types found in Peninsular Malaysia except mangroves and has rich fauna diversity such as the seladang (*Bos gaurus hubbacki*), Asian elephant (*Elephas maximus*), Malayan tiger (*Panthera tigris jacksoni*) and the Malayan tapir (*Tapir indicus*).

There is a small population of orang asli from the Batek and Semok Beri tribe that live in TNP. TNP is managed by the Federal DWNP and as of May 2017 this PA has a total of 117 staff out of which 33 are park rangers. Its budget comes from Federal Government. In 2016 a total of 73,664 visitors visited the park and the entrance fee is RM1 for Malaysians and foreigners.

The above information was sourced from the official webpage of the Department of Wildlife and National Parks (DWNP, 2017) and their annual report 2015 (DWNP, 2016) as well as personal communication with the Superintendent of the park on 9 December 2015 and 2 May 2017. A brief comparison of the three sites is in *Table 8.1*.

## 8.3.    Methodology

In addition to the dedicated general Methodology in Chapter Three here I highlight this chapter specific approach where case study was used. Case Study it is an empirical method of inquiry that investigates a contemporary phenomenon within its real-life context, especially when the relevant behaviours cannot be manipulated (Yin, 2014). One of the advantages of the case study method in this research is that it is able to explain the causal links in real-life interventions that might be too complex to investigate using other methods (Hancock and Algozzine, 2011; Yin, 2014).

The case for this study is the governance of PA in Peninsular Malaysia. It is focused on three PA sites (embedded units of analysis) to draw insights on policies, laws, institutional set up, participation, socioeconomic issues and science-policy interface both at the national and state levels, which influences governance of these sites. The sampling method for the research is purposive rather than random (Patton, 2015) where particular settings and persons have been deliberately selected for the important information they can provide that cannot be obtained from other choices. The selection also took into account accessibility to participants (location as well as logistics) and information and the willingness of key individuals to participate in the study (Creswell, 2013).

127

*Table 8.1: A summary of the characteristics of the three study sites.*

| PA / Attribute | Royal Belum State Park | Penang National Park | Taman Negara Pahang |
|---|---|---|---|
| **Size** | 1,175 km$^2$ | 25.63km$^2$ of which terrestrial area is 11.9km$^2$ | 2,475.51km$^2$<br><br>It's makes up 57% of the whole Taman Negara National Park which total size is 4,343km$^2$ |
| **Land Owner-ship** | **State** | **State** | **State** |
| **Law** | **State**<br><br>(gazetted as a PA in 2007 under the Perak State Parks Corporation Enactment 2001) | **Federal**<br><br>(gazetted as PA in April 2003 under the 1980 National Park Act) | **State**<br><br>(gazetted as a national park under the Taman Negara (Pahang) Enactment, 1939) |
| **Institution managing the site** | **State**<br><br>Perak State Park Corporation | **Federal**<br><br>Department of Wildlife and National Parks | **Federal**<br><br>Department of Wildlife and National Parks |
| **Total Staff / No of Rangers (as of May 2017)** | 47 / 12 | 41 / 15 | 117 / 33 |
| **Funds** | **State**<br><br>Federal from Ministry of Tourism and Culture Malaysia (MOCAT) funds mainly for tourism activity | **Federal**<br><br>Limited State funds to employ staff for turtle conservation.<br><br>Additional funds from MOCAT a federal agency | **Federal** |
| **Mega Fauna** | **Yes**<br><br>(eg. Elephants, Tigers, Tapir, Gaur) | **No** | **Yes**<br><br>(eg. Elephants, Tigers, Tapir, Gaur) |
| **Orang asli** | **Yes**<br><br>(Jahai Tribe as well as Temiar from the adjacent forest reserve) | **No** | **Yes**<br><br>(Batek and Semok-beri tribe) |
| **Number of tourist (2016)** | 23,375 | 147,840 | 73,664 |

### 8.3.1. Semi Structured Interview (SSIs)

The data collection involved 45 semi structured interviews (see Appendix E and F) approach by identifying participants from government sector (both Federal and State including park rangers, including a participant from an intergovernmental organisation and a plantation agency), academicians, non-governmental organisations and local communities including orang asli (see *Table 8.2*). Interviews were conducted from September 2015 to June 2016.

*Table 8.2: Participants Interviewed and the sector they represent*

| Stake holders | Number of participants and the identification code |
|---|---|
| Government | 19 participants: *G1-G19 (GI, G2, G9-G16, G19 – Federal officers, the rest were State officials, including 8 park staff). There was one participant from an IGO-G17 and one from a government plantation agency-G18* |
| Academic and Researchers | |
| NGOs | 6 participants: *A1-A6* |
| ILCs | 7 participants: *N1-N7* |
| | 13 participants: *L1-L7 (L1, L6,L7, L10-12: Belum State Park; L2, L3, L8, L9. L13 -Taman Negara Pahang; L4,L5- Penang National Park)* |
| **Total** | **45 participants** |

The sample size of 45 was reached when data saturation was observed and additional interviews would provide diminishing returns (Bazeley, 2013). Two of the participants, one an academician and the other a retired wildlife officer also acted as key informants to whom we could cross check information that we received. Ethical considerations and approvals from relevant agencies is as highlighted in Chapter Three.

### 8.3.2. Focus Groups

Focus groups interviews were held with the rangers of Penang National Park (6 rangers), Royal Belum State Park (8 rangers and staff) and Pahang National Park (7 rangers). To respect participants' confidentiality, they will be represented as PF1 to PF21. The focus group interview was done to verify, build upon and add depth to the results of the SSIs and the other methods used in this study. Chapter Three discusses the Focus Group method in detail.

### 8.3.3. Secondary Data

A list of documents examined appears in Appendix J**.** Secondary data was used, where possible also to compare against the response received from the SSIs and the focus groups data (Patton, 2015).

### 8.3.4. Observations

See Chapter Three.

## 8.4. Findings

The aim of this study was to provide a comprehensive overview on the status of PA governance in Peninsular Malaysia. The analysis as discussed in Chapter Three, highlighted five main findings (*Table 8.3*) based on the high level of consensus among the participants (see Appendix K). We used qualitative expressions in our findings as recommended by Patton, (2015) and used percentage *of participants who gravitated to a similar response (Bloomberg and Volpe, 2016).*

*Table 8.3: Main Findings*

| Finding 1: | An overwhelming majority of participants stressed that the institutions managing PAs have inadequate manpower, funds and skills. |
|---|---|

| Finding 2: | An overwhelming majority of the participants indicated that orang asli have not being effectively involved in management of PAs and they derive very little economic benefits from activities in PAs such as ecotourism. |
|---|---|
| Finding 3: | A majority of the participants suggested for exploring co-management options with other stakeholders including orang asli to overcome issues of lack of resources and capacity. |
| Finding 4: | A majority of the participants felt that the current policies are adequate, but laws need to be revised and harmonised for more standardised management practices across PAs. |
| Finding 5: | A majority of participants cited the lack of the application of conservation science including science-policy interface to guide practices and decision making in the governance of PAs. |

### 8.4.1. Semi-structured Interviews

Finding 1: An overwhelming majority (93%) of participants stressed that the institutions managing PAs have inadequate manpower, funds and skills.

The primary finding of this study is that the ineffectiveness of governance of PAs is due to inadequate funds, manpower and the needed skill sets. This finding stands out as the most frequently cited issue from the interviews. Participants expressed their concerns as following:

*"This Park is huge, though compared to other PAs we have more staff, but these days we have so many administrative issues that takes us from actual PA work and ecotourism is somehow the focus compared to our core duty - what do we do. We just need more staff with the right skills."* [a senior park official, #G10, December 9, 2015]

*"Our PA area is nearly twice the size of Singapore but we have only few rangers. The State does not have the funds to hire as they have*

131

*other priorities* {frowning}. *We just have to make do… I hope your study will help us* {laughter}.*"* [State government official, #G7, September 15, 2015]

A NGO participant highlighted that they assist a PA in monitoring as he said the PA agency lacked resources:

*"…. we do our bit by assisting the PA management, but we too have limited resources, what is sad many PA agencies don't have funds to even buy fuel for their vehicles* {dismay in voice}. *We try to assist but many of the younger staff just don't have the skill sets and the passion for the job. So both quantity and quality is lacking. We need some change soon or our PAs will be compromised."* [a NGO staff working in a PA, #N1, April 18, 2016]

*"….they now mange our area…. we just watch. The funny part is there is just so few of them to protect this huge forest {with a chuckle}. We feel we can do a better job as what our ancestors did in guarding this land – which is rightly ours. Poaching by outsiders is rampant and they blame us {slightly agitated}…."* [orang asli community leader, #L7, March 23, 2016]

Nevertheless, two participants felt that some PAs have enough personnel; it's just that the staff don't seem to have a passion or motivation. One of them said:

*"….. when I did my field work at this PA, I get angry seeing all the staff wasting time doing nothing. It's not inadequate manpower, it's lack of motivation and passion."* {sounding annoyed} [researcher, #A5, April 5, 2016]

A few participants (two senior federal officials and one NGO) expressed that to overcome the shortage of manpower, it be best to merge FDPM and DWNP as a single agency to reduce redundancy and enable this new agency to manage all PAs in Peninsular Malaysia. One of them who has vast experience in forestry matters, put forward this idea:

*"...frankly we need a new approach. I be happy if we merge forestry and wildlife department (referring to FDPM and DWNP). It's about time. These two agencies were under different ministries in the past but in 2004 they were brought under NRE. But they seem to be working in silo* {sounding concerned}. *It's the same ecosystem – forest- where you have wildlife, PAs, ecosystem services and timber. If we merge you reduce job duplication…..* {sounding excited}. *You may be able to convince state governments to enable this agency to manage all PAs under state and allow states to focus on ecotourism and some of the entry fee can channel to states as incentive…."* [a senior federal government official, #G9, March 19, 2016]

Finding 2: An overwhelming majority (87%) of the participants indicated that orang asli have not been effectively involved in management of PAs and they derive very little economic benefits from activities in PAs such as ecotourism

Most participants felt this was an issue and expressed the following:

*"….. they manage our land, then they bring people to see us and our village. The people outside the forest and the park management*

133

*make all the money, we just get small tips."* [an orang asli youth, #L6, October 8, 2015]

*"......it's about time we get orang asli to participate in management and assist in enforcing the law in this forest. Let them have a meaningful role- after all it's their home."* [NGO, #N7, April 6, 2016]

While most participants felt ILCs have not been engaged in the management of the park and in ecotourism, two participants felt that the ILCs were not interested and gave an interesting insight to ILCs outlook to life:

*"No...no... it's not we don't want to involve them (referring to orang asli). They have a different outlook of life, they live for the present. If an orang asli has sufficient resources for the day, he would not want to work for the rest of the day. He is satisfied. Hence it is difficult to engage them in commercial endeavours, they may not turn up for work - we have tried but failed {stressing}. It's their way of life."* [a local community involved in ecotourism, #L3, December 12, 2015]

A park official also shared the above sentiment. Two federal officials and a participant from a local university felt we should try to enable ILCs to be involved directly in assisting in park management and had the following to say:

*"I feel the current system of only employing people with formal certificates such as SPM* (equivalent to 'O' Levels) *does not work. Orang asli have huge traditional knowledge about the forest which will be useful in managing PAs. This knowledge system must also be*

*recognised, so that these people can be formally employed.”* [an academician, #A1, May 6, 2016]

A few participants (one NGO, two ILCs and one from a government plantation agency) felt that in PA where there are orang asli communities, to assist with their livelihood issues, it can be explored for these communities be given a plot of land outside the PA undertake some small scale planting (community plantation). Now in one of the PAs sites the orang asli are planting some rubber within the PA in around their houses and frequently trampled over by elephants. The comments that ensued on this issue:

> *“....we can work with JAKOA [the Malay acronym for the Department of Orang Asli Development, DOAD] and discuss with the State to offer small plots of land outside PAs to enable orang asli and other local community to plant oil palm…. We too if requested can help them with training in this sector. We have not done this, but we can explore a pilot programme….”* [official from government plantation agency, #G18, March 23, 2016]

In a subsequent visit to this PA, when this idea was mooted the orang asli were receptive and one of them expressed the following:

> “*JAKOA has given some seedling of rubber for us to plant around our house but often before the tree gets matured, it’s trampled over by ‘orang kuat’* (local reference to elephants). *We be happy if given some land not too far away to plant in small scale… away from ‘orang kuat’…. but not too far away……* [orang asli, #L11, March 26, 2016]

135

<u>Finding 3</u>: A majority of the participants (76%) suggested exploring co-management options with other stakeholders including orang asli to overcome issues of lack of resources and capacity.

The participants shared their insights by stressing that to manage some PAs, we need a multi-stakeholder approach to make management of the area more effective as the government is facing problems with having adequate manpower and with the right skill sets. To reflect this point, a participant said:

> *"The federal government staff can probably do the core work of manging the park like enforcement; the information and souvenir centre at the park can probably be given to a state owned company who have the right skill sets to manage. The ecotourism activity can also be handed over to the local communities and the state. This will generate some additional funds for the state government and the people living near the park and they will see this as an incentive keep this PA in perpetuity."* [a senior state official, #G4, January 28, 2016]

A participant (NGO) also stressed most NGOs presence in the PA is very much project based and depends on funding. This participant highlighted:

> *".... for the long run, it's better for this state park to get federal government assistance and have a co-management system, where DWNP* (a federal agency) *can handle enforcement and the state agency can focus on ecotourism. We NGOs are happy to continue to assist but we have no legal power in the park, we just assist to*

*deter poaching and assist in snare clear up. We currently have more staff in this park compared to the number of rangers the state has deployed."* [NGO, #N1, December 8, 2016]

Three participants from the orang asli community had a different view, they felt that it's best for the PA to be handed over to them completely to manage. One of them acrimoniously expressed:

*".....give us back this land, this is our ancestral grounds. Some places are sacred. See we have made our own map* {showing a hand drawn map, see *Figure 8.2). The companies have destroyed our land by massive logging nearby* {sounding disappointed}. *All this must stop and let us live and manage our area ourselves - like what our forefathers have done..... since this place became a park in year 2000 something, our activities are also restricted by park officials who do not know our customs".* [orang asli leader, #L10, October 8, 2015].

Another orang asli when asked whether they are happy to assist the government with the management of the PA, he stressed this following:

*"{in a concerned tone}....why must we. This is not their land. We can manage our home. Why must we get paid to look after our own home. I don't agree..... If we get paid, our struggle to get back our land will be of no meaning."* [orang asli community leader, #L7, March 23, 2016]

But other orang asli participants interviewed in the same PA and other PA sites were quite happy to be employed formally to assist the government (either

federal or state) to manage the PA. They felt this will be a good opportunity to supplement their income and gives a long-term assurance of steady flow of income even after retirement.

> *"I agree, if we get employed at least we have steady income and pension. But now we can't get employed as we don't have school education. I hope we do get employed… we are very poor."* [orang asli, #L13, December 21, 2015]

Finding 4: A majority of the participants (72%) felt that the current policies are adequate, but laws need to be revised and harmonised for more standardised management practices across PAs.

A majority of the participants felt that Malaysia has the right policies and many cited the National Policy on Biological Diversity as well as the Common Vision on Biodiversity. Nevertheless, they felt the laws governing the PAs must be reviewed as they are rather archaic and need harmonisation. Participants expressed their views as following:

> *"If we see, we seem to have much progress in updating our polices as per CBD and Aichi Targets. Sometimes I feel we have too many policies {laughter}. But these policies like the BioD policy are not legally binding. So while it's nice to have, but does not compel people to follow. We need to review the existing laws on PAs at both Federal and State level. We need to update them and if possible harmonise them. We can't be going on with different legal standards for different PAs in the same country."* [law lecturer, #A2, April 1, 2016]

*Figure 8.2: A map drawn by an orang asli leader demarking their ancestral and sacred areas in RBSP*
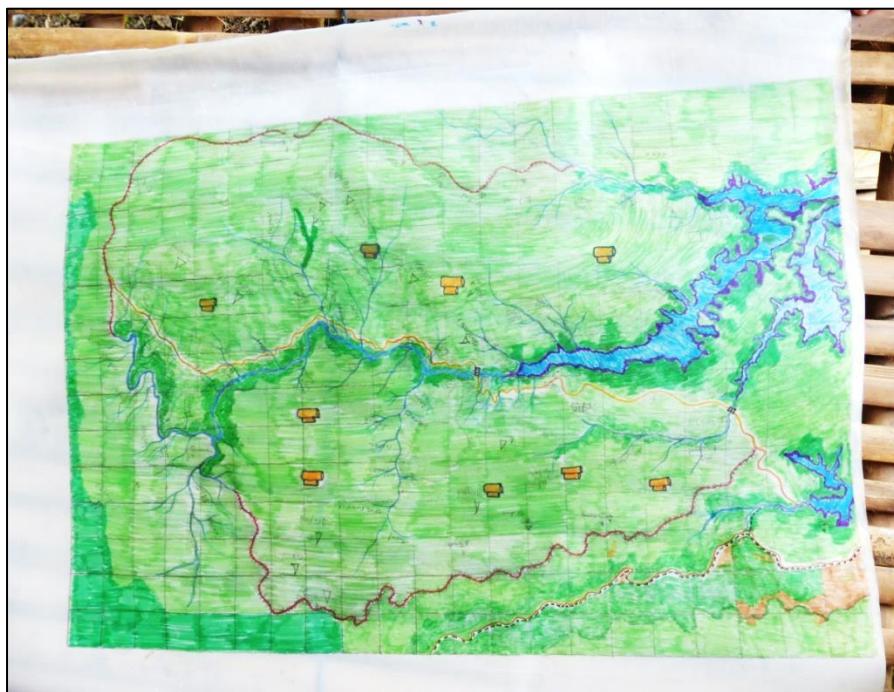


Note: The orang asli community hope once this map is completed, they can present a case to the state government to recognise this traditional and sacred area as important site for the orang asli to conserve in perpetuity. They hope to be able to be given the right to manage this area as per their traditional and customary norms [Personal communication with orang asli leader, #L10, October 8, 2015]

Seven participants (four federal officers, two NGO and one academic) felt that to strengthen the legal framework of PAs we should work on the underutilised National Parks Act 1980. It's a federal law which has only been used to gazette one national park to date (Penang National Park). On the other hand, all officials from the State, four NGOs and two academics, felt rather reluctant to place PA under a federal law but were open to the idea to amend their state laws to a standard template or framework. The contrasting views are as following:

> *"We have the National Parks Act, 1980 and now only applicable to*
>
> *Penang National Park. If we get enough political will, we should*
>
> *amend this law and make it applicable for all PAs in Peninsular*

*Malaysia which has clear jurisdiction lines for federal and state. This will enable us to have a harmonised law and management approach for all PAs in Peninsular Malaysia."* [Federal government official, #G16, February 19, 2016]

A NGO in support highlighted the following:

*"States in recent years have drafted their own state laws for PAs like the Perak State Park Corporation Enactment in 2001. But if each state came up with their own law and gazette PAs under their state law, it would be a problem. It will create many different laws governing PA and states don't have the resources in terms of funds and manpower to manage PA effectively.* {Sounding perplexed} *This severely affects the governance of PAs."* [NGO, #N5, March 17, 2016]

*"We have our law, it may need revision and updating but we don't see the need to place our PA under a federal law. It will complicate things* {frowning}. *As you know land and forest is state matter. We can if need amend our state enactment to standardise with others but don't ask us to repel and use a federal law. Ah…I don't see a need."* [State government official, #G8, October 6, 2015]

Three federal officers, one official from an intergovernmental organisation (IGO) and one NGO felt harmonisation of laws and management practices across PAs via a national PA framework in Peninsular Malaysia will be one approach:

*"… as I remember The Common Vision on Biodiversity policy document in 2009 has called for the need to strengthen the national*

*PA System through a national framework which I believe will be*

*able to standardise management of PAs and enforcement*

*procedures and eventually enable the harmonisation of laws. One*

*of our on-going GEF project is working on these aspects of a*

*national PA framework.... We hope the states will support it."* [IGO

staff, #G17, March 11, 2016]

<u>Finding 5</u>: A majority of participants (71%) cited the lack of the application of

conservation science including science-policy interface to guide practices and

decision making in the governance of PAs.

The overriding finding (Finding 1) that institutions managing PAs have

inadequate capacity in terms of skills was further reflected by a majority of

participants who felt there was a lack of staff who are equipped with the right

technical skills. The participants also felt PAs don't have adequate scientific

information about their PAs. They too stressed there is a lack of science policy

interface. The participants highlighted the following:

*"I joined the department because I wanted a government job.... I*

*eventually liked the job and learned from my seniors. There is very*

*little training. We are not exposed to new technical advancements*

*in monitoring of the park for example."* [Park official, #G12,

October 29, 2015]

*"Training of PA staff is important. But it is complicated as we have*

*so few of field staff and we don't have the resources to train them.*

*It's a chicken and egg situation. We only do mainly enforcement*

*work, we ourselves don't do any research."* [Park official, #G13, October 29, 2015]

Three researchers and two NGOs lamented that they are not given adequate access to certain important PAs to undertake basic research:

*"...what you don't know, you can't manage. Sad that we don't have a proper inventory of flora and fauna in our biggest PA in Peninsular Malaysia.* {Sounding perplexed} *We scientist we not given permission to do inventory work which includes taking of samples. The last inventory was in the early 1900s by H.N Ridley...can you see my point."* [Senior researcher, #A3, December 12, 2015]

This participant continued to stress that unfortunately the appreciation of science is lacking and stress that something must be done to bring back the interest in this subject:

*"..... this issue is a systemic issue...the culture of appreciating science in this country is dying - also true with our research work on PAs and wildlife* {sounded annoyed}. *So we need a change and it has to be interventions at primary school level."* [Senior researcher, #A3, December 12, 2015]

Two local community participants who were trying to do small scale bird watching tourism, felt the park management could also have programmes to train them to make them more equipped to relate with visitors.

*"We know some birds here since we have lived here all our life, but we don't know their names in English and far from knowing their*

142

*scientific names. We take tourist for bird watching but we can't charge them as the proper bird guides from the town. We hope the park management will train us to upgrade our skill."* [Local community #L2, December 8, 2015]

Most of the government officials shared the sentiment that more training is very much needed to enhance PA management and strengthen enforcement.

*"Many times cases regarding offences in PAs such as encroachment or poaching does not go through the court process as the case is dismissed due to technicalities in investigation which is due to lack of expertise and training. The accused gets away."* [Federal government official #G14, December 15, 2015]

8.4.2.  Findings from the Focus Group

It was also interesting to see how discussions from the focus groups paralleled the findings that emanated from the interviews. There was also a high degree of similarity in views between the three focus groups.

In all the three focus group sessions, discussions gravitated to the lack of staff and resources including funds. PF19 felt that shortage of rangers is a big issue and PF21 quickly added that now there seems to be more paper work and time spent in the field had been limited. PF15 and PF20 felt that to overcome the lack of manpower and capacity, it's time to work with other stakeholders such as NGOs and researchers. But F18 was quick to say, it all depends on leadership on how open the agency heads are to work with others especially NGOs. F18 [December 8, 2015] expressed *"some bosses are allergic to NGOs".*

Some additional views from the focus group were on issues surrounding incentives and facilities for park rangers which almost all the participants from the three focus groups felt was lacking. They highlighted that housing (quarters) were also lacking and they must rent in nearby villages. One of them highlighted

*"If we were working outside the park such as in a state office or at HQ, we get better incentives in terms overtime. But if we are deployed as ranger to this PA, our allowances are fixed and no matter how much overtime we do, the figure remains the same {sounding concerned}. Staying here is already challenging. We hope this can be revised. Many rangers are reluctant to work long hours as it's better to take up part-time jobs such as tourist guide to supplement our low income. This to me is a real sticky issue."* [PF17, December 8, 2015]

One of the focus group sessions also spoke about the PA's management plan. The senior members seem to know about the management plan but not the more junior staff. PF12 said:

*"the management plan for the park is written by consultants and it is in English and very academic. We have seen it but frankly it's never referred to in day to day management of this PA."* [PF12, October 6, 2015}

PF8 was quick to add that a new management plan is being developed for the PA and has seen the draft which is so voluminous. PF11 said: *"I am only a ranger but I feel the management plan should also be simplified and written in*

144

*Bahasa Malaysia for us to understand better and to implement".* [The current document is in English].

It was interesting to also gather that some of them did not fully know the role of the job they were applying for as all they wanted was a government job. PF4 said he applied for the job as his friend told him there was an opening and he got its and was at first not comfortable with the nature of the work but overtime, he has grown to enjoy it.

### 8.4.3. Findings from Direct Observation

The findings from the direct observation also corresponded to the key findings that have emerged. The diversion of field staff to undertake more administrative work was also apparent when I visited the park office and found field staff spending a lot of time assisting with paper work. The day to day management of the PAs were focused with ecotourism activities rather than actual park management and enforcement work. It was also observed that the visitor information centres are manned by staffs that were not trained with guest relation skills.

The shortage of manpower while being prevalent in all three was acute in one site. It was also observed park staff in all three PAs lacked facilities like housing and the PA staffs do not use a standard uniform while on duty. It's difficult at times for visitors to distinguish park staff from a local community or a resort worker or another visitor. Due to lack of incentive and facilities, it was observed that motivation levels among the field staff is rather low. It was also observed orang asli community derived very little benefit from eco-tourism activities and are not involved with assisting in the management of the PAs. There also seems an absence of scientific research been carried out by the park management at all three sites.

I also witnessed first-hand issues of human elephant conflict when spending time at two PAs near orang asli settlement. A day before my visit, elephants destroyed the plants the orang asli planted for food. In another PA site, the elephants also destroyed a hut belonging to an orang asli family a week before my visit to the PA.

### 8.4.4. Findings from Secondary Data

Information obtained from the documents that were analysed seem to be in conformity with the findings of this study. For example, the need for a national framework on PAs had been highlighted in three government documents - 'Capacity Building & Strengthening of PA System' (1996), The Common Vision on Biodiversity (2009) and the National Policy on Biological Diversity 2016-2026 (2016). The lack of manpower and skills has also been highlighted in the Assessment of Biodiversity in Malaysia (1996) and the lack of incentive was reflected in n UN project document on PA Financing, which highlighted:

> *"State Governments .... receive royalties from the exploitation of timber and mineral resources. The establishment of a National Park requires the States to forego significant revenues in perpetuity, while also taking on the financial burden of managing the Park. Meanwhile the financial and economic benefits accrue to the Federal Government in the form of tax receipts from tourism……."*
> (NRE, 2009b)

I also found it interesting for a government document in public domain to highlight *"....training may also be an important element in breaking an apparently prevalent 'tidak apa' attitude* (a Malay term which means not bothered due to lack

of motivation) *among the staff* (referring to DWNP staff)" [see page 170, 'Capacity

Building & Strengthening of PA System' (1996)]

## 8.5.    Discussion

### 8.5.1.  Institutional Framework & Funds

This research revealed that there is a need to enhance the institutional framework

in governing PAs. While examining site level PAs, each PA lacks staff and this is

acute in the RBSP (as of May 2017, total 12 rangers). RBSP has an average of one

ranger for very 100km$^2$ of the park. It has been suggested from previous studies in

tropical protected areas the requirement is a least three rangers for every 100 km$^2$

(Bruner *et al.*, 2001).

While respecting land and forest is a state matter, it may be worthy to

assimilate the model of PNP and TNP in RBSB, where the federal agency manages

the park without compromising the right of the state over the land. This will ease

the constraints of the state government to fund the man power needed to manage

the park while the State could focus on ecotourism activities. If this approach is

taken, to increase staff, it may make sense to merge the Federal Forestry

Department Peninsular Malaysia and Department of Wildlife and National Parks

to effectively manage PAs. This merger will ensure efficient use of resources but

requires political will and leadership at both federal and state governments

(Nagulendran et al., 2016) to ensure that PAs throughout Peninsular Malaysia is

effectively protected and not become paper parks. This is constitutionally viable as

National Parks is listed under concurrent list of the Federal Constitution where both

federal government and state can cooperate (Government of Malaysia, 2010a).

Another approach will be for the federal government to provide financial incentives to the states to manage PAs such as RBSP. The participants felt this was crucial as State governments have limited revenue streams and as constitutionally provided they can only exploit natural resources, forest and land for income. A scheme of this nature was planned in 2003 where the federal government agreed to pay RM100 million (later reduced to RM60 million) annually to the Kedah State Government to protect an important forest area, Ulu Muda Forest Reserve (163,000ha) (Andrew, 2017) which was identified in the Third Malaysian Plan (1976-1980) as an area that need to be conserved as a PA (EPU, 1975). But, it was reported that Kedah did not receive the promised payment to conserve the area (Majid, 2013) and to this date this area has not been gazetted as a PA and logging is still on-going despite strong calls from civil society to halt logging in this area that supplies 96% and 80% of Kedah and Penang state's water supply (Idris, 2017).

It is about time that some incentive measures are put in place (with some legal provisions/certainty) by the federal government to encourage conservation initiatives such as PAs for conservation of biodiversity and securing vital ecosystem services which is vital to the socioeconomic well-being of the nation while ensuring Malaysia meets her global commitments under CBD.

Considering the experience of Kedah State Government, it may be more effective to allow federal government to manage PAs and states can still accrue benefits from ecotourism which in all three sites can be scaled up. Furthermore, the entrance fee for all three sites (as of May 2017, PNP does not charge) should be increased to international standard since these areas house some of the oldest rain forest on this planet and can be a substantial source of revenue for the PAs as well as state government. The current entrance fee is between RM1 to RM 20 (~

USD 0.23 to USD4.60) (NRE, 2014a). This is extremely low compared to neighbouring Thailand's Khao Yai National Park which charges USD 11.64 for foreigners (Thai National Park, 2017) and Yellowstone National Park in United States charges between USD15-USD30 depending on the mode of transport to enter the park (National Park Service, 2017).

While increasing the entrance fee is a very viable solution to increase income, both federal and state governments can and should explore innovative and alternative mechanisms such as Payment for Ecosystem Services (PES). To date, Peninsular Malaysia has no PES framework in place and can derive experience of a pilot project in the State of Perak, where the Perak Hydro Renewable Energy Corporation involved in mini-hydro projects has agreed to a 0.25% contribution from its net revenue as PES to the Perak Forestry Department (Yassin and Ariffin, 2016). Malaysia can derive from Costa Rica's 20 years' experience in successfully implementing PES which was a catalyst for increasing forest cover from 20% in the 80s to over 50% currently (see Porras *et al.*, 2013). PES, Reduce Emissions From Deforestation And Forest Degradation (REDD+) and bioprospecting schemes have huge potential for supplementing funds for PAs as well as local communities (Spergel, 2002; Philip, 2015).

### 8.5.2. Legal and Policy Framework

The research findings highlighted that in Peninsular Malaysia there are many laws governing PAs as well as there is no national definitions on what PAs are. As proposed by many national policy and thematic documents (such as DWNP, 1996; NRE, 2009, 2016), it's time Federal government puts in place a National PA Framework, which is adopted by all states. At the point of this thesis was being

prepared initial work towards this has begun via a Global Environment Facility funded PA project in Peninsular Malaysia.

This national framework is vital to standardise practices and management approaches across PAs in Peninsular Malaysia. It too can serve as a basis to harmonise PAs laws at state by having a national template by updating the 1980 National Parks Act. If all PAs are to be managed by a single Federal Government agency, then it will be effective if all PAs be gazetted under a revised National Parks Act. This will standardise PA management while state governments still have jurisdiction over the land but this will be a task that would require a mammoth political will (Dourojeanni, 2002) as all respondents from the state government did not agree for a federal law to govern their PAs. But this approach if taken with proper financial incentives (for state governments), may pave the way for a transformation in the way we govern PAs in Peninsular Malaysia. The pathway Australia has taken to strengthen the governance of PAs can be assimilated where they have put in place the Strategy for the National Reserve System, 2009–2030 as a long term commitment to protect PAs in Australia (The Natural Resource Management Ministerial Council Australia, 2010).

### 8.5.3. Participation of other stakeholders and ILCs

In Peninsular Malaysia the participation of other stakeholders and ILCs in PA management are somewhat limited, and PAs are managed mainly by the government as highlighted by the participants. Nevertheless, with the development of the National PA framework it may be beneficial to enable other stakeholders to assist with PA management. While now there are some NGOs helping with monitoring and patrolling, but as revealed in the findings these activities are mostly project based and do not have the assurance of continuity.

The government once it has adopted a National PA framework could get into a smart partnership agreement with NGOs and ILCs to assist with managing PAs as undertaken in Brazil (Dourojeanni, 2002). In fact, some small PAs like PNP which does not have any megafauna and is not in high risk of poaching activities and is more of an educational PA can be handed over to NGOs to manage with limited presence of government staff to patrol the area. The staff from PNP can be deployed to PAs where there are acute shortage of staff and are vulnerable to encroachment and poaching.

Orang asli in Peninsular Malaysia have no areas which are managed by them for conservation purposes. The orang asli interviewed expressed their frustration about this matter and some were willing to be employed by the government. In co-management approach PAs managers may want to explore areas within their PA which is culturally and spiritually significant to orang asli for the community to be given the opportunity to manage their traditional area.

The experience of Sabah (a state in Borneo Malaysia) with indigenous peoples' and community conserved territories and areas (ICCAs) can be explored to be applied in Peninsular Malaysia. The example in Sabah is the Bundu Tuhan Native Reserve (13km$^2$ - about the size of PNP), located at the foothills of Kinabalu Park is managed and guarded entirely by the Dusun community who are an indigenous tribe in Sabah (Sabah State Government, 2012). This ICCA in Sabah not only promotes conservation but it also supports the continuity and preservation of indigenous culture (Vaz and Agama, 2013).

Furthermore, in Peninsular Malaysia, the possibility of recognising traditional knowledge to hire orang asli as park staff could be explored as there has been a precedence in a one-off case in Krau Wildlife Reserve located in Pahang (S.

151

Elagupillay, retired senior wildlife officer – personal communication, March 22, 2017). This will enable orang asli who do not have formal education to be hired based on their traditional knowledge.

### 8.5.4. Science-Policy Interface

As profoundly stated by one of the research respondents "you can't manage what you do not know" and we need to enhance the science policy interface in PA management. As revealed from this research, the staff are not trained specifically for their task and most of the training is learning from their seniors. Training as highlighted the Capacity Building & Strengthening of Protected Area System document (1996) will also assist with boosting motivation and morale among staff. There is a need to redefine, revise and develop new curriculum of training programmes for PA managers, staff and rangers. A formal training package needs to be introduced for all new employers of PA agencies and this can be facilitated by the federal government through the DWNP's training centre – the Biodiversity Institute (IBD). The IBD can draw experience of the Wildlife Institute of India (MOEF, 2014) which can be fostered through a bilateral programme.

It will be necessary for PA agencies to be more open and enable academia and research organisations to collaborate with them to undertake fundamental research such as biodiversity inventory, taxonomic studies as well as other relevant studies as this data and information will enable better management of the park. While there has been cooperation with universities, this partnership must be strengthened, and it will be beneficial also for PA agencies to link with these scientific institutions to build technical capacity of their staff. This should also include ethno-knowledge of ILCs that can be assimilated for strengthening PA governance as this form of knowledge has been recognised by the

Intergovernmental Panel on Biodiversity and Ecosystem Services (IPBES) itself (IPBES Secretariat, 2014)

At national level to ensure there is scientific input in policy making regarding PAs and biodiversity in general, a scientific advisory committee should be established as an independent body to advise the National Biodiversity Council. This committee can also serve as the national IPBES body and can be a platform to bring reforms in the education system to create a better appreciation of science and biodiversity.

## 8.6.    Conclusion and way forward

This study has highlighted the need for institutional and legal reforms to the governance of PAs in Peninsular Malaysia. While there is the quantitative Aichi Biodiversity Targets, we must also focus on the quality of PAs. Governments as a low hanging fruit, will be tempted to have more IUCN class VI protected areas (soft PAs) (Dourojeanni, 2002) and OECM to meet the Aichi Targets. As discussed in Chapter Seven of this thesis, 46% of PAs in Peninsular Malaysia are of IUCN class VI. Based on the findings, a menu of recommendation for strengthening the governance of PAs in Peninsular Malaysia and the long-term conservation of biodiversity, is as following:

a) A system backed by a legal provision or a Cabinet decision has to be in place to enable the federal government to give financial incentives to states that have PAs and the quantum can be based on the size as well as the quality (IUCN class) of the PA;

b) Merge the Forestry Department Peninsular Malaysia with the Department of Wildlife and National Parks as a single agency for terrestrial

biodiversity in Peninsular Malaysia. This will avoid duplication of work and more effective deployment of staff and ease the shortage of staff in PAs;

- This new agency could via the National Biodiversity Council offer PAs currently managed by States (who have acute shortage of staff, funds and capacity) to be managed by this agency. State Governments can co-manage by undertaking ecotourism activities. Hence, while the area still belongs to state governments, the PAs are managed effectively, and states will get revenue through ecotourism activities;

c) Involve ILCs in management of the park by developing a scheme that recognises ethno-knowledge to enable orang asli to be hired formally;

d) A mechanism should be worked out to allow ILCs to manage areas of community importance (ICCA) such as sacred groves and ancestor burial grounds as they have done before 'modern' laws were introduced. ILCs can work with the support of NGOs and the PA agency to manage these areas and conduct ecotourism activities;

e) A national Payment for Ecosystem Framework has to be developed as a guide to enable PA managers to accrue revenue streams from commercialised goods and services such as hydroelectric generation, mineral water bottling and water supply to households which depend on the integrity of the PAs that provide these ecosystem services;

f) All PAs must revise their entrance fees and examples from other countries can be used as well as studies undertaken nationally on 'willingness to pay' can be used to revise the current low entrance fees. These fees should be channelled back to the PA and a percentage be channelled to the Federal and

State government consolidated fund as revenue and incentive to conserve the PA in perpetuity;

g) A National PA Framework (NPF) adopted − to enable the harmonisation of management standards across PAs in Peninsular Malaysia. NPF will ensure a clear definition of PAs in line with international norms is used throughout Peninsular Malaysia. NPF could facilitate the harmonisation of legal framework based on a template which the states can then update their respective enactments to the minimum standards provided by the federal template. At the point of this thesis write up the initiative to draft the National PA Framework has started by DWNP. The challenge will be its adoption and uptake by state governments;

h) While Malaysia has a 20% target which includes PAs as well as OECM, Malaysia must have a clear target on how much of land area will be PAs and OECM. As discussed, there is a concern that in achieving numbers, more OECM will be designated. Since there is no clear definition internationally on OECM, it may be areas of little significant conservation value;

i) Strengthen biodiversity institute to provide schedule training on PAs, wildlife, policy and other related disciplines to PA managers, staff and rangers. This institute must also actively conduct research on PA, wildlife and other related biodiversity issues and foster smart partnerships with research organisations (both nationally and internationally) and academia to enable science policy interface as well as enhance skills through these partnership;

j) Set up an independent scientific advisory body to advise the National Biodiversity Council on broad national issues pertaining to

biodiversity. At departmental level have technical task forces compromising of scientist and researchers on thematic issues that the PA agency would need assistance to enhance management of PA with scientific and technical input;

k)  Staff who work in PAs, their welfare must be addresses and given appropriate allowances (incentives) and facilities such as housing. It's also about time PA agencies have standardised uniforms for rangers and staff just like other enforcement agencies; and

l)  To foster the appreciation of science as well as biodiversity, there should be more experiential learning starting from primary school levels.

There is universal recognition on the importance of PAs for *in-situ* protection and conservation of global biodiversity (Dearden, Bennett and Johnston, 2005; IUCN, 2016). PAs also have an important role for mitigation and climate change adaptation, food security, ecosystem services as well as fuelling a nation's economy through ecotourism and supporting local livelihoods (Watson *et al.*, 2014). The role of PAs which is well governed is extremely important especially in biodiversity hotspots regions such as Malaysia (Sodhi, 2008; Borrini-Feyerabend Grazia *et al.*, 2013). While PA numbers are growing, we must ensure the two criteria of quantity and quality must be met and complemented with effective management,  or these PAs will remain as paper parks (Terborgh and Schaik, 2002).

### 8.6.1.  Limitation

This issue on 'positioning' and 'transferability' has been highlighted in Chapter One and Five respectively. Additionally, since the case study focused in three sites in Peninsular Malaysia, there may be limited possibility of generalising this study.

However, this was not the intention of this study as the intention was to give an in-depth focus on the case of PA governance within Peninsular Malaysia.

# CHAPTER 9: GENERAL DISCUSSION, RECOMMENDATION AND CONCLUSIONS

*"Biodiversity starts in the distant past and it points toward the future"*

- Frans Lanting (internationally acclaimed wildlife photographer)

## 9.1.    General Discussion

The aim of this thesis was to study the attributes that affect biodiversity governance in Peninsular Malaysia. From the literature search, it is the first assessment on biodiversity governance in Peninsular Malaysia that builds upon political ecology and postcolonial conceptual framework that defined conservation priorities, analysed underlining systemic issues under a federalised constitutional construct and unravelled insights of protected areas governance.

My thesis began with an aim of understanding different stakeholder's perceptions on the governance of biodiversity in Peninsular Malaysia. I asked questions such as what their perception regarding Protected Area (PA) and wildlife management are to obtain a clear indication of the current situation, a reality check, if this is really an issue that needs to be addressed. The feedback and from the analysis as shown in Chapter Four in agreement with the literature, this study revealed that stakeholders had serious concerns and felt PAs and wildlife were unsatisfactory managed.

Given this backdrop, it was useful to know what the priorities for conservation, if we need to change the current perception. I then based on the 35 priorities generated, focused the research on two issues ─ the impact of Malaysia's federalism on biodiversity conservation and the governance of PAs. While these two issues were reported as priority issue, I felt the dire need to undertake research

in these areas. The reason is, whenever there is a biodiversity issue that gets public and media interest, for example logging at a catchment area (see Idris, 2017), the federal government will defend itself by highlighting that land and forest are state matters and on the other hand state governments will argue that they have narrow revenue streams and have no choice but to rely on natural resources. State governments also stress that federal government does not provide any incentive for conservation (see Chapter Five). Ever since independence this has been the argument and the governance of biodiversity gets caught in this tension of political ecological debate that only augments the problem, with no winners and biodiversity is affected the most.

Hence, there was a strong need to study federalism and biodiversity, while understanding the colonial imprints on governance and the situation in present day Malaysia. I then focused on an important area for biodiversity conservation which is protected areas. PAs in Malaysia are either managed by federal or state governments and this difference in management with varying capacity and resources as well as priorities was another issue that I felt needed to be addressed as this issue was also a priority issue identified in Chapter Two and in the literatures reviewed.

### 9.1.1. Priorities for Conservation

This research was the first in Malaysia and the larger developing world.  to undertake a multi-stakeholder approach which was participatory, open, and transparent to define conservation priorities (except for India see (Varma *et al.*, 2015). Currently, most of the prioritisation exercise has been undertaken by the countries in the North with very different biodiversity, national circumstances and governance systems (see Sutherland *et al.*, 2010; Fleishman *et al.*, 2011).

This study provides a menu to policy makers and other stakeholders on priorities for conservation in Peninsular Malaysia. Chapter Four of this thesis ranked 35 priority issues under seven themes: (1) policy and management; (2) legislation and enforcement; (3) finance and resource allocation; (4) knowledge and research and development (R&D); (5) socio-economic issues; (6) public awareness and participation; and (7) rights of nature (including heritage).

The prioritisation exercise which involved a multi-stakeholder participation had highlighted some very important issues to strengthen biodiversity governance such as lack of leadership, federal-state issues, lack of funds and human resource, lack of participation of indigenous and local communities, weak science-policy interface and general lack of empathy among Malaysians for conservation. Prioritisation of conservation issues will be useful to focus actions and to channel funds and resources (Wilson *et al.*, 2007). Malaysia was reported as the seventh most underfunded for biodiversity conservation (Waldron *et al.*, 2013). Prioritisation of conservation issue will benefit Malaysia to ensure the limited funds will be utilised for important issues that can have a positive impact on biodiversity governance. The outcome of this research demonstrated high level of agreement on the priority issues among the different stake holders (government, NGOs, academic/researchers and private sector) despite their very different backgrounds and agendas.

### 9.1.2. Federalism and Biodiversity Governance

The previous research on federalism in Malaysia, focused on environment and pollution issues and specific cases like dam construction (see Nijar, 1997; Maidin, 2005; Ling, 2011). This study builds on previous research by providing broader insights on biodiversity and its governance under a federal system of government.

Malaysia's federal system of government takes a dichotomous approach by distributing powers between federal and state governments. Forest and land are state matters and this has posed challenges for biodiversity conservation as federal government can't control what states do on their land (Jayum, 2009). At best, the federal government has policies related to biodiversity but these policies have no legal bite (Maidin, 2005) and do not stop states from continuing to develop land and clear forest for income. This is because, states receive almost no incentive for conservation (Majid, 2013). The federal-state tension due to the dichotomy in the constitution was explored in Chapter Five and Six. In Chapter Five, an in-depth review on the impact of federalism on biodiversity governance in Peninsular Malaysia was presented.

I also reviewed two other former British colonies with federal systems and their approach as well as actions taken to improve biodiversity conservation. India had made constitutional reforms by amending its constitution to include environment in 1978. Australia on the other hand, came up with a standalone law in 1999 for matters of national and international importance to enhance its biodiversity governance and promote regulatory uniformity (Government of Australia, 2009; Government of India, 2015).

Ever since independence Malaysia has not made any amendments to include environment or biodiversity into the constitution (both these words do not appear in the Federal Constitution) and have left the interpretation to courts (Nijar, 1997). When the constitution was drafted, its sole purpose was for the creation of Malaysia by ensuring all states agree to the constitutions (hence the distribution of powers) and to ensure racial unity (Fernando, 2002). The issue of land, water and forest were at that time thought to be local issues and hence made as state matters.

But as we see in the last three decades, the emergence and discussions about the environment and biodiversity has intensified at the global level which would require some form of broad legal direction at national level by either amending the constitution to include environment and biodiversity or an overarching national law.

From the empirical study on federalism, participants felt the constitution needs to be amended to enhance biodiversity conservation. This idea was also supported recently by the outgoing Chief Justice of Malaya (Koshy, 2017). There needs to be a provision for states to receive incentives for conservation. This constitutional reform is important to enhance biodiversity governance. Both federal and state governments must realise that for the long term well-being of the people and to fuel the nations development agenda, biodiversity and its ecosystem services are integral ingredients (Martens, Kretsch and Prieur-Richard, 2013). This study on federalism in biodiversity governance adds to the literature and provides policy prescription which could add to the discourse for reforms. The impact of federalism is felt in all realms of biodiversity conservation but as highlighted in the prioritisation exercise, the federal state jurisdiction has had a huge impact on the governance of PAs in Peninsular Malaysia

### 9.1.3. <u>Protected Areas</u>

This thesis fills the gap of the current knowledge by providing theoretical and empirical information on the governance of PAs under different systems of legal and institutional framework which are in operation in Peninsular Malaysia.

As highlighted by many authors (Bruner *et al.*, 2001; Terborgh and Schaik, 2002; Naughton-Treves, Holland and Brandon, 2005), PAs are the cornerstones for

biodiversity conservation. The map of the distribution of PAs as in Chapter Seven (*Figure 7.2*), shows Peninsular Malaysia has pockets of PAs dotting the landscape covering an area of 13.2% of Peninsular Malaysia (Malaysia:12.1%) (NRE, 2015) These PAs need to be connected and safeguarded in perpetuity for biodiversity and the services they provide.

In this regard, since the Aichi Targets prescribed 17% terrestrial PAs including 'other effective area-based conservation measures' (OECMs) by 2020 (CBD Secretariat, 2010). Given the current inertia, Malaysia is not going to be able to meet this target. The new National Policy on Biological Diversity (2016-2025) somewhat hints to this fact as Malaysia via this policy has moved the target to 2025 and raised it to 20% (NRE, 2016). In trying to achieve this target, Malaysia must ensure that it conserves good quality forested areas with ecosystem representation and abundant biodiversity (NRE, 2009a), as there is a fear we may get the quantity but not the quality in PAs as our findings in Chapter Eight reveal.

This study further reveals governing PAs effectively has been greatly impeded by the dichotomy in the federal constitution. The federal constitution as elaborated in Chapter Five and Six, has provided land is a state matter. State governments after independence have pursued formulating their own laws and gazetted PAs under their own state laws, despite the presence of a federal law – the National Parks Act 1980. In my findings states do not want to give up their rights as they fear of losing rights over land to the federal government as land and forest are important sources of revenue for state governments. The dichotomy in the constitution seems to be the root cause for many other issues such as weak enforcement, lack of funds, no uniformity of laws among federal and states governments on PAs, lack of manpower, lack of training and motivation. In the

present scenario, the bulk of the revenue streams as provided for in the constitution are channelled to federal government.

The indigenous communities *(orang asli)* have also been adversely impacted by the way forest and PAs are governed. I found from my field work, their traditional areas have either been compromised for logging or commodity plantations or transformed into PAs. If an area is declared as a PA, the orang asli seem to be restricted in what they can use or do, which dismantles their traditional livelihood and has far reaching implications of losing their cultural and spiritual roots. This is because from our findings many orang asli are now involved in mainstream economic activities and have taken up jobs in towns. The few who still depend on forest are hoping for some reforms in the governance, so that they can participate in the management as well as actively take part in economic activities such as ecotourism in PAs rather than be bystanders and worst still exhibits for curious tourist.

The findings from Chapter Seven and Eight, will be able to strengthen the governance of PAs in Peninsular Malaysia as we have made very little progress since independence. Many of the well-intended policies such as the Third Malaysia Plan (1976-1980), which had progressive and prescriptive provisions for strengthening conservation through creation of more PAs have not fully been followed through. This study has identified the gaps by putting forth the issues as well as recommendations that can influence the future direction of PA governance in Peninsular Malaysia.

## 9.2. Building on the Conceptual Frameworks

This thesis had been inspired by the political ecology and post-colonial theory. The political ecology frame work guided this study in understanding the tension at national and subnational level and also between state non-state actors (Bryant and Bailey, 1997). Political ecology theory has often been criticised for overly focusing on the politics and not the ecological issues (Vayda and Walters, 1999). In this research however, it is demonstrated that in Peninsular Malaysia, a fast growing economy, most of the root causes that drive biodiversity loss is due to political issues with its legal and institutional governance framework. In this thesis, the political ecology scholarship was further built upon the postcolonial paradigm, which enabled this study to provide a more realistic situational analysis that was useful to deliver the rich findings which are grounded to the reality of the present situation.

The colonial imprints have shaped the foundation of the governance structure as the constitution, which is the supreme law of Malaysia was drawn by the colonial masters. While post-colonial scholarship was useful to inform the underlining issues in biodiversity governance, in moving forward, Malaysia would need reforms as highlighted in this thesis. After 60 years of independence, Malaysia needs to evaluate how much of the embedded colonial imprints are still relevant in today's context and move on to make reforms that are needed to address current issues in terms of biodiversity governance. Hence, this study's approach of combining both schools of thoughts has proven to be useful in understanding conservation and development tensions in a fast growing developing country. The combination of both this conception framework has enabled this thesis to look at the past and reflect on the present reality and provide recommendation for

improving governance of biodiversity. I recommend that using this dual conceptual approach will useful to study development and conservation constraints in other developing countries that have a colonial past.

## 9.3.    Recommendations for strengthening biodiversity governance in Peninsular Malaysia

I have provided recommendations in every substantive chapter of this thesis (conservation priorities, Federal-State and PA Governance). The recommendations cover issues such as constitutional amendments, legal and institutional reforms, incentives for conservation, alternative financing schemes to be explored such as Payment for Ecosystem Services (PES), the participation of orang asli in manging PAs and their involvement in ecotourism activities.

Nevertheless, there are some overarching recommendations which are over and above what has been provided in each chapter as following:

### 9.3.1.    Conservation Priorities:

While these identified priorities may be useful for the present circumstances, there must be an evaluation of priorities periodically done (I suggest every five years). I recommend that identifying priorities be assimilated as a formal process and can be done by the government or any stakeholder based on the methodological approach in Chapter Two. I found that the university setting was useful as it was perceived as a neutral ground that allowed all stakeholders to participate openly.

I am suggesting this prioritisation exercise is repeated every five years to coincide with the Malaysia's five-year development plans as the priorities identified will be useful input in formulating the Malaysian Plan. Central agencies such as the Economic Planning Unit and the Federal Treasury will benefit in

drawing up the Malaysian Plan as it has inputs for conservation interventions based on a science-based approach to identify priorities. It will also enable justification of resource allocation to strengthen biodiversity conservation.

### 9.3.2. Enhance the understanding of policies and laws related to biodiversity

While conducting interviews and focus group discussion, it often surprised me that there were a few participants from conservation agencies who lack understanding, or no knowledge of national policies related to biodiversity. I observed a few participants lack understanding on laws as well as the federal constitution. This to me provides a challenge in two forms; the first is it impedes the uptake of national polices related to biodiversity and the implementation of it; and secondly, which is more serious, lack of understanding often creates mistrust and suspicion at subnational level on national initiatives.

To illustrate this point, state participants responded they were reluctant to use federal law to manage their PAs (even with the prospect of getting manpower and funds) as they fear they would lose the land, which is not true. Hence there is a need for both federal and state conservation agencies to have dedicated programmes to enhance awareness and understanding regarding the constitution, policies and related laws.

### 9.3.3. Awareness and internalising the appreciation for biodiversity

While undertaking my field work, I observed people generally understand biodiversity and its importance, but there is a lack of appreciation for it (even among some people working in conservation agencies). This issue was also highlighted in the findings of Chapter Four. The lack of appreciation seems to also

be the case with local communities who live near PAs. As for some of the local communities, economic stimulus overrides the appreciation for biodiversity. In this regard, PA agencies should have awareness programmes in collaboration with NGOs. NGOs too should augment current awareness initiatives on biodiversity by having targeted grass root programmes like those conducted by a Malaysian Conservation Alliance for Tigers (MYCAT). MYCAT is a collation of local NGOs working for tiger conservation that target their awareness programmes to include site specific programmes with the communities through its Citizen Action for Tigers (CAT) Programme (MYCAT, 2010). Programmes of this nature can be mainstreamed and scaled up for the larger biodiversity conservation outreach initiatives.

To bring about attitude and behaviour change on biodiversity, I reemphasise the need for experiential learning approach regarding biodiversity at formative years of a student in the formal education process. Experiential learning of nature will facilitate the better appreciation of the subject learned. This has been deployed elsewhere successfully such as in Norway (OECD, 2012). This approach too, may bring about interest for undertaking research and study on biodiversity, which as shown in the finding of this research is very much lacking.

## 9.4.  Translating research to the wider policy and public space

The Government of Malaysia funded this research, and it's only appropriate that it must have a utility value to influence wider policy and public space. In this regard, findings from Chapter Four were presented to the Economic Planning Unit, when they had a dedicated lab to discuss inputs for the 11th Malaysian Plan (2016-2020) which was held from 5-6 September 2014.

The 11<sup>th</sup> Malaysian Plan was unveiled in May 2015, and it was encouraging that a couple of the outcomes from Chapter Four for example the need to enhance involvement of indigenous and local communities (ILCs) in biodiversity conservation has been incorporated in the focus areas of the 11<sup>th</sup> Malaysia Plan (Appendix L).

The outcome of Chapter Two was also taken to the public sphere by among others an article in Science Daily, which can be retrieved here: https://tinyurl.com/sciencedaily-priorities

My supervisor and I were also interviewed by a local radio station on the findings of Chapter Two which can be listened to online (archived) at: https://tinyurl.com/BFM-priorities

The findings of other chapters were also presented in key international conferences as highlighted in the beginning of this thesis. It is envisaged that chapters of this thesis will also be translated to policy briefs for dissemination among the relevant government agencies at both federal and state level as well as the wider stakeholder groups once they have been published (see Chapter One for intended journals and authorship details).

## 9.5.    Limitations and follow up research

### 9.5.1.  Limitations

Limitations to this thesis have been highlighted in specific chapters as they are case specific, but I would highlight here generic limitations of this research. Initially my positioning in this research did seem to pose a challenge as participants were initially careful with their response but as elaborated in Chapter One, I managed to minimise this issue. The other limiting factor was I was unable to interview female

orang asli (except for one). They were very shy and the tribes I visited had a culture where the men are the ones who take the lead when interacting with outsiders.

### 9.5.2. Follow up research

This thesis has the potential to inspire follow up research. I highlight three areas that I feel is important to follow up emanating from the work of this thesis:

a)  Comparison of biodiversity governance in Peninsular Malaysia with the Bornean states of Sabah and Sarawak. This will be useful research as these two states in east Malaysia have powers as provided for in the constitution which is over and above states in Peninsular Malaysia. These states also have different legal and institutional frameworks for biodiversity governance. Research of this nature will be able to provide a comparative analysis and can be used for cross learning to improve biodiversity governance by highlighting best practices at national scale;

b)  Biodiversity governance and the indigenous people (orang asli) of Peninsular Malaysia research could build upon this thesis to further study other landscapes in Peninsular Malaysia where there are orang asli in PAs. This is an important issue to further provide ways to enable orang asli to participate and explore the concept of indigenous and community conserved areas (ICCA) in Peninsular Malaysia; and

c)  Conservation priorities exercise for specific issues such as tiger conservation; state specific such as conservation priorities for Kelantan state; prioritising policy prescriptions such as the National Policy on Biological Diversity (2016-2025); and prioritising international commitments such as the Conference of Parties decisions of the

170

Convention on Biological Diversity or even the 179 targets of Sustainable Development Goals for national implementation.

## 9.6. Final Remarks

As I conclude my thesis, as a reflection, the findings of this research points to a diagnosis which is challenging. However, I feel with the right interventions the prognosis can be improved and Malaysia has all the enabling conditions to strengthen biodiversity conservation. I say this because compared to other countries in this region, Malaysia has sizeable forest cover, where over half of its land is forest (NRE, 2014a; World Bank, 2017). Malaysia has a high national biodiversity index (CBD Secretariat, 2001), a strong economy and a low population density (EPU, 2016; World Bank, 2017). Given this scenario and **with the much needed political will, Malaysia a biodiversity hotspot has huge potential for long term conservation of biodiversity** (*Figure 9.1*) and can serve as priority area for targeted and meaningful long term conservation efforts as articulated by (Myers *et al.*, 2000)

This thesis is prepared as a requirement for a doctoral degree. But it also has a higher aim of bringing change at a national level on biodiversity governance. It is my fervent optimism that this thesis will be useful in the years to come to strengthen biodiversity governance and conservation in Peninsular Malaysia. I have confidence that the findings and the elaborated recommendations can be implemented to deflect the current trajectory of biodiversity loss.

*Figure 9.1: Comparison of Countries in South and South East Asia Region in terms of their biodiversity index, forest cover, population density and GDP per capita*
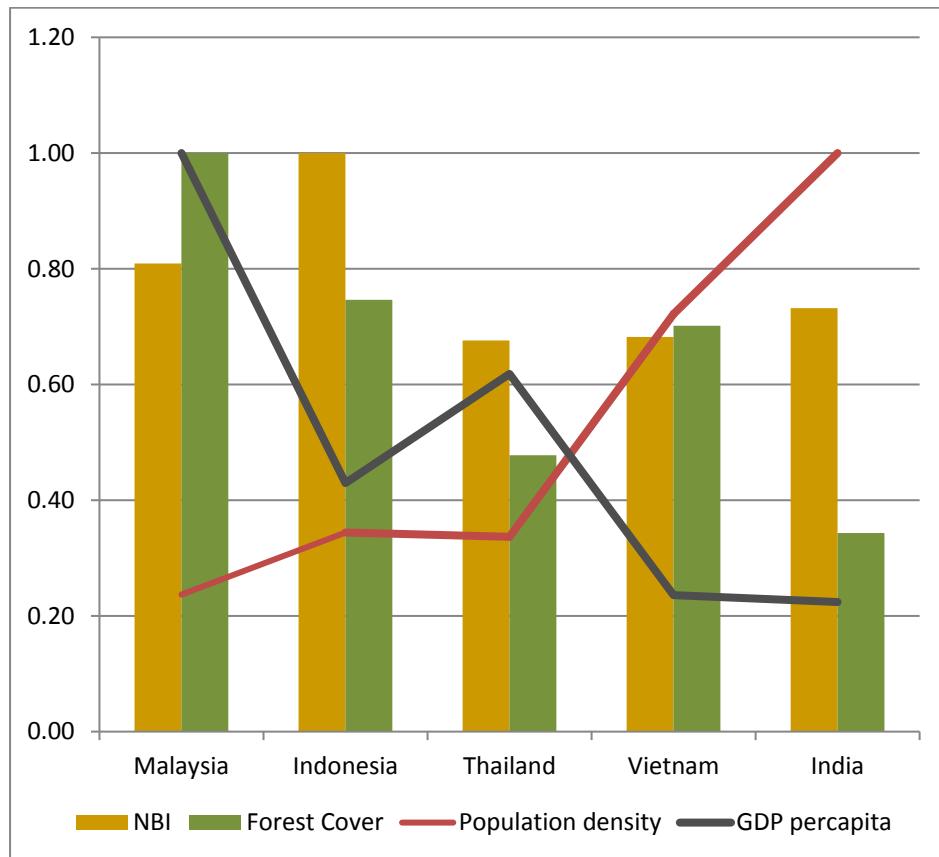
I am highlighting on the utility value of this research is due to two reasons. The first, as I mentioned earlier, this is a public funded research; it should not stay on the shelves. The second is, in one of my field work, an orang asli participant made this heart hitting remark "*very often people like you come and ask us questions, lots of questions and go, you may get your sijil* [academic certificate], *but we and our issues remain unchanged"*. These two reasons alone I believe are compelling enough to motivate me and others to translate as appropriate this research into action.

I conclude this thesis, with the reflection of the quote at the beginning of this chapter. The quote can be interpreted in many ways; to me it is a timely reminder that whatever happens to biodiversity in the future will also affect us, as we are all connected in this fragile web of life.

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# APPENDICES

**Biodiversity Governance Survey I**

Dear Sir/Madam,

You are receiving this invitation to participate in this questionnaire, because you have been identified as a key stakeholder in the issue of wildlife and Protected Areas (PAs) management in Malaysia.

**Introduction**

Malaysia a megadiverse country is particularly rich in wildlife, being home to charismatic species such as tigers, elephants, orang utans, Sumatran rhinos, and many others. Additionally, 10.6%[4] of the country has been gazetted as Protected Areas (PAs) to preserve wildlife and other biodiversity. Like many other fast growing developing nation, Malaysia is faced with this fragile balance of promoting socioeconomic development while conserving biodiversity. In Malaysia wildlife and PAs, however, do suffer important threats, and business as usual will not suffice to secure their long-term conservation. Given this backdrop, Ministry of Natural Resources and Environment (NRE), University of Nottingham Malaysia Campus (UNMC) and University Technology Malaysia (UTM) are undertaking a joint research which aims to engage relevant stakeholders to list and prioritize necessary steps for the effective conservation of Malaysia's wildlife and PAs. The main outcome of this project will be a road-map of priorities in different themes to enable effective conservation interventions. As a first step, a stakeholder consultation workshop was held at UNMC on 24 October 2013. This workshop was attended by over 60 participants representing various stakeholders. During the workshop, the participants brainstormed on issues and gaps in PAs and wildlife management currently faced in Peninsular Malaysia. At the plenary of the workshop the consensus reached were to streamline the various issues into the following 7 conservation themes: 1. Public awareness and Participation; 2. Policy and Management; 3. Enforcement and Legal, 4. Finance and Resource allocation, 5. Socio-economy; 6. Knowledge and R&D; and 7. Rights of Nature including Heritage.

**The Work Process for Prioritisation of Issues**



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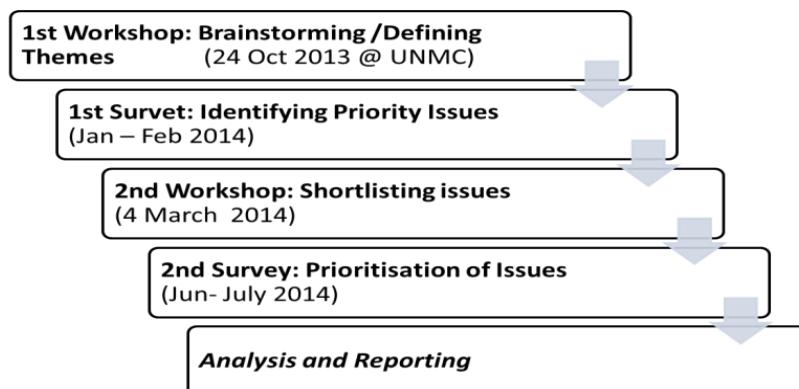
[4] Unpublished NRE-WWF Study on PAs, 2013

## Informed Consent

### Procedures
This questionnaire will take approximately 20 minutes or less. Please be free in expressing your views and also sighting examples in the later part of this questionnaire. You are also encouraged to email this questionnaire to a wider audience who you feel will be able to give their views in regarding this project.

### Benefits
By participating in this survey, you are assisting the project in identifying gaps and priority issues that need to be addressed in enhancing science-policy interface in protected area and wildlife management. This in turn, will generate the priority issues to be addressed which will assist the main stakeholders in focusing and channelling resources and the needed interventions to enhance management based on scientific input.

### Confidentiality
All data obtained from participants will be kept confidential and will only be reported in an aggregate format (by reporting only combined results and never reporting individual ones). All questionnaires will be concealed, and no one other than then primary investigators and collaborators listed below will have access to them. The data collected will be stored in the HIPPA-compliant, Qualtrics-secure database until it has been deleted by the primary investigator.

Primary Investigators [UNMC]: K. Nagulendran and Dr. Ahimsa Campos-Arceiz
Collaborator [UTM]: Dr Rory Padfield

### Participation
Participation in this research study is completely voluntary and open to all stakeholders (government, NGOs, private sector, industry, CBOs and the general public). You have the right to withdraw at any time or refuse to participate entirely. Please feel free to forward this questionnaire to your colleagues and to your network.

### Questions about the Research

If you have questions regarding this study, you may contact K. Nagulendran at 019-2216 473 or email Nagu_MyBioD@yahoo.com

*Should you have any concerns about the conduct of the project, you are welcome to contact Dr Ahimsa Campos Arceiz, Research Ethics Coordinator, Faculty of Science, University of Nottingham Malaysia Campus, on ph: +603 8924 8734 or email: Ahimsa.Camposarceiz@nottingham.edu.my*

Q1   I have read and understood, the above consent form and desire of my own free will to participate in this study.

　　◯  Yes  (1)

　　◯  No  (2)

Q2 Name *(optional)*

_____

Q3 Gender

　　◯  Male  (1)　　　　　　　　◯  Female  (2)

Q4 Age

　　◯  below 21  (1)　　　　　　◯  41-50  (4)

　　◯  21- 30  (2)　　　　　　　◯  51-60  (5)

　　◯  31-40  (3)　　　　　　　◯  above 61  (5)

Q5 Nationality

　　◯  Malaysian  (1)

　　◯  Non-Malaysian  (2)

Q6 Name of Organisation *(optional)*

_____

Q7 Sector

○ Government  (1)          ○ Academia  (5)

○ NGO  (2)                 ○ Research Organisation  (6)

○ CBO  (3)                 ○ Others (please specify)  (7)

○ Industry / Private Sector  (4)

*Display This Question: If Sector = Government*

Q8 Government

○ Federal  (1)

○ State  (2)

*Display This Question: If Sector = Industry / Private Sector*

Q9 If Industry, kindly specify

○ plantation  (1)          ○ construction  (4)

○ tourism  (2)             ○ others  (5)

○ mining  (3)

*Display This Question: If Sector = Others (please specify)*

Q10 If 'others', please specify

_____

Q11 Nature of your job *(you can choose more than one)*

☐ Policy  (1)          ☐ Enforcement  (5)

☐ Technical  (2)       ☐ Communication  (6)

☐ Teaching  (3)        ☐ Promotion/Marketing  (7)

☐ Research  (4)        ☐ others  (8)

*Display This Question: If Nature of your job (you can choose more than one) = others*

Q12 If 'others', please specify

_____

Q13 Kindly indicate years of working experience

○ 0 - 5 years  (1)        ○ 21 - 25 years  (5)

○ 6 - 10 years  (2)       ○ 26 - 30 years  (6)

○ 11 - 15 years  (3)      ○ more than 30 years  (7)

○ 16 - 20 years  (4)

Q14 In your perception, what is the current level of management of Protected Areas in Peninsular Malaysia

○ Very Poor  (1)                    ○ Good  (4)

○ Poor  (2)                         ○ Very Good  (5)

○ Fair  (3)                         ○ No Comment / do not know  (6)


Q15 In your perception, what is the current level of managing illegal wildlife trade in Peninsular Malaysia

○ Very Poor  (1)                    ○ Good  (4)

○ Poor  (2)                         ○ Very Good  (5)

○ Fair  (3)                         ○ No Comment / do not know  (6)


*In the following section, kindly indicate your priority issues which need to be addressed in enhancing PA and wildlife management. List as many issues as you may wish for each theme and you may give examples too.*

Q16 **Theme: Public Awareness and Participation**   *(example of Priority Issue: Malaysian public is generally unaware of the existence of endangered species such as Sumatran rhinos)*

_____

_____

_____


Q17 **Theme: Policy and Management**  *(example of Priority Issue: There has been no gap analysis on prevailing conservation policies)*

_____

_____

_____

Q18 **Theme: Financial and Resource allocation** *(example of Priority Issue: Alternative funding schemes such as Payment for Ecosystem Services (PES) could be explored to fund conservation)*

_____

_____

_____

Q19 **Theme: Enforcement and Legal** *(example of Priority Issue: There is a disparity between the quality of the country's wildlife conservation laws and the quality of their enforcement)*

_____

_____

_____

Q20 **Theme: socio-economic** *(example of Priority Issue: There is a need to generate alternative livelihood for Indigenous and Local Communities (ILCs) in PAs)*

_____

_____

_____

Q21 **Theme: Knowledge and R&D** *(example of Priority Issue: there is a shortage of human capacity to undertake state-of-the-art research on endangered wildlife populations)*

_____

_____

_____

Q22 **Theme: Rights of Nature including Heritage** *(example of Priority Issue: There is need to factor in rights of nature and heritage issues in planning and development process)*

_____

_____

_____

Q23 **Other** *(Please note down any other priority issues not covered in themes above)*

_____

_____

_____

*Thank you for participating in this survey.*

*This survey was posted online, and this sheet was imported from Qualtrics and presented here with formatting edits.*

## Biodiversity Governance Survey II

Dear Sir/Madam,

You are receiving this invitation to participate in this survey, because you have been identified as a key stakeholder in issues pertaining to wildlife and Protected Areas (PAs) management in Malaysia. This survey will take about 10 minutes or less.

Thank you for your time.

**Survey to Rank Key Priority Issues to Enhance the Management of Wildlife and Protected Areas in Peninsular Malaysia**

This survey is the final part of a research exercise to identify key priority issues to enhance the management of wildlife and protected areas in Peninsular Malaysia. This project is undertaken by University of Nottingham Malaysia Campus (UNMC) with the collaboration of the Ministry of Natural Resources and Environment, Malaysia (NRE) and University Technology Malaysia (UTM).

**You can participate in this survey even if you were not involved in the earlier processes as illustrated.**

***The Process****:*



*1st workshop: Gaps were discussed, and 7 themes were identified*
*1st Questionnaire: On-line questionnaire and inputs were gathered on issues under each 7 themes*
*2nd workshop: all issues received from the questionnaire were analysed and 5 top issues were picked under each theme*
***Current survey:*** *to prioritise issues under each seven themes.*
*Final Reporting & Dissemination*
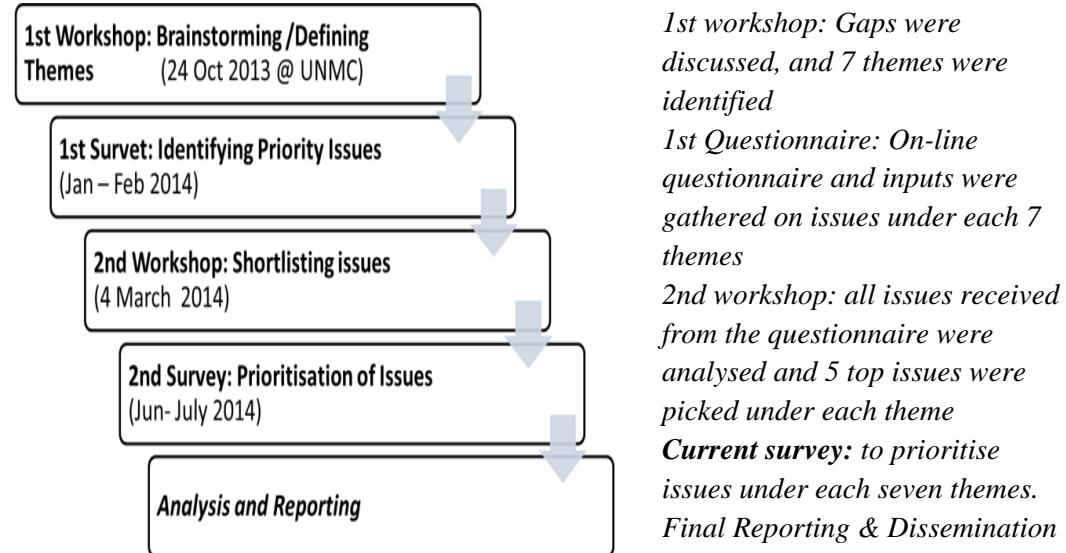
**Informed Consent**

**Procedures**

This questionnaire will take approximately 10 minutes or less. You have to rank the issues according to its priority: '1' - the highest, and '5' - the lowest.

**Benefits**

By participating in this survey, you are assisting the project in identifying priority issues that need to be addressed in enhancing management of protected area and wildlife. This in turn, will assist the main stakeholders in focusing and channeling resources and the needed interventions to enhance management based on scientific input.

**Confidentiality**

All data obtained from participants will be kept confidential and will only be reported in an aggregate format (by reporting only combined results and never reporting individual ones). All questionnaires will be concealed, and no one other than then primary investigators and collaborators listed below will have access to them. The data collected will be stored in the HIPPA-compliant, Qualtrics-secure database until it has been deleted by the primary investigator.

Primary Investigators [UNMC]: K. Nagulendran and Dr. Ahimsa Campos-Arceiz
Collaborator [UTM]: Dr Rory Padfield

**Participation**

Participation in this research study is completely voluntary and open to all stakeholders (Government, academia, NGOs, private sector, industry, CBOs and the general public). You have the right to withdraw at any time or refuse to participate entirely.
Please feel free to forward this questionnaire to your colleagues and to your network.

**Questions about the Research**

If you have questions regarding this study, you may contact:

*K. Nagulendran*
*Faculty of Science*
*University of Nottingham Malaysia Campus (UNMC)*
*E-mail: Nagu_MyBioD@yahoo.com*
*Tel: 019-2216 473*

*Should you have any concerns about the conduct of the project, you are welcome to contact Dr Ahimsa Campos Arceiz, Research Ethics Coordinator, Faculty of Science, University of Nottingham Malaysia Campus, on ph: +603 8924 8734 or email: Ahimsa.Camposarceiz@nottingham.edu.my*

**I have read and understood the above consent form and desire of my own free will to participate in this study**.

○ Yes (1)

○ No (2)

**Thank you for agreeing to participate in this survey.**

Now we just got to capture some basic details before we move on to the survey.

---

Q1 *Name (optional)*

_____

Q2 **Gender**

○ Male (1)                    ○ Female (2)

Q3 **Age**

○ below 21 (1)              ○ 41 - 50 (4)

○ 21 - 30 (2)               ○ 51 - 60 (5)

○ 31 - 40 (3)               ○ above 60 (6)

Q4 **Nationality**

○ Malaysian (1)

○ Non-Malaysian (2)

Q5 *Name of organisation (optional)*

_____

Q6 **Working Experience (in years)**

    ◯ 0 - 5  (1)            ◯ 21 -25  (5)

    ◯ 6 - 10  (2)          ◯ 26 - 30  (6)

    ◯ 11 - 15  (3)         ◯ above 30  (7)

    ◯ 16 - 20  (4)

Q7 **Sector**

    ◯ Government  (1)       ◯ Academia  (5)

    ◯ NGO  (2)           ◯ Research Organisation  (6)

    ◯ CBO  (3)           ◯ Others  (7)

    ◯ Industry / Private Sector  (4)

*Display This Question: If Sector = Government*

Q8 **If 'Government', please specify**

    ◯ Federal  (1)         ◯ State  (2)

*Display This Question: If Sector = Others*

Q9 **If 'others', please specify**

_____

Q10 **If 'Private Sector/Industry', please specify**

☐ Plantation  (1)                    ☐ Construction  (4)

☐ Tourism  (2)                       ☐ Consultancy  (5)

☐ Mining  (3)                        ☐ others  (6)

Q11 **If 'others', please specify**
_____

Q12 **Nature of your job**

☐ Policy  (1)                        ☐ Communication  (5)

☐ Technical  (2)                     ☐ Promotion / Marketing  (6)

☐ Research  (3)                      ☐ Guide  (7)

☐ Enforcement  (4)                   ☐ Others  (8)

Q13 **If 'others', please specify**
_____

**Thank you, and now you are invited to rank the issues listed according to priority.**

All you have to do now is to **rearrange** the issues listed according to priority. Just **'drag and drop'** (click on the issue and move it up or down) to rank the issues (highest level

'1' as the top priority and lowest level '5' as the least priority) within the seven themes identified.    Hit the forward icon to start ranking.

<u>NOTE:</u> *In the Qualtrics software, the issues appeared as boxes and can be moved up or down to choose rank position*

Q14 **Theme 1: Policy and Management**

There is a lack of strong national leadership on sustainable development which limits the effective implementation of consistent policies and necessary championing of biodiversity issues. (1)

The existing policy framework for conservation and management of PAs and wildlife is sound but there is ineffectiveness in the current implementation and monitoring of these policies. (2)

There are inconsistent and conflicting policies between the Federal and State authorities and a lack of effective inter-agency coordination, including federal-state coordination mechanisms to manage PAs and wildlife. (3)

There is currently an absence of a "National Framework / System" to standardise PAs management practices in Malaysia. (4)

Economic value of biodiversity and ecosystem services (natural capital accounting) has not been taken into account in meeting current economic development goals. (5)

Q15 **Theme 2: Enforcement and Law**

There is a lack of enforcement of legal instruments and laws, including insufficient human resources to perform enforcement duties. (1)

The Malaysian Judiciary does not view environmental crimes as serious as other forms of crime which results in in light and inadequate sentences. (2)

There is a lack of training for enforcement, prosecuting /investigating officers and judges. (3)

The general public perceive conservation/wildlife agencies to be inefficient and susceptible to corruption. (4)

The enforcement of PAs and wildlife issues is currently too compartmentalised due to jurisdiction boundaries and a lack of joint operations among agencies. (5)

Q16 **Theme 3: Socio-economy**

There is a lack of consultation and participation of Indigenous and Local Communities (ILCs) in PAs and wildlife management which raises conflict, such as the use of resources by ILCs. (1)

Access and Benefit Sharing Rights to Genetic Resources (ABS) as provided for by the Convention on Biological Diversity (and Nagoya Protocol) has not been fully implemented and there is lack of understanding on ABS among all stakeholders especially ILCs. (2)

There is considerable pressure for development which exacerbates encroachment into PAs and wildlife poaching. (3)

Though Malaysia is promoting tourism including eco-tourism in a big scale, ILCs do not receive adequate benefits from this activity to supplement their income. (4)

Eco-tourism and other socioeconomic activities in PAs have led to the erosion of indigenous culture and local value systems of ILCs. (5)

Q17 **Theme 4: Financial and Resource allocation**

There is a lack of funds from both the Federal and State Governments to manage PA and wildlife. (1)

The use of alternative and innovative funding schemes, such as Payment for Ecosystem Services (PES) and Reducing Emissions from Deforestation and Forest Degradation plus (REDD+) programmes have not been fully implemented. (2)

There is a lack of adaptive management approaches and strategies to increase the effectiveness of managing PA and wildlife, especially considering the limited resources. (3)

There is a lack of effective usage of resources in managing PAs which are governed by different actors (i.e. State, Federal, NGOs and Communities). (4)

Policies/laws formulated for PAs and wildlife lack resource mobilisation plan/strategy to ensure effective implementation. (5)

## Q18 Theme 5: Knowledge & R&D

There is a lack of consorted effort to make research in PAs and wildlife attractive and complimented by clear career paths. (1)

There is a decline in quality and application of research findings to conserve and manage PAs and wildlife. (2)

There is a shortage of local researchers in PAs, wildlife and in basic biodiversity sciences. (3)

There is a lack of collaboration amongst research institutes, universities and agencies for continuous training and capacity building. (4)

Knowledge sharing and interaction between researchers and other stakeholder groups is lacking and uncoordinated which leads to weak science policy interface. (5)

## Q19 Theme 6: Rights of Nature including Heritage

Formal and informal education systems lack the emphasis on the "value-system" to respect and recognize the rights of nature. (1)

There is a lack of using religious influence as a means to drive and instil the message of "rights of nature". (2)

The National Heritage Act 2005 has not been explored to designate PAs and endangered species. (3)

There is a lack of a country wide holistic approach in the protection, preservation and documentation of traditional knowledge and cultural practices which protect rights of nature and the sustainable use of biodiversity. (4)

Natural heritage, inter-generational issues, sustainability and the overall well-being of the people have not been successfully incorporated into the country's planning processes. (5)

## Q20 Theme 7: Public Awareness and Participation

There is no dedicated and passionate personality/icon on championing and promoting PAs and wildlife conservation. (1)

A lack of trust between different stakeholders has led to a lack of public engagement and participation in relation to PA and wildlife issues. (2)

Officers in charge of CEPA (Communication, Education, Participation, and Awareness) lack proper training and capacity building programmes to execute their job effectively. (3)

There is a general overall lethargy and lack of passion for biodiversity or environmental related issues among Malaysians. (4)

There are limited funds to undertake a consolidated,holistic and effective approach on CEPA with regards to PAs and wildlife. (5)

*Thank you for participating in this survey*

*This survey was posted online, and this sheet was imported from Qualtrics and presented here with formatting edits.*

**List of Biodiversity and Related Policies (terrestrial) in Peninsular Malaysia**

- National Policy on Biological Diversity 1998 revised in 2016
- 11th Malaysia Plan (2016-2020), 2015
- National Elephant Conservation Action Plan, 2013
- National Action Plan for the Prevention, Eradication, Containment and Control of Invasive Alien Species (IAS) in Malaysia, 2013
- The National Water Resources Policy, 2012
- National Strategies and Action Plans on Agricultural Biodiversity Conservation and Sustainable Utilisation, 2012
- Nation Action Plan on Peatlands, 2011
- Central Forest Spine Master Plan, 2011
- National Agro Food Policy, 2011
- National Physical Plan II, 2010
- New Economic Model, 2010
- National Commodity Policy (2011-2020), 2010
- Common Vision on Biodiversity, 2009
- National Tiger Conservation Action Plan, 2009
- National Climate Change Policy, 2009
- National Biotechnology Policy, 2006
- National Wetland Policy 2004
- National Environment Policy, 2002
- Wildlife Plan, 1992
- National Forestry Policy 1978/1992

**Chapter 3: List of documents reviewed and analysed**

| Malaysia |
|---|
| 1.  Federal Constitution of Malaysia |
| 2.  Eleventh Malaysian Plan (2016-2020) |
| 3.  Fourth Malaysian Plan (1981-1985) |
| 4.  Third Malaysian Plan (1976-1980) |
| 5.  National Policy on Biological Diversity (2016-2025) |
| 6.  National Forestry Policy, 1978 (amended 1992) |
| 7.  National Policy on the Environment, 2002 |
| 8.  National Policy on Climate Change, 2009 |
| 9.  Malaysia's 5th National Report to the Convention on Biological Diversity (CBD) |
| 10. Annual Reports of Forestry Department Peninsular Malaysia 2014, 2015 |
| 11. Annual Report of the Department of Wildlife and National Parks 2013, 2014 &2015 |
| 12. Auditor General Report (Pahang, Kelantan, Kedah, Perak & Selangor) |
| 13. Common Vision on Biological Diversity, 2009 |
| 14. Project Document Enhancing effectiveness and financial sustainability of Protected Areas in Malaysia (GoM/UNDP/GEF), 2010 |
| 15. Project Document Improving Connectivity in the Central Forest Spine (CFS) Landscape - IC-CFS (GoM/UNDP/GEF), 2013 |
| 16. National Conservation Trust Fund For Natural Resources (NCTF), 2004 |
| 17. National Physical Plan, 2010 |

| Australia |
|---|
| 1.  Federal Constitution of Australia |
| 2.  Australian Environment Protection and Biodiversity Conservation Act 1999. |
| 3.  National Landcare Programme Australia, 2016 |
| 4.  Australia's Fourth National Report to the United Nations Convention on Biological Diversity. |

| India |
|---|
| 1.  Federal Constitution of India |
| 2.  India's Fifth National Report to the Conventiojn on Biological Diversity. |
| 3.  Report to CBD Secretariat on Assessment of Funding support for Biodiversity Conservation in India . |

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**Questionnaire**
*(for Indigenous and local communities see Appendix D)*

Name: _____

Designation: _____

Organization:_____

Date: ____/ _____/ _____


**1. Federal Constitution and Biodiversity Governance** [ this section is only administered if the participant acknowledges he or she has knowledge about this matter]

   a) How does the division of power in Federal Constitution affect biodiversity governance?

   b) What are the main issue and challenges?

   c) Have you any thoughts for improvements ?

**2. Protected Area Governance**

A) Policy, legal and Institutional Framework

   a) What is your view on the current governance of PA adequate?
      - What is good and what needs to be improved?
   b) What are the existing policy & legal framework, especially those that relate to your agency? Are they adequate? Are they effctive
   c) What is the current institutional set up?
      - Organisations (Department, Division, etc)
      - Councils
      - Committees
   d) Are people in charge of PA in your organisation well versed with the issues? What can be improved?
   e) Is there training for your staff?
   f) In your view what is the current level of management of this 3 parks:
      - Taman Negara Pahang, Belum State Park and Penang National Park (in terms of polices, laws, management plan and enforcement)
      - What is good and what can be improved
   g) Do you think it be better for Federal to manage PA (like in Taman Negara)
      - If yes, why and what will be the mechanism
      - If no, why
   h) Is there a national forum to address issues regarding PA

- If yes, is it adequate and how binding are the decisions on the state actors
i) How severe is the problem of encroachment and poaching in PAs mentioned in (c)
  - What contributes to the above?
  - What will you suggest to overcome this problem
j) Are they enough resources (fund, manpower and equipment) to manager PA?
k) How does your agency implement CBD decision related to PA (such as POWPA)

B. Who are the other actors in PA governance?

  a. Who are these actors? (formal and informal)
  b. What do they do and the role they play?
  c. If directly involved in managing Parks, what motivates them to do this conservation job?
  d. How do you interact with them?
  e. How do they interact with each other?
  f. How effective is their participation?
  g. What has limited or encouraged their participation?
  h. Are these actors aware about policies and laws related to PA?

C. How are policies, practices and decisions related to and PA conservation derived and what role does conservation science play in PA governance?

  a. How are current decisions and policy made?
  b. How do day to day management of PA done and what knowledge is used?
  c. Is there a R&D unit?
  d. How is science mobilized in decision and actions?
  e. What is used to make informed decisions?
       i. Source/ Medium of this info?
       ii. Groups or person consulted?
  f. Who are consulted to assist with decision making and policy formulation?
  g. Is there any active / formal interaction with academia and / or research bodies
  h. How are policies and laws related to PA communicated to other stake holders?

213

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**Questionnaire: Indigenous and local Communities**

UNITED KINGDOM · CHINA · MALAYSIA

Name: _____

Tribe/Post: _____

Kampung:_____

Date: ____/ _____/ _____

1.      Understanding about the area

  a)  Do you know this is a state / national park?
  b)  How long have you lived in this area?
  c)  How do you value this place?
      -        Should it be preserved/protected (Why?)
      -        Why do you value this place?
  d)  How many families (type of tribe)?
  e)  What is your main economic activity?
  f)  How severe is the problem of encroachment and poaching in this Park
      -        What contributes to the above?
      -        Who are the poacher/encroachers
  g)  Are the laws enough?
  h)  Is there enough enforcement?
  i)  Do you think State or Federal government should manage this park

2.      Involvement in the park

  j)  Are you/people consulted about managing this park? Is your advised/views requested in decision making?
  k)  Are you directly involved in managing this park (officially)
  l)  If not, are you indirectly involved in managing this park?
  m) Would you like to be employed to manage this park
  n)  Are you involved in eco-tourism / other activity – bioprospecting/herbs/forest produce collection?
  o)  Does eco-tourism effect your culture (erosion?)
  p)  Are you happy with the current situation in the park? (Your rights)
      -        By designating as a PA are your activities limited

3. Knowledge

q) Do you still maintain your traditional Knowledge?
r) If yes, what kind of knowledge your community has? (herbs/forest/resource management)
s) If yes how do you pass it on to next generation?
t) Has there been effort to document your traditional knowledge?
u) Is this knowledge used in managing this forest
   - If yes – How?
   - If No – How and what should be done

Communication

v) How do you communicate issues to the management of this park?
w) How do they communicate with you regarding decisions, policies and plans?
x) Is there enough awareness among the community about the importance pf this Park

# PLAIN LANGUAGE STATEMENT

Research Area: **Biodiversity Governance**

Research Topic:
**Biodiversity Governance in Peninsular Malaysia: Identifying Conservation Priorities, Evaluating the Impact of Federalism, and Assessing the Governance of Protected Areas**

Name of Researcher:
Nagulendran a/l Kangayatkarasu,
University of Nottingham Malaysia Campus (UNMC)

Supervisor:  Dr Ahimsa Campos Arceiz,
UNMC
Co-supervisor: Dr Rory Padfield, Universiti Teknologi Malaysia

**Faculty of Science**
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43500 Semenyih
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Fax  +6(03) 8924 8018

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## PURPOSE OF THE STUDY:

The purpose of the study is to understand issues surrounding the governance of biodiversity in Peninsular Malaysia. This study investigates current issues as well as different approaches and recommendations to enhance the governance of biodiversity in Peninsular Malaysia. Four groups of participants will be interviewed – government officers, NGOs, indigenous and local communities and academia/researchers.

You have been selected for this research because you represent one of the participant groups. You are invited to assist us in the research by answering a set of questions related to biodiversity governance in Malaysia. The information you provide will assist us in getting a comprehensive description of biodiversity governance in Peninsular Malaysia so we that can make suggestions on how to improve the governance of biodiversity in Peninsular Malaysia.

## BENEFITS OF THE STUDY

The study will provide you an opportunity to give your views about the current policies regarding biodiversity and related sectors and how it is being applied. The research will present a complete picture of biodiversity governance in Malaysia and make suggestions about priority issues highlighted as well reforms to the current governance to enhance biodiversity conservation. While your inputs will be used for this research, the findings will be published and we hope it will influence the wide policy and public space.

## WHAT WOULD BE EXPECTED OF YOU?

If you decide to take part in this research you would be asked to select a convenient time and venue for the interview which the researcher will then confirm with you. At the appointed time, he will meet with you at the selected venue and will pose a few relevant questions according to a pre-tested questionnaire. You will be asked to answer the questions to the best of your knowledge. The researcher will note down your answers to

the questions in a note book or using a digital tape recorder, which will be used as data for the purpose of this research. The information you provide will be used in a general analysis of specific issues related to PA and wildlife management in Peninsular Malaysia. This interview is expected to take about 30-45minutes.

## DISCOMFORTS/ RISKS
There are no specific risks associated with this study. The only inconvenience is that the interview would most probably be carried out during your office hour and might take some of your work time (30-45 minutes).

## CONFIDENTIALITY
All information collected will remain confidential. You will not be identified by anything that is written in the text of the research paper/ thesis. The researcher will use pseudonyms and coding to ensure that names and data cannot be easily linked by a person not involved in the research. The same care will be taken with the names of anyone you mention in the interview. Your name and address must be known to the researcher, so he can find you, but it will never be mentioned in the report of the research, and your personal details will be locked away, quite separate from the other material. No photographs of the interviewee will be taken during the interview.

## YOUR PARTICIPATION
We would be grateful if you did participate in this research but participation is voluntary and you are free to refuse to participate. Even if you do decide to participate, you may withdraw from the research at any time during the interview. This can be done by stating to the researcher that you refuse to participate and do not wish to answer any further questions, and that you do not want any information you have provided to be used in the research. You can also withdraw after the interview by writing to the researcher.

## RESULTS OF THE STUDY
The interview transcript will be made available to the participants of the study to ensure that the information recorded by the researcher is accurate and to allow the participants to review what they have said. Publications using information provided by the participants of this research will be shared with the participants upon request, by email or other media of your choice.

## PERSONS TO CONTACT
If you have any questions about the project, please contact the researcher K. Nagulendran on mobile: +6019-2216 473 or email Nagu_MyBioD@yahoo.com. Should you have any concerns about the conduct of the project, you are welcome to contact the Dr Ahimsa Campos Arceiz, Research Ethics Coordinator of the School of Geography, University of Nottingham Malaysia Campus, on ph: +603    8924 8734    or    email: Ahimsa.Camposarceiz@nottingham.edu.my

---

*If you would like to participate, please indicate that you have read and understood this information by signing the accompanying consent form and returning it back to the researcher. The researcher will then contact you to arrange a mutually convenient time for the interview.*

This information sheet is for you to keep.

---

## PARTICIPANT CONSENT FORM

**Working Project title:**

Biodiversity Governance in Peninsular Malaysia: Identifying Conservation Priorities, Evaluating the Impact of Federalism, and Assessing the Governance of Protected Areas

**Researcher's name:**

Nagulendran a/l Kangayatkarasu
University of Nottingham Malaysia Campus

- I have read the Participant Information Sheet and the nature and purpose of the research project has been explained to me. I understand and agree to take part.

- I understand the purpose of the research project and my involvement in it.

- I understand that I may withdraw from the research project at any stage and that this will not affect my status now or in the future.

- I understand that while information gained during the study may be published, I will not be identified and my personal results will remain confidential.

- I understand that I will be audiotaped during the interview.

- I understand that I may contact the researcher or supervisor if I require further information about the research, and that I may contact the Research Ethics Coordinator of the School of Geography, University of Nottingham Malaysia Campus, if I wish to make a complaint relating to my involvement in the research.

**Signed** ……………………………………………

**Name** …………………………………………

**Date** …………………………………

The University of Nottingham
Malaysia Campus

*[The Malay language version of the consent form used for ILCs and any participants who wish to use the Malay version of the form]*

| BORANG KEBENARAN |

**Projek:**
**Tadbir Urus Biodiversiti di Semenanjung Malaysia: Mengenal pasti isu-isue keutamaan dalam pemulihraan, Menilai Kesan Federalisme, dan Tabir Urus Kawasan Perlindungan**
*Biodiversity Governance in Peninsular Malaysia: Identifying Conservation Priorities, Evaluating the Impact of Federalism, and Assessing the Governance of Protected Areasysia*

**Penyiasat:**
**Nagulendran a/l Kangayatkarasu**
**University of Nottingham Malaysia Campus**

Peserta perlu melengkapkan seluruh risalah ini tanpa bantuan orang lain. Sila bulatkan jawapan.

| | |
|---|---|
| • Sudahkah anda di beri penjelasan mengenai kajian ini? | YA / TIDAK |
| • Adakah anda mempunyai peluang untuk bertanya soalan dan berbincang   tentang kajian ini? | YA / TIDAK |
| • Adakah semua soalan anda telah dijawab dan memuaskan? | YA / TIDAK |
| • Adakah anda faham bahawa hasil kajian ini mungkin akan diterbitkan, namun segala maklumat mengenai anda adalah sulit | YA / TIDAK |
| • Adakah anda memahami bahawa anda boleh menarik diri daripada kajian pada bila-bila masa tanpa memberi sebab? | YA / TIDAK |
| • Adakah anda bersetuju untuk mengambil bahagian dalam kajian ini? | YA / TIDAK |

**"Saya puas hati dengan penjelasan yang terperinci mengenai kajian ini. Saya bersetuju untuk menyertai kajian ini dan faham bahawa saya boleh menarik diri pada bila bila masa".**

Tandatangan peserta: _____        Tarikh:_____

Nama (Huruf besar)  : _____

**Chapter 7: List of documents reviewed and analysed**

1. Federal Constitution of Malaysia
2. Eleventh Malaysian Plan (2016-2020)
3. Third Malaysian Plan (1976-1980)
4. National Policy on Biological Diversity (2016-2025)
5. Assessment of Biological Diversity in Malaysia (1996)
6. National Forestry Policy, 1978 (amended 1992)
7. Master Plan on Capacity Building & Strengthening of the Protected Areas System in Peninsular Malaysia, 1996 (DWNP)
8. Malaysia's 5th National Report to the Convention on Biological Diversity (CBD)
9. Annual Reports of Forestry Department Peninsular Malaysia 2014, 2015
10. Annual Report of the Department of Wildlife and National Parks 2013, 2014 &2015
11. Common Vision on Biological Diversity, 2009
12. Project Document Enhancing effectiveness and financial sustainability of Protected Areas in Malaysia (GoM/UNDP/GEF), 2010
13. Draft Interim Master List of Protected Areas in Malaysia prepared by the Ministry of Natural Resources and Environment Malaysia (NRE) 2015, unpublished
14. Report of the 3rd Consultative Workshop on National Framework for PAs, 2016
15. Wildlife Commission Report (3 volumes), 1932

**Chapter 8: List of documents reviewed and analysed**

1.   National Parks Act, 1980
2.   Perak State Parks Corporation Enactment, 2001
3.   Federal Constitution of Malaysia
4.   Eleventh Malaysian Plan (2016-2020)
5.   Third Malaysian Plan (1976-1980)
6.   National Policy on Biological Diversity (2016-2025)
7.   Malaysia's 5th National Report to the Convention on Biological Diversity (CBD)
8.   Annual Reports of Forestry Department Peninsular Malaysia 2014, 2015
9.   Annual Report of the Department of Wildlife and National Parks 2013, 2014 &2015
10.  Common Vision on Biological Diversity, 2009
11.  Capacity Building & Strengthening of Protected Area System, 1996
12.  Project Document Enhancing effectiveness and financial sustainability of Protected Areas in Malaysia (GoM/UNDP/GEF), 2010
13.  Project Document Improving Connectivity in the Central Forest Spine (CFS) Landscape - IC-CFS (GoM/UNDP/GEF), 2013
14.  National Conservation Trust Fund For Natural Resources (NCTF), 2004

**Chapter 8: Number of participants who corroborated with each major finding and the percentage (%) of responses**

| Finding | Govt | AR | NGO | ILC | Total | % |
|---------|------|-----|------|-----|-------|-----|
| F1 | 19 | 6 | 7 | 10 | 42 | 93% |
| F2 | 15 | 5 | 7 | 12 | 39 | 87% |
| F3 | 13 | 5 | 7 | 9 | 34 | 76% |
| F4 | 16 | 5 | 7 | 5 | 33 | 73% |
| F5 | 16 | 6 | 6 | 4 | 32 | 71% |

Legend: Govt = Government; AR = Academic and Researchers; NGOs = Non-Governmental Organisations; ILC = Indigenous and Local Communities

| Qualitative Scale | % |
|-------------------|-----|
| All | 100% |
| Overwhelming majority | 85-99% |
| Majority | 70-85% |
| Some | 11-30% |
| A few | ≤ 10% |

**This research contribution the wider policy space**
**11ᵗʰ Malaysian Plan, 2016-2020**

| Priority issue in Conservation which were identified in Chapter 2 of this research that informed the 11ᵗʰ Malaysian Plan (2016-2020) | | |
|---|---|---|
| **Issues listed in the Strategy Paper of 11ᵗʰ Malaysian Plan** | | **Focus Areas highlighted in the 11ᵗʰ Malaysia Plan** |
| Lack of financing mechanism | | Establishing sustainable financing Mechanisms<br>- Expanding existing economic instruments such as Payment for Ecosystem Services |
| Conflicting priorities | | Ensuring natural resources security<br>- Strengthening enforcement<br>- Formulating and strengthening relevant policies and legislations |
| Ineffective implementation of Policies and Enforcement | | |
| Ineffective communication | | Enhancing awareness to create shared Responsibility<br>- Government will improve the effectiveness of CEPA programmes by coordinating and integrating public awareness messages communicated by different public sector agencies |
| Improve Socio-economic Benefits and Alternative Livelihood of Indigenous and Local Community | | Enhancing alternative livelihood for indigenous and local communities<br>- Enhance indigenous and local communities (ILCs) involvement in biodiversity conservation<br>- Empowering ILCs for alternative economic opportunities |