



# **Institutional Roles, Challenges, and Opportunities to Coexistence in Managing Human-Primate Conflict in Sri Lanka**

---

Manisha Kithmini Hewavitharana

Degree project/Independent project • 30 credits  
Swedish University of Agricultural Sciences, SLU  
Faculty of Natural Resources and Agricultural Sciences  
Environmental Communication and Management - Master's Programme  
Uppsala 2025



# Institutional Roles, Challenges, and Opportunities to Coexistence in Managing Human-Primate Conflict in Sri Lanka

Manisha Kithmini Hewavitharana

<b>Supervisor:</b>	Sara Holmgren, Swedish University of Agricultural Sciences, Department of Urban and Rural Development
<b>Examiner:</b>	Anke Fischer, Swedish University of Agricultural Sciences, Department of Urban and Rural Development
<b>Credits:</b>	30 credits
<b>Level:</b>	Second cycle, A2E
<b>Course title:</b>	Master thesis in Environmental science, A2E
<b>Course code:</b>	EX0897
<b>Programme/education:</b>	Environmental Communication and Management - Master's Programme
<b>Course coordinating dept:</b>	Department of Aquatic Sciences and Assessment
<b>Place of publication:</b>	Uppsala
<b>Year of publication:</b>	2025
<b>Copyright:</b>	All featured images are used with permission from the copyright owner.
<b>Online publication:</b>	<a href="https://stud.epsilon.slu.se">https://stud.epsilon.slu.se</a>
<b>Keywords:</b>	Human-primate conflict, Sri Lanka

## Swedish University of Agricultural Sciences

Faculty of Natural Resources and Agricultural Sciences

Department of Urban and Rural Development

Division of Environmental Communication

## Abstract

Human-Primate Conflict (HPC) has become an increasing challenge in Sri Lanka. This study provides deeper understanding of how government stakeholders interact in managing this issue. The study examines the perceptions and roles of key government stakeholders involved in HPC managing efforts, and aiming to discover both institutional enablers and challenges. By conducting semi-structured interviews with eight participants from five different government agencies, the research applies Daniels and Walker's Progress Triangle framework to analyze stakeholder dynamics across three dimensions: Substance, Process, and Relationship. The study highlights how factors such as fragmented institutional responsibilities, communication breakdowns, and lack of trust impact the effectiveness of HPC management.

The findings highlight the varied stakeholder perspectives and varying levels of engagement and commitment in the HPC management process. Additionally, the result revealed the need of constructive, trust-based, and legitimate collaboration, where the management process is perceived as fair, and transparent by all parties involved. In conclusion, the study addresses for an integrated management system that not only balances conservation goals with community needs but also strategically builds trust, understanding, and shared objectives to improve long-term human-primate coexistence. Considering the study context, recommendations include establishing a coordinated institutional framework that enhances transparency and inclusivity.

*Keywords: Human-Primate Conflict, Stakeholder Collaboration, Integrated Management, Sri Lanka*

# Table of contents

<b>List of tables .....</b>	<b>6</b>
<b>List of figures.....</b>	<b>7</b>
<b>Abbreviations .....</b>	<b>8</b>
<b>1. Introduction .....</b>	<b>9</b>
1.1 Background.....	9
1.2 Aim and research questions .....	11
1.2.1 The aim.....	11
1.2.2 Research Questions .....	11
<b>2. Literature review .....</b>	<b>13</b>
2.1 Root Causes of HPC.....	13
2.2 Damages cause by non-human primates .....	14
2.3 Mitigation strategies used by farmers and households .....	14
2.4 State involvement in HPC management.....	15
2.5 Recommendations for Enhanced Collaboration .....	16
<b>3. Theoretical framework.....</b>	<b>17</b>
3.1 The Substance Dimension.....	18
3.2 The Process Dimension.....	18
3.3 The Relationship Dimension.....	19
<b>4. Research design and methodology .....</b>	<b>20</b>
4.1 Approach.....	20
4.2 Interview participant.....	20
4.3 Data collection.....	21
4.4 Research Instrument.....	22
4.5 Data analysis.....	22
4.6 Ethical considerations .....	23
<b>5. Results .....</b>	<b>24</b>
5.1 Substance: .....	24
5.1.1 Environmental Considerations.....	24
5.1.2 Agricultural and Economical Considerations .....	26
5.1.3 Legal and Cultural considerations .....	28
5.2 Process: .....	31
5.2.1 Decision making and Institutional engagement.....	31
5.2.2 Governance Instruments and Implementation Challenges .....	33
5.3 Relationship: .....	34

5.3.1 Relationship between local communities and governmental agencies .....	34
5.3.2 Inter-agency relationship .....	37
<b>6. Discussion and Conclusion.....</b>	<b>41</b>
6.1 Involvement of Government Agencies and Their Initiatives (RQ1).....	41
6.2 Perceptions and Framing of HPC (RQ2) .....	42
6.3 Challenges and Enablers in HPC Management (RQ3) .....	42
6.4 Recommendations for Stakeholder Collaboration and Coexistence (RQ4) .....	43
6.5 Theoretical Reflection: Applying the Progress Triangle.....	44
<b>References .....</b>	<b>46</b>
<b>Popular science summary.....</b>	<b>48</b>
<b>Acknowledgement.....</b>	<b>49</b>
<b>Appendix 1 .....</b>	<b>50</b>

## List of tables

Table 1. Different government agencies and reasons for selection.....21

Table 2. Participant summary .....22

# List of figures

Figure 1. Daniel's and Walker's Progress Triangle .....	17
Figure 2. Macaque trying to enter the house .....	27
Figure 3. A Macaque with her baby .....	29

# Abbreviations

HPC	Human Primate Conflict
DWC	Department of Wild Life Conservation
NGO	Non-Governmental Organization

# 1. Introduction

## 1.1 Background

Sri Lanka, an island nation in South Asia, is acknowledged as a global biodiversity hotspot due to its significant biodiversity and distinctive habitats (Gunawardene et al., 2007). However, habitat degradation and growing human population increase are threatening its biological richness.

Human-primate conflict (HPC) constitutes a major challenge in Sri Lanka, affecting both local populations and conservation initiatives. As human populations grow and natural habitats diminish, interaction between humans and non-human primates has intensified, resulting in property damage, agricultural losses, and occasional injuries to both parties. In addition to safeguarding human livelihoods, addressing this conflict is essential for the survival of Sri Lanka's endangered primate species (Jayarathne et al. 2024).

Moreover, Sri Lanka is home to three primate species that typically cause HPC: the grey langur, purple-faced leaf langur, and toque macaque. Macaques, referred to locally as Rilawa, are particularly troublesome due to their preference for living near human settlements. In compare to the two langur species, which exhibit low interaction with humans and favour natural habitats, macaques are more social and capable in adapting to diverse environmental conditions (University of Sri Jayewardenepura 2023)

Three macaque subspecies live in different climatic regions in Sri Lanka: the wet zone (*Macaca sinica aurifrons*), the dry zone (*Macaca sinica sinica*, which possesses the greatest range), and the highlands (*Macaca sinica opisthomelas*) (University of Sri Jayewardenepura 2023). Consequently, HPC is more extensively distributed throughout the country (Rudran et al. 2021, based on Prakash et al. 2020).

Human actions have caused a rapid loss of natural resources, which is the primary reason why these monkeys have become more common in urban areas and caused problems between people and macaques (Jayarathne et al. 2024). These authors listed a several factors that can cause HPC, such as the availability of food

for primates, how people perceive macaques, and the presence of natural habitats close to human settlements.

While having a significant impact on the economy throughout Sri Lanka, HPC has emerged as a very controversial issue. Residents and environmentalists are extremely concerned about these conflicts since they may damage property, cause crop losses, injure both humans and macaques, and even lead to the death of macaques (Jayarathne et al. 2024).

Sri Lanka is the only location globally where these primate species exist natively. Their extinction in the wild would result in their global disappearance, making their conservation critical (University of Sri Jayewardenepura 2023). All three primate species are listed as threatened on the IUCN Red List, confronting dangers from habitat destruction and human conflict (Rudran et al. 2021 based on Dittus and Watson 2020). Conserving these species is crucial for preserving Sri Lanka's abundant biodiversity and ecological equilibrium.

Furthermore, it prompts essential ethical inquiries regarding our responsibility to safeguard biodiversity and uphold the welfare of non-humans, even when their requirements contradict with human objectives.

The analysis of existing literature indicates a lack of institutional efforts in addressing the problems related to HPC management implementation. Premadasa (2022) identifies the inadequate involvement of diverse stakeholders as a critical barrier to the efficient management of this conflict in the studied environment. The author highlights two principal challenges: the insufficient engagement of relevant institutions and limited contact between farmers and institutions. These findings highlight a significant deficiency in stakeholder participation and collaborative initiatives related to HPC.

The SPEARS foundation is a non-governmental organization committed to wildlife conservation. Cabral et al. (2018) indicate that the SPEARS foundation employed complaint letters obtained by the Department of Wildlife Conservation (DWC) from 2007 to 2015 as the primary data source for their analysis on the escalating human-monkey conflict in Sri Lanka, particularly over the decade following the end of the country's civil war in 2009. This partnership between a non-governmental group and a governmental agency signifies a vital development

in mitigating HPC in Sri Lanka. It is essential to recognize the initiatives implemented by the DWC in addition to merely providing access to these complaint letters.

Effective management of human-wildlife conflicts through legitimate, sustainable strategies often requires the involvement of all stakeholders. While studies have explored individual efforts by farmers and local communities to manage HPC, there is limited research on the governmental institution's interventions and coordinated strategies. Given that this study defines effectiveness as the ability to promote long-term, peaceful human-primate coexistence, it is essential to examine the problem comprehensively from the viewpoints of all stakeholders and relevant concerns to facilitate the transition to peaceful coexistence with monkeys (Cabral et al. 2018, based on Lederach and Maiese 2009). However, few research has examined how formal institutional roles or their absence affect the effectiveness of conflict mitigation, considering the fact that coping techniques at the individual and community levels have been investigated. This study seeks to fill this gap by assessing institutional participation and coordination to offer long-term effective coexistence.

## 1.2 Aim and research questions

### 1.2.1 The aim

This research aims to investigate the involvement of government agencies in managing HPC conflict in Sri Lanka and provide recommendations for enhancing stakeholder participation and collaboration to facilitate conflict management that supports peaceful human-primate coexistence.

### 1.2.2 Research Questions

01. Which government agencies are involved in managing HPC in Sri Lanka, and what initiatives have they implemented to address the issue?
02. How do government stakeholders perceive and frame the problem of HPC, and what solutions do they propose to address it?

03. What are the primary challenges to and enablers of efficient HPC management in Sri Lanka, according to government stakeholders?
04. What recommendations might be proposed to enhance stakeholder collaboration and engagement in ways that promote sustainable human-primate coexistence?

## 2. Literature review

This section combines the current literature on HPC in Sri Lanka, highlighting the underlying causes, the damage caused by primates, mitigation strategies, and the role of institutions refer to both formal structures such as laws, policies, and governmental agencies and informal norms and practices, including cultural beliefs, community behaviours, and political dynamics that influence conflict management. in addressing these conflicts. Understanding both types of institutions is essential to identifying the challenges and opportunities in building sustainable, collaborative pathways toward human-primate coexistence.

### 2.1 Root Causes of HPC

The principal factor contributing to HPC in Sri Lanka is habitat destruction, resulting from deforestation, agricultural expansion, and urbanization (Nahallage et al. 2022, based on Rudran et al.2021). As Sri Lanka's human population expands and its natural habitats diminish, primates are increasingly forced to inhabit areas next to human settlements (Cabral et al. 2018). They claim that this trend worsened following the end of Sri Lanka's civil war in 2009, resulting in enhanced economic growth and agricultural expansion, consequently further depleted forest cover. Moreover, habitat fragmentation severs primate populations into smaller regions, decreasing their resource access and enhancing conflict with humans (Nahallage et al. 2022).

The macaque population has intensified due to accelerated breeding rates and the decline of natural predators (Pemadasa 2022). This results in increased macaque populations closer to human settlements, worsening conflict incidence. Cultural elements contribute to the continuity of the issue. (Nahallage et al. 2022 and Rudran et al. 2021) individuals' religious beliefs, especially those derived from Buddhism and Hinduism, frequently prevent them from harming monkeys. These beliefs promote tolerance for animals, though the escalating violence. This highlights the ethical dilemma of balancing cultural values of non-violence with the practical need to manage conflict and protect livelihoods.

Moreover, insufficient public awareness of the fundamental causes of this conflict and the unintentional feeding of monkeys have led to unnatural population expansion, resulting in an intensification of the problem (Dittus et al. 2019). The relationship of diminished natural habitats, escalating primate populations, and human tolerance has created a complicated conflict dynamic.

## 2.2 Damages cause by non-human primates

The damage caused by non-human primates is extensive, including the loss of crops, property, and household things. Primates commonly impact crops, including coconuts, yams, bananas, and vegetables, which are essential for household livelihood and the local economy (Nahallage et al. 2022). The farmers are abandoning home gardening as a result of these losses, so further threatening their livelihoods. Monkeys have, in certain situations, caused damage to property, such as roofs, water taps, television antennas, and various domestic components (Rudran et al. 2021).

The economic impact of these damages, along with the psychological stress on farmers and people, makes it a significant concern (Nahallage et al. 2022). This situation raises ethical questions about the distribution of costs and benefits and whether those most affected by conservation efforts are adequately compensated or supported. It also brings into question the right of individuals to protect their livelihoods. Moreover, the behavior of monkeys frequently extends crop destruction to include the involve with human resources, such as food and utensils, hence intensifying the conflict between people and primates. Cabral et al. (2018) observed that health problems, including exposure to monkey urine and excrement in water sources, have emerged as an anxiety, especially for women and children, who are frequently more susceptible to these dangers.

## 2.3 Mitigation strategies used by farmers and households

The farmers and households have utilized diverse strategies to mitigate the harm caused by primates. These strategies encompass the utilization of stone-throwing,

noises, firecrackers, catapults, air rifles, and wearing of wooden or plastic face masks for scaring monkeys. However, these approaches frequently require considerable time, require significant costs, and exhibit poor long-term efficacy (Nahallage et al. 2022). For instance, air rifles are costly, leaving this strategy unsustainable for the majority of households.

Cabral et al. (2018 based on Distefano 2005 and Hockings and Humle 2009), emphasize the significance of educating individuals, particularly the youth, to foster positive attitudinal shifts towards wildlife and enhance tolerance, thereby aiding in the long-term mitigation of conflict.

## 2.4 State involvement in HPC management

Government agencies are crucial in managing this conflict in Sri Lanka. The DWC is the primary agency responsible for managing HPC (Rudran et al. 2021). They emphasize that by 2015, public and political pressure on the DWC had intensified due to HPC influencing the majority of the nation's administrative districts. While increasing awareness of the issue, the DWC experienced considerable challenges, including inadequate staff and financial limitations, which hindered the efficacy of their response (Cabral et al. 2018).

Alongside the DWC, many governmental entities, including the Ministry of Sustainable Development and Wildlife, have participated in the evaluation and approval of strategic plans for the management of HPC (Cabral et al. 2018). Despite these initiatives, research by Nahallage et al. (2022) reveals that local farmers and households perceive a deficiency of governmental assistance on appropriate conflict management measures. Farmers have reported minimal effectiveness with their mitigation strategies, as the monkeys adapt to these approaches over time.

Nahallage et al. (2022) emphasize an urgent necessity for enhanced governmental action, encompassing the creation of awareness initiatives for communities. These programs aim to inform the public about the particular primate species in their regions, their behaviours, and the factors causing conflict. Enhancing knowledge of the conservation significance of these monkeys and

comprehending their behaviours may facilitate the development of more sustainable conflict management measures.

Moreover, local authorities, with expert guidance, must formulate comprehensive management plans that integrate knowledge about primate biology, behaviour, and the socio-economic dynamics of the impacted people (Nahallage et al. 2022). These plans must incorporate techniques that address the requirements of both the primates and the human populations existing in closeness to them.

Despite HPC's national spread, Sri Lanka lacks a cohesive policy framework. While the DWC leads mitigation, its efforts are governed by understaffing and budget constraints (Rudran et al., 2021). Sterilization programs, though culturally acceptable, fail due to ad hoc implementation (Nahallage et al., 2022).

## 2.5 Recommendations for Enhanced Collaboration

Enhancing the management of HPC requires coordination among governmental entities, non-governmental organizations (NGOs), and local communities (Cabral et al. 2018). These collaborations between government and NGOs are significant for developing effective conflict resolution solutions. Furthermore, various government agencies, including the Ministry of Wildlife Resource Conservation, the Ministry of Economic Development, and the Ministry of Public Administration and Home Affairs, have cooperated to mitigate HPC through initiatives like the "Clean Reserve Project" (Dittus et al. 2019).

However, these programs require expansion and enhanced coordination to attain long-term success. Collaboration requires joint data collection, stakeholder engagement, and the formulation of comprehensive and context-specific strategies. Furthermore, Rudran et al. (2021) argue that integrating environmental education into Sri Lanka's primary and secondary school curriculums is essential for fostering ecological awareness, which they suggest could contribute to greater engagement in conflict resolution efforts.

Effective waste management is another essential domain. Strict restrictions must be implemented to prohibit anyone from feeding monkeys, and punishments should be enforced for preventing this sort of behaviour (Cabral et al. 2018). Moreover,

the engagement of the local population in monitoring and reporting conflicts could enhance the efficacy of government-led initiatives.

### 3. Theoretical framework

The study employed the Progress Triangle, a conflict management framework developed by Daniels and Walker, which conceptualizes conflict in terms of three interrelated dimensions - substance, process, and relationship to analyze HPC in Sri Lanka (see Figure 1). This framework was considered appropriate for the study's objective, which is to better understand how government agencies in Sri Lanka perceive, manage, and respond to HPC, and how institutional relationships and coordination influence conflict outcomes. It helped researchers to uncover the relevant stakeholders' perspectives and examine their interrelationships concerning the conflict.

The Progress Triangle framework consists of three dimensions of conflict: Substance, Process, and Relationship. These dimensions offer a deeper understanding of the complex, multilayered nature of stakeholder conflicts in the context of natural resource management and environmental governance. By applying these dimensions, researchers and practitioners involved in HPC management in Sri Lanka can gain a more comprehensive understanding of the root causes of conflict, the challenges to conflict resolution, and the potential for constructive communication and change (Lee et al. 2018).

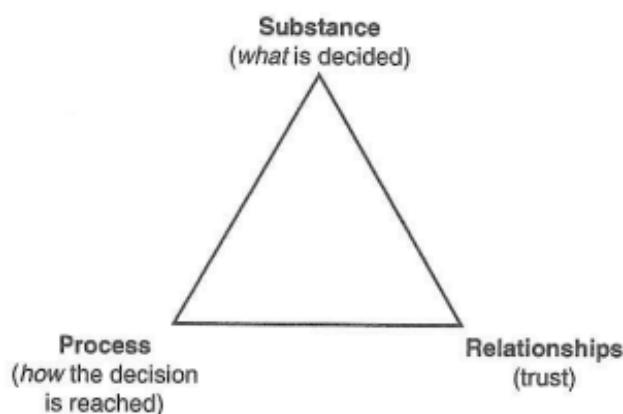


Figure 12.1 Situation improvement triangle (adapted from Walker and Daniels, 1997).

Figure 1. Daniel,s and Walkert Progress Triangle

### 3.1 The Substance Dimension

This dimension analyzes the root causes and main challenges of conflict, including environmental, sustainability, and developmental concerns (Hallgren 2024). It reflects the different points of view of each stakeholder involved in the conflict over natural resource and environmental governance, recognizing how each stakeholder defines its values, interests, and perceptions. (Lee et al. 2018 based on Danies and Walker, 2001)

Conflict resolution becomes much more difficult when there are disagreements over facts, how to allocate resources, and different viewpoints (Raitio 2016). Addressing these critical concerns requires a balanced strategy that takes into account both human livelihoods and primate conservation. Those strategy could be formulated through open stakeholder dialogues that acknowledge diverse values and interests, and are based on transparent resource evaluation and common objectives.

### 3.2 The Process dimension

This dimension focuses on governance and decision-making processes in natural resource management and environmental conflict resolution. It is essential to understand how decisions are made, who participates, how information is disseminated, and how procedural fairness and inclusiveness are maintained. This covers political, administrative, and social processes such as the regulation setting, public awareness, inter agency coordination, and stakeholder negotiations. This process dimension involves both formal and informal mechanisms used to address wildlife-related issues, along with the legal responsibilities and duties of various stakeholders, including government agencies, NGOs, local authorities, and religious groups. (Lee et al. 2018 based on Danies and Walker, 2001)

Examining these procedural dimensions highlights the significance of inclusive governance frameworks, transparent decision-making, and procedural equity.

These measures may enhance the legitimacy and efficacy of conflict management initiatives.

### 3.3 The Relationship dimension

This dimension highlights the historical background and interactions among stakeholders, including their interrelations, trust levels, opposition, and possibilities for collaboration. Trust is a key element in promoting collaborative behavior among stakeholders and is vital for achieving innovative and durable results in conflict management (Raitio 2016).

According to Walker et al. (2006 based on Crowfoot and Wondolleck 1990), trust, respect, communication quality, shared history, emotional engagement, social cohesiveness, and the frequency of encounters are all important components of interpersonal and intergroup connections between stakeholders. Poor relationships may foster conflict by diminishing stakeholders' willingness to collaborate, communicate, or accept different viewpoints. However, strong relationships encourage effective communication and collaboration, eventually improving conflict management success.

Understanding how government agencies interact with each other is crucial in the Sri Lankan setting. The establishment of trust-building procedures, ongoing communication, and the establishment of safe spaces where stakeholders can freely exchange experiences and cooperate toward shared objectives are all necessary for HPC resolution.

## 4. Research design and methodology

### 4.1 Approach

This research utilized multiple qualitative data collecting approaches to investigate the dynamics of HPC management in Sri Lanka. My methodological approach was predicated on the notion that knowledge is most efficiently produced through a range of perspectives and data sources, rather than a singular, linear procedure (Creswell & Creswell, 2018). I employed literature review, document analysis, and semi-structured interviews to acquire an in-depth understanding of the subject. Through research, I identified existing projects, emphasized ongoing challenges, and revealed significant shortcomings in the current discourse on conflict management which is largely shaped by institutional and technical responses, with limited emphasis on stakeholder coordination, ethical considerations, or sustainable coexistence strategies.

Due to the remote nature of my research, direct engagement with stakeholders or observation was unfeasible. Consequently, semi-structured distance interviews were used as the principal approach for data collection, enabling participants to provide thoughts even in the absence of direct observation (Creswell & Creswell 2018). Prior to the interviews, I engaged with relevant stakeholders through telephone and email, supplying them with interview questions beforehand to facilitate a clearer comprehension of the research priority. Voice recorders served as the primary data gathering tools for the semi-structured interviews with key informants. These methods enabled me to focus on the government's perspective and response to the HPC in Sri Lanka.

### 4.2 Interview participant

This study primarily examined government agencies engaged in the management of HPC in Sri Lanka. The rationale for specifically choosing government agencies for my data collection arises from a comprehensive analysis of current literature that has thoroughly examined the perspectives and management

techniques of farmers and households concerning HPC. In many of these studies, participants indicated that they had attempted all potential options on their own to manage the issue, and that governmental involvement in HPC management has been minimal. As a result, there is an increasing expectation among impacted communities for enhanced governmental engagement in the management of HPC.

The researcher initially examined prior research on this conflict in Sri Lanka to identify relevant individuals. Utilizing these insights, the researcher employed the snowball sampling technique to identify other essential government stakeholders for interviews.

This study conducted semi-structured interviews with representatives from several government agencies across multiple areas in Sri Lanka.

*Table 1. Different government agencies and reasons for selection*

Government agency	Reason for selection
Department of Wildlife Conservation	Primary agency responsible for wildlife management and addressing human–primate conflict.
Department of Agriculture	Involved in assessing and mitigating crop damage caused by wildlife.
Department of Agrarian Development Board	Supports rural farmers and plays a role in coordinating agricultural and land policies.
Divisional Secretariat Offices	Coordinate local governance and serve as intermediaries between central authorities and local communities.
Coconut Development Board	Oversees coconut cultivation, a crop frequently affected by macaque-related damage, and supports growers.

### 4.3 Data collection

A comprehensive semi-structured interview was conducted with selected participants to obtain relevant information. I did not limit my data collection to a particular region in Sri Lanka; rather, I gathered information from governmental institutions across multiple districts - Kegalle, Matara, Galle, Colombo, Matale, and Kurunegala - which are among the areas most impacted by HPC. This method facilitated vast geographic reach and a more thorough comprehension of the situation.

A total of eight participants from five different government entities responded to my interview questions. A purposive expert sampling strategy was utilized to select interviewees, focusing on individuals holding significant expertise and experience relevant to the study subject and research topic (Etikan 2016)

The breakdown of participants is as follows:

*Table 2. Participant summary*

Stakeholder	Number of participants
Department of wildlife and conservation	02
Department of agriculture	01
Department of agrarian development board	01
Divisional secretarial offices	02
Coconut development board	02

### 4.4 Research Instrument

The semi-structured interview consisted of fifteen open-ended questions covering topics related to substance, process, and relationships with relevant stakeholders. (See Appendix 1).

## 4.5 Data analysis

After completing the interviews, all audio recordings were carefully transcribed to ensure reliability while keeping the original context of participants' feedback. After transcription, I utilized a manual color-coding method to categorize and identify emergent patterns and primary themes within the data. This thematic coding method enabled me to carefully categorize the responses based on their relevance to the basic aspects of the study, including existing techniques, challenges, and institutional perspectives on HPC management.

After coding, I translated the relevant parts of the data into English to ensure accuracy during analysis and interpretation. This approach enabled me to reach relevant conclusions and identify important insights related to the research aims.

All data were analyzed within the framework of the three dimensions previously outlined: substance, process, and relationship. Initially, I classified interview data relevant to three dimensions. During the second stage, the encoded data were examined and categorized into seven subthemes. This includes environmental considerations, agricultural and economic considerations, legal and cultural considerations, decision making and institutional engagement, governance instruments and implementation challenges, relationship between local communities and governmental agencies, inter agency relationship. The final stage of analysis involved analyzing all responses organized in the second stage to identify conclusions important to the research aim.

## 4.6 Ethical considerations

Initially, I attempted to reach the relevant stakeholders through email, although I obtained no response. I immediately contacted personal networks, including colleagues and relatives. After making initial contact, I explained the objective of my research and provided the interview questions to potential participants, asking if they were willing to participate. The interviews were conducted as open-ended discussions rather than following the traditional question-and-answer structure.

Prior to conducting each interview, I requested participants' authorization for using a voice recorder which they all accepted. I also notified each participant that their contributions might be utilized anonymously if they so desired. Some individuals did not seek anonymity, while others explicitly requested it. In order to respect for their preferences and maintain anonymity, I choose to anonymize all participants in the final report of my research.

## 5. Results

This section is further categorized into subthemes and arranged in accordance with the three Progress Triangle dimensions. By combining institutional perspectives within each dimension, this analysis provides a comprehensive understanding of the HPC in Sri Lanka and illustrates the institutional framework across multiple dimensions.

### 5.1 Substance:

Within this dimension, I included how different institutions perceive HPC. Their considerations are categorized under three themes named as environmental considerations, agricultural and economic considerations, and legal and cultural considerations

#### 5.1.1 Environmental Considerations

Environmental considerations significantly contribute to the development of HPC, as noted by many participants. Their insights demonstrate an important dynamic with deforestation, urbanization, waste management, ecological imbalance, and species adaptation, all of which influence the evolving dynamics between humans and primates.

One respondent indicated changes in the physical environment resulting from human interference, especially in forest and mountainous areas. For instance, the area closest to their official site mountain has experienced considerable deforestation, driving monkeys into neighbouring villages in seeking food and water.

*“Our office is located at the foot of a mountain called Yakdessagala. There are many monkeys in the mountains. But due to human activity, many trees in the forest have been cut down, and now the animals have no food. So, they come down to human settlements.”*

The escalation of urbanization and population growth has contributed to the issue, with new housing complexes progressively impacting on primates' habitats.

The transformation of agricultural land into residential areas has diminished the habitat available to both humans and wildlife, prompting primates to adapt to build close interactions with humans. As one local authority participant explained during the interview,

*“Lands at the foot of the mountain have been subdivided... Urban land is more expensive, so rural land is the more feasible option for many... Population growth also reduces available space, which may be contributing to the issue.”*

This participants' quote indicates that environmental degradation covers not only habitat loss but also modifications in land use, including the introduction of profitable yet environmentally inappropriate crops. A participant emphasized that how pine plantations have contributed to the escalation of HPC.

In addition, Interview data indicated that ecological imbalance, specifically the decline of natural predators such as leopards and jungle cats, resulted in an uncontrolled growth of primate populations. In the absence of these natural predators, primates and other wildlife species grow to levels that the ecosystem and human communities can no longer tolerate.

One respondent stated that the availability of resources such as water, supported by state infrastructure initiatives, unintentionally stimulated population growth among wildlife.

*“In 1998... water pipelines were installed everywhere. That availability of water helped the monkey population grow.”*

Human behaviour and waste management practices were recognized as significant environmental issues. Improper disposal of food waste establishes a consistent and reliable food source for primates, promoting rapid population expansion. One participant indicated this by stating,

*“Garbage is dumped everywhere... people don't throw out food waste properly, so the monkeys always have access to food... Finding water isn't a problem either... There's no issue with breeding.”*

The abandoning of plantations and lands has afforded primates new habitats and challenges to the relocation and management efforts.

Another thing found through my data was primates show considerable adaptation, modifying their behavior to urban settings. From hanging on electric

poles to resting on power cables, they show extraordinary adaptations to any environment. One participant noted this by stating,

*“Today, monkeys are behaving quite comfortably in urban spaces, on top of electric poles and light posts... They no longer need trees and leaves.”*

Many respondents highlighted the significant ecological interconnection of monkeys and warned that their forceful removal would be both ethically and ecologically harmful.

*“We can't remove animals from the environment completely. Even if we wanted to, we shouldn't... saying we'll shoot them or commit mass eradication isn't viable.”*

The data revealed innovative and non-lethal strategies included the planting of food-providing trees in forest reserves for primates, the implementation of bee-fencing, and the reintroduction of predators. Indigenous knowledge was also valued, with suggestions that traditional methods or novel attempts, such as training monkeys to harvest coconuts, could provide sustainable solutions.

*“Different people propose different methods... in Ahikuntaka, people trained a couple of monkeys to harvest coconuts... Whether it's someone training monkeys or another using herbal pills, if it works, let them do it.”*

### 5.1.2 Agricultural and Economical Considerations

HPC has severely impacted Sri Lanka's agriculture sector, significantly decreasing production and economic stability in rural regions. Respondents from different regions stated significant concern regarding the increasing damage caused by primates, highlighting how the damage affects livelihoods and affects food security.

One of the respondents recognized the urgent issue of primate-related crop loss, while the main responsibility is the enhancement of agricultural productivity. Their responses revealed a significant institutional tension regarding their responsibilities.

*“Basically, our role is to increase crop production. Crop damage is a secondary issue for us. It is a national issue.”*

Interviewees from coconut-producing areas highlighted that despite significant efforts in coconut farming, the actual yields are disturbingly low due to interference from monkeys. Fruit crops, including jackfruit, breadfruit, and mangoes, have become very difficult to cultivate, leading some citizens to push for the removal of primates as the only feasible option.

While some primates are beneficial to the removal of insects from crops as they eat insects, the majority of respondents' idea was that the economic damage significantly exceeds than any potential advantage of primates. For instance, monkeys became used to human habitats, searching for food, refusal and entering houses.

*“They remove roof tiles... break into ceilings... eat spiders and then enter houses.”*

5.1.3

5.2



*Figure 2. Macaque trying to enter the house*

One of the respondents described how monkeys ruin crops even when they do not consume them fully.

*“They completely destroy crops like papaya by eating all the leaves... They take a few bites out of brinjal, and no one grows anything else anymore. Even if they don’t eat bitter gourd, they pull down the vines.”*

In coconut plantations, their behavior is particularly disruptive:

*“They climb the tree, drink the water, and leave the nuts hanging so they don’t fall properly.”*

These behaviors indicate more than eating habits, but behavioral patterns that result in extensive waste and economic damage. The financial impacts of HPC encompass not only reduced yields but also property damage, extra repair and prevention work, and psychological distress within agricultural communities.

These observations clearly illustrate the significant impact that HPC has on agricultural productivity and the rural economy. The issue involves balancing between safeguarding crops while also ensuring that farmers remain motivated and encouraged in their farming efforts, with the ongoing threat from primates.

### 5.2.1 Legal and Cultural considerations

The governance of HPC in Sri Lanka is significantly hindered by legislative ambiguities as well as by deeply rooted cultural and religious norms. The data collected from interviewees reveals a basic conflict: although the seriousness of primate-related damage is broadly recognized, effective mitigation is hindered by regulatory gaps, ethical constraints, and insufficient implementation of policies.

The Department of Wildlife Conservation and the Forest Department are the principal legal entities overseeing wildlife management policies. However, many participants indicated a deficiency of concrete, enforceable policies directly associated with HPC. Currently, no comprehensive regulations for conflict mitigation are in place; however, a draft has been suggested. The lack of established norms hinders the state's ability to address the issue regularly and effectively.

The toque macaque, a significant cause of agricultural damage, has been removed from the protected species list under the Fauna and Flora Protection Ordinance. This legal reclassification indicates some regulatory intervention by a government agency.

*“The toque macaque has been removed from protection under the act because it's now considered an agricultural pest.”*

As a result of these reclassification, farmers are allowed to chase or drive them away, though restrictions remain - poisoning, trapping, and killing during certain times and locations are still prohibited.

The conflict becomes more complicated from a perspective of culture. The largely Buddhist culture of Sri Lanka, including the values of Hindu, Catholic, and Muslim groups, rejects cruelty to animals, particularly those regarded as intelligent or spiritually significant, such as primates.

*“Killing a monkey is seen as murder - it's comparable to shooting a human. They carry babies in their bellies... It's a serious moral issue.”*

### 5.2.2



*Figure 3. A Macaque with her baby*

These concepts are broadly hold within cultures. The data revealed that monkeys, especially those observed feeding their young or living in social groupings, are perceived as having a "society of their own," promoting a sense of spiritual similarity to humans. Historically, hunting was conducted mainly within strong cultural restrictions, restricted to dangerous animals or those hunted with

respectfully by indigenous communities. Current Sri Lankan society, however, has completely rejected such traditions. One respondent revealed this by stating:

*“Culturally, we’re not at a point where we accept hunting... Even removing street dogs is not practice.”*

Respondents widely agreed to future use of non-lethal methods like sterilization, which align more closely with cultural and religious values.

*“Monkeys might need to be captured, sterilized, and released... our culture supports that.”*

Feeding methods also reflect cultural perspectives that intensify the issue. Many people consider it as ethical to provide food to animals, beginning with birds and expanding to primates. As garbage accumulation increases, primates adjust and survive by utilizing human refuse. This thereby promotes their reproduction rates as unusual. In the words of one participant:

*“Even in households that don’t throw away food intentionally, animals have gotten used to visiting human settlements regularly.”*

Conversely, these behaviours contribute to the development of conflict. Participants consistently emphasized that waste management and food regulation are fundamental to any sustainable solution.

The managing of HPC is complicated. Since monkeys are regarded as agricultural troublemakers by policymakers, they are considered sacred or morally inviolable in cultural contexts. This contradiction hinders efficient management processes. One respondent remarked:

*“So that’s our threat, not the monkey, but our inability to act due to cultural, religious, and emotional ties.”*

Respondents suggest the incorporation of ethical, cultural, and ecological factors into a community-based management plan to advance progress of HPC management. They highlighted that legal reforms must be clear and enforceable, while also being culturally sensitive. Non-lethal strategies such as sterilization, improved land and waste management, and educational initiatives could provide a feasible solution.

## 5.3 Process:

The process element reflects the methods and decision-making processes applied to HPC management by several government agencies in Sri Lanka. The results in this category highlight the decision-making process, the participants' engagement, the facilitation of dialogue, and the balance and transparency of the method. Processes are categorized under two themes named as decision making and institutional engagement, governance instruments and implementation Challenges.

### 5.3.1 Decision making and Institutional engagement

Some government agencies have developed efforts such as offering subsidies for air guns and electric fences, to protect plant from wild animals to manage HPC.

The primary method for addressing HPC involves small-scale efforts conducted by certain governmental agencies that provide partial subsidies (about 50%) for mitigation strategies. However, these are not regularly available in all regions of the country. And allocating these subsidies based on the annual budget for each government agency.

However, the intervention of the most efforts is managed by general officers/ground level officers lacking any specified specialized knowledge on HPC. These officers have contributed to programs related to primate management under the broader responsibilities of current officers, limiting the necessary knowledge and attention essential for efficient resolution of conflicts. One participant remarked,

*"No special officers were designated to address this situation, and it was managed by existing staff."*

highlighting worries regarding the insufficient focus on HPC in Sri Lanka.

Some divisional government agencies conduct monthly meetings to address various issues and complaints, including those related to HPC. When resolutions are unattainable at the regional level, these complaints escalate to the district authority. However, these agencies frequently do not deliver prompt resolutions and instead propose recommendations to higher authorities, such as the Cabinet. However, throughout these interviews I identified some level of collaboration

among government agencies and some level of interaction between the community and the agency towards the HPC management.

Another matter found from the data is these monthly meetings are intended to foster communication among agencies; these sessions are normal institutional rituals and frequently lack the participation of key personnel like veterinarians who have more knowledge on HPC. This revealed through below quote from one of respondent in interview

*"There are ongoing monthly meetings. However, veterinarians don't usually participate in these meetings."*

Most government agencies have meetings on a monthly basis. The same issues are repeated, the same challenges are discussed, and the same concerns are expressed repeatedly. These issues demonstrate minimal variation from month to month, and in several cases, they continue to occur for years. This highlighted by the following quote:

*"We have been discussing these monkey issues in every meeting for a long time. Some proposals have been sent to higher management; this happens most of the time, but no solutions have been implemented."*

While considerable discussion takes place, minimal action is implemented. Proposed solutions are rarely implemented. Decisions are postponed or neglected in the next steps.

*"Political intervention is often necessary for the action."*

This statement emphasizes that decision-making and operations are significantly governed by strong administrative regulations, hierarchies, and procedures. This will hinder the efficiency of procedures and actions related to HPC management, and the decision-making process lacks consistency and transparency.

During interviews, a wild animal census was underway, showing an example of different government agencies collaboration for one task. However, according to the data, awareness and participation among institutional stakeholders such as department of agriculture, local administrative authorities varied. This is evident in a statement made by one of the participants.

*“Now, on the 15<sup>th</sup> march, another attempt is being made to conduct a census on monkeys, but there’s no visible plan.”*

When I contacted one of the participants a second time to know about the result of the wild animal census, he informed me that it was not 100% success due to insufficient knowledge of wild animal census by farmers and households, even some institutional officers. Also, households and farmers from some areas have given false details to the census to attempt to having subsidies for their damages.

While some joint projects, such as primates’ sterilization, demonstrate the potential for inter-agency cooperation, they still remain lack of proper sustainable frameworks, shared objectives, or long-term operational frameworks.

One of the respondents emphasized the establishment of formal government facilitator roles similar to roles used in dengue control programs could potentially enhance community engagement, procedural efficiency, and cross-sectoral collaboration.

### 5.3.2 Governance Instruments and Implementation Challenges

Interview data revealed that agricultural officers primarily advise and empower farmers to use traditional preventative strategies or recommend transitioning to crops such as tea, rubber, chili, and pepper, which are less attractive to primates. However, there is a lack of financial or technical assistance to aid farmers in following these recommendations. Further, transitioning from one crop to another is time-consuming and requires considerable financial resources.

The subsidies for electric fences and guns are not only allocated for damages related to primates; they are applicable to damages caused by all forms of wild animals to agricultural and residential properties.

Historical interventions, including monkey capture and relocation efforts, have been unsuccessful due to inadequate community involvement and insufficient preparation. A significant example is the unsuccessful relocation initiative in Warakapola, which experienced local community opposition expressing as violent resistance to project vehicles. These kinds of occurrences highlight procedural inefficiencies and the essential role of social acceptance in implementing wildlife prevention efforts.

Some initiatives, such as the distribution of air rifles, were implemented without adequate training or monitoring, leading to misuse and raising ethical concerns while some of think there is no any problem with the air guns.

One of the respondents emphasized the importance of public education programs, and they are aimed at discouraging the feeding of monkeys.

*"Public awareness of primate species and their environmental role is important, and when their actions go beyond the environmental role, what should be done is to educate the people also important."*

According to the same respondent, awareness is key. We need to explain the value of this animal, how it belongs in our environment, how it's part of our ecosystem, and how it our own native species. Alongside the benefits, if the harm it causes becomes significant, then we must work together to manage that. Then people won't act irrationally.

Throughout many interviews I identified a need for one term planning processes, such as creating 10-year forecast strategies for primate population management, which have been suggested but are not yet formalized.

## 5.4 Relationship

The relationship dimension of the progress triangle reflects the quality of interactions among relevant stakeholders, emphasizing trust, communication, empathy, and collaboration. It helps in understanding the human dynamics that shape HPC management processes in Sri Lanka. Within this dimension, I have built relationships under two themes named as relationship between local communities and governmental agencies and interagency relationship.

### 5.4.1 Relationship between local communities and governmental agencies

The data gathered from interviews indicates that institutional relationships with communities are essential for managing HPC. These collaborations are established through formal frameworks and daily interactions, with government officials collaborating closely with agricultural communities in addressing ongoing

challenges. The Establishment of local committees serves as a primary institutional mechanism that are employed.

Agricultural research officers are frequently responsible for these committees, which generally comprise 4-5 officials from each village and assign leadership positions such as chairpersons, secretary, and treasurer. These groups function as a place for dialogue, collaborative decision-making, and the suggestion of alternative management solutions to the government.

The level of community involvement is illustrated in the comments of a respondent, who described the collaborative process and the varied, occasionally conflicting, perspectives within the community:

*“We provide guidance, but in reality, the farmers have more experience and knowledge than we do.”*

*“Then we heard reports of monkey cages being set up, with the intent to trap them and take them away. People began to ask about where the monkeys were being taken and what would happen to them. Many others said, ‘Your cage method doesn’t work. You should trap them and feed them poison. Give us guns and we’ll finish them off.’ A few villagers came forward with that suggestion.”*

This highlights an essential dynamic in the institutional-community relationship: although government officials may provide guidance and support, farmers frequently possess deeper experiential knowledge and have strong perspectives regarding practical solutions, which can or cannot align with institutional policies.

In many situations, institutional actors collaborate with the community via technical and instructional support. Farmers are encouraged to alter their agricultural practices to mitigate conflict. A respondent indicated that:

*“We also tell farmers to grow crops in poly tunnels and choose varieties with high yields. If they can’t grow those, they should try alternatives. We also conduct awareness programs, telling people not to feed wild animals.”*

Another instance of institutional engagement involves assisting farmers to alter the landscape, such as removing substantial trees next to agricultural regions to inhibit monkeys from freely obtaining crops. One official stated:

*“In small areas, we advise cutting large trees near farmlands because monkeys jump from tree to tree.”*

In addition to structural modification, certain institutions recommend crop substitution methods as a mitigation measure. Promoting the cultivation of crops that are less appealing to monkeys has emerged as a prevalent suggestion for communities. According to one participant:

*“For instance, some farmers grow crops that monkeys don’t eat, like certain fibrous plants. People are being encouraged to switch to those. Tea plants are less affected, so we promote them too. But there’s no 100% solution.”*

Government efforts take place via established community-based groups, such as the Kapruka Society. These groups aim to empower local citizens and improve collective action. An official explained:

*“Additionally, through our Kapruka Society, we empowered them as much as possible to take collective action.”*

Community-institutional relationships also occur inversely as communities actively express their frustrations and concerns to government authorities. Complaints frequently centre on the economic damage and harm caused by wildlife. A respondent said:

*"We receive complaints mainly about pest damage. I went to a meeting today, and the main complaint from the people was, ‘No matter how much we try to increase yield, it’s pointless because of the wildlife damage.’"*

Government officials also encourage traditional ways of solving conflict and integrate indigenous knowledge when applicable. Agricultural officials provide traditional, community-recognized techniques for repelling animals and promote resistant crop varieties.

This endeavor is represented by the subsequent statement:

*"Agricultural Development Officers suggest some traditional methods that were used before to deter animals. They also promote crops that monkeys don't tend to eat, so there's some effort in that direction."*

These insights highlight the reciprocal relationship between governmental institutions and the local community. Although government officials frequently launch organized campaigns and offer technical guidance, community members provide practical insights, express dissatisfaction, and suggest alternative options.

This participatory dynamic is crucial to the continuous discussion of options for addressing HPC in Sri Lanka.

#### 5.4.2 Inter-agency relationship

The interviews revealed a diversified and frequently discontinuous institutional framework concerning HPC management. A main issue identified by respondents was the absence of trust, both among various institutions and internally within them. Some of the participants indicated that while officers on the ground level engage community-level issues directly, their suggestions and initiatives sometimes do not have sufficient attention from senior officials. One respondent expressed a critical perspective, stating that

*"But senior officers mostly stay in their chairs and do-little work. That's the state of our agricultural public service."*

This highlights the belief that upper-level administrators are disconnected from practical reality.

There were instances given of how institutional indifference received attempts to handle HPC. A respondent described that,

*"The agricultural research officer was the one tasked with setting up the committee. But even after it was formed, there was no further support. No cages were provided. No alternative solution was given."*

In another instance, a respondent proposed a sterilization awareness initiative and described what happened with her proposal.

*"I organized a sterilization awareness program and drafted a proposal with the support of farmer organizations. I tried to hand it over to all the relevant officials;the I even visited those officials in person. The students studying in Veterinary Faculty agreed to conduct sterilizations as a training. Still, the officials didn't take the initiative seriously. One officer even laughed it off. But now that person is scrambling, trying to find solutions with the top management."*

Another respondent described an event in which a political person visited their workplace to discuss issues but reacted arrogantly, thereby confirming the perception that accountability is frequently avoided rather than accepted. The reply expressed their disappointment, stating,

*"You're the ones who wanted to hear this, not me,"* when advised to document the matter in a voice tape.

Instances when field-level officers were not being informed about coordinated operations, such as wild animal census that was planned without a clear operational plan, demonstrated the inconsistency in communication and follow-up. It is important to acknowledge that not all experiences were negative; one participant stated,

*"We've never encountered communication issues."*

Differences in institutional objectives and agendas were also visible through the interviews. Wildlife conservation agencies emphasize conservation, while agriculture-related agencies focus on damage mitigation and pest management. This divergence has complicated the development of integrated solutions, while efforts continue to address the difference. One respondent remarked that

*"The two ministries are collaborating to devise a unified solution."*

This quote indicated the continuous integration efforts. Several participants underlined the necessity for better legal frameworks to enhance inter-agency coordination, including the implementation of legislation prohibiting the feeding of wild animals, which would require police enforcement and wider institutional involvement.

There were clear instances of effective teamwork even with these challenges. University researchers significantly advanced HPC efforts by demonstrating accurate methodologies for estimating monkey populations, a task that had not been previously undertaken in Sri Lanka. At the administrative level, routine meetings such as divisional and district agricultural committees offered platforms for many stakeholders, including wildlife officials, and police officers, to express concerns and exchange information. These forums are supported by higher governmental management frameworks that contribute to policy development and response strategies.

According to one respondent, officers from almost all government departments work together in their Divisional Secretariat to carry out particular projects. However, in some cases resource variations were seen, with field officers directly under local authorities receiving fewer advantages, such as travel reimbursements,

than those legally allocated by their parent agencies. The disparities were observed to demotivate field officers, restricting their motivation or ability to fully engage in HPC management projects. The respondent observed that departmental personnel frequently have greater advantages, but others need to utilize their own salary without even obtaining fundamental reimbursements.

Although pilot projects have shown the advantages of inter-agency collaboration, highlighted by a cooperative sterilization initiative between the two institutional agencies, participation across agencies has not been uniform. One agency explicitly disassociated itself from the utilization of air guns, refusing to encourage such practices.

*"We do not approve the use of air rifles. We do not support or authorize that; we are not involved in such measures."*

The variations in coordination and participation highlight the disjointed nature of certain solutions to the issue. Participants often emphasized that sustainable management necessitates collaborative endeavours among relevant parties.

*"This needs to be done collaboratively, through sterilization, proper waste disposal, and with the cooperation of farmers and everyone else involved. Only then can we manage the issue effectively."*

Concerns were also expressed regarding the lack of depth of certain government interventions. The allocation of weapons, for example, was mentioned as a simple remedy advocated by specific officials, considering cultural and ethical concerns involving mass killing of primates.

*"There are policy makers in this country who think the problem ends with giving a gun. Even the current government ministers have made such claims. But that's not how it works. We have a culture where mass killing isn't acceptable."*

Participants highlighted that such simplified answers neglect the complexity of HPC and disregard the necessity for systematic, coordinated efforts.

The District Coordinating Committee (DDC) was emphasized as an example for integrated decision-making, consisting of ministers, divisional secretaries, and departmental heads, convening with presidential-level power to guarantee cohesive governance.

Throughout the many of interviews, it was repeatedly highlighted that

*"No single institution can manage wildlife damage alone."*

One respondent employed comparisons, such as the national dengue control program, where law enforcement, health authorities, and community leaders collaborate, to demonstrate how cross-sector cooperation may be imitated in the context of HPC. Some suggested that inter-agency assessment teams, which include development officers, agricultural research officers, and Grama Niladharis, should collaboratively evaluate and address problems; however, they do so without allocated financial resources.

Participants from one of the government agencies highlighted that monthly committee meetings facilitated knowledge exchange and solution development, frequently raising unresolved issues to the district level when local consensus was unattainable. However, within these organized frameworks, participants recognized that political will and senior administrative involvement were crucial for effective action. This participant indicated that although their department tried to inform relevant agencies, progress frequently stuck without political engagement, highlighting the systemic constraints that can hinder joint efforts.

## 6. Discussion and Conclusion

The purpose of this study is to investigate how different government agencies in Sri Lanka are involved in managing human-primate conflict (HPC) and to offer possible recommendations for improving stakeholder involvement and cooperation. The ultimate aim is to enable conflict management techniques that support peaceful coexistence between humans and primates.

This section discusses the findings in relation to the four research questions, which have focused on the study aim by using the Progress Triangle framework as an analyzing tool. The discussion also focused on the results within the previous literature.

The conclusion section provides practical recommendations for policy and management, and also directions for future research to implement long-term HPC solution.

### 6.1 Involvement of Government Agencies and Their Initiatives (RQ1)

The study discovered that several government agencies, including the Department of Wildlife Conservation (DWC), Department of Agriculture, Divisional Secretariats, Agrarian Development Boards, and the Coconut Development Board, are involved in different aspects of HPC management. All these agencies share equal responsibility for managing HPC through policymaking, supporting public awareness campaigns, providing subsidies for protective measures, and offering crop advisory service among other activities.

However, the level of involvement and capacity of these agencies vary significantly across regions. For instance, some agencies offer partial subsidies for air rifles or electric fences, but these are unevenly distributed and depend heavily on annual budget allocations for those agencies.

Furthermore, the quality and sustainability of interventions are limited because agencies often rely on general officers who lack specialized training in managing

HPC. This supports the findings of Nahallage et al. (2022), who revealed the institutional level insufficiency of financial and human resources. These findings indicate that although there is institutional presence, capacity-building and strategic interventions are still areas of weakness.

## 6.2 Perceptions and Framing of HPC (RQ2)

Government agencies have diverse and occasionally opposing opinions on HPC. While some see it mostly as an agricultural concern, others view it from a conservation or community-relations perspective. Agricultural officials, for instance, revealed that while national production targets were more important, crop loss was still a major concern. Some officials revealed the ethical constraints of cultural and religious standards against harming primates.

The diversity of considerations shows divergent goals among institutions—a difference also noted in previous research (Rudran et al. 2021). Framing monkeys as both sacred beings and pests creates moral and legal conflicts. Legal reclassification of toque macaques as agricultural pests limits harmful actions because of religious and ethical concerns but allows farmers to drive them away from their cultivated land or home garden. These tensions highlight the need for culturally sensitive policy design that aligns with both ecological knowledge and the interests of society.

## 6.3 Challenges and Enablers in HPC Management (RQ3)

This study identified ethical limitations, institutional distrust, limited inter-agency coordination, and procedural inefficiencies among several structural and procedural issues in present HPC management. Monthly meetings revealed that poor institutional procedures hinder long-term planning due to their repetitive nature, lack of follow-up, and exclusion of significant experts such as veterinarians. Although collaborative efforts like wildlife censuses and sterilization programs were acknowledged, they were scattered, lacked common goals, and were not

integrated into a defined collaborative framework. Distrust among and within agencies was also clear, as field officers believed unsupported by higher-level management, highlighting variations in institutional communication. Cultural opposition to lethal techniques caused by religious and ethical beliefs also underlined the importance of non-lethal alternatives, supporting earlier research (Nahallage et al. 2022; Cabral et al. 2018).

With these challenges, some enablers were discovered, including the existence of community structures like the Kapruka Society supporting local involvement, awareness and educational programs meant to promote coexistence, and examples that successful district-level collaboration in organizing and carrying out HPC interventions.

## 6.4 Recommendations for Stakeholder Collaboration and Coexistence (RQ4)

Results of this study indicate a number of significant recommendations to strengthen Sri Lanka's management of HPC.

To ensure harmonious cooperation between various government agencies involved in managing HPC, and interagency coordination should first be established through the establishment of a single national task force with distinct mandates, possibly based on successful initiatives like dengue control.

Then, in order to balance wildlife conservation with practical management, legal reforms are required to clearly define the responsibilities of stakeholders while also respecting ethical and religious values.

Investing a long-term management plan, including data collection, primate population forecasting, and geographic planning was supported by stakeholders. This kind of strategic planning would substitute reactive interventions with adaptive governance systems.

Empowering community committees and considering local and indigenous knowledge were essential. These covers build participatory dialogue spaces and promote locally appropriate practices.

Procedures to discourage the feeding of monkeys and promote environmental awareness are crucial. For instance, this can be practiced through proper waste disposal. Promoting sustainable coexistence requires involvement from the education system in school and involvement of community leaders.

## 6.5 Theoretical Reflection: Applying the Progress Triangle

The substance dimension highlighted conflicts over facts (e.g., population growth, crop damage), values (e.g., sacredness vs. agricultural pests), and interests (e.g., conservation vs. productivity). The process dimension highlighted institutional fragmentation, inadequate communication, and delays in processes. The relationship dimension highlighted trust issues both within and between different government agencies. Positive instances of cooperation demonstrated that developing mutual respect and common objectives can enhance HPC management results.

The findings highlight the importance of integrating ecological understanding with culturally sensitive policies and fostering stakeholder collaboration, including community participation and awareness programs. Effective management of HPC requires recognizing and reflecting the diverse perspectives and values of all stakeholders involved. Developing a coordinated, participatory approach could improve conflict resolution, promote sustainable coexistence, and conserve the unique primate biodiversity of Sri Lanka.

Although the study provides valuable insights into the institutional and cultural complexities of HPC management, it also acknowledges limitations related to stakeholder involvement and the need for more comprehensive tools to measure conflicts outcomes. Consequently, new questions have emerged regarding how best to operationalize participatory strategies and how to develop culturally appropriate,

sustainable practices for conflict mitigation. Additional research is needed to explore innovative management approaches, especially those integrating indigenous and local knowledge systems, and to evaluate the effectiveness of community-based interventions in diverse settings.

Furthermore, future research should focus on longitudinal evaluations of conflict mitigation programs, comparative studies across regions, and the development of standardized metrics for assess the success of conflict resolution efforts. Such research would be instrumental in creating adaptable and evidence-based frameworks for long-term coexistence.

In conclusion this study emphasizes that sustainable coexistence in Sri Lanka depends on understanding stakeholder values, improving institutional coordination, and fostering inclusive dialogue to create effective, culturally sensitive solutions. Continued research will be significant for refining these strategies and addressing emerging challenges in human-primate coexistence.

# References

- Cabral, S.J., Prasad, T., Deeyagoda, T.P., Weerakkody, S.N., Nadarajah, A. & Rudran, R. (2018). Investigating Sri Lanka's human-monkey conflict and developing a strategy to mitigate the problem. *Journal of Threatened Taxa*, 10 (3), 11391. <https://doi.org/10.11609/jott.3657.10.3.11391-11398>
- Creswell, J.W. & David Creswell, J. (2018). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*
- Dittus, W.P.J., Gunathilake, S. & Felder, M. (2019). Assessing Public Perceptions and Solutions to Human-Monkey Conflict from 50 Years in Sri Lanka. *Folia Primatologica*, 90 (2), 89–108. <https://doi.org/10.1159/000496025>
- Etikan, I. (2016). Comparison of Convenience Sampling and Purposive Sampling. *American Journal of Theoretical and Applied Statistics*, 5 (1), 1. <https://doi.org/10.11648/j.ajtas.20160501.11>
- Gunawardene, N.R., Daniels, A.E., Gunatilleke, I.A.U.N., Gunatilleke, C.V.S., Karunakaran, P.V., Nayak, K.G., Prasad, S., Puyravaud, P., Ramesh, B.R., Subramanian, K.A. and Vasanthy, G., 2007. A brief overview of the Western Ghats-Sri Lanka biodiversity hotspot. *Current Science (00113891)*, 93(11).
- Hallgren, L. (2024). Understanding conflict. Lecture in Conflict, Democracy and Facilitation, 18.01.2024, Swedish University of Agricultural Sciences (SLU).
- Jayarathne, S.D., Dissanayake, N.C.A. & Herath H.M.A (2024). A Review: Human – Macaque Conflict in Sri Lanka. *International Journal of Research and Scientific Innovation*, XI (II), 147–162. <https://doi.org/10.51244/ijrsi.2024.1102012>
- Lee, J. H., Matarrita-Cascante, D., Xu, Y. & Schuett, M. (2018). Examining the conflicting relationship between U.S. National Parks and host communities: Understanding a community's diverging perspectives. *Sustainability*, 10 (10). <https://doi.org/10.3390/su10103667>
- Nahallage, C.A.D., Dasanayake, D.A.M., Hewamanna, D.T. & Ananda, D.T.H. (2022). Utilization of home garden crops by primates and current status of human-primate

- interface at Galigamuwa Divisional Secretariat Division in Kegalle District, Sri Lanka. *Journal of Threatened Taxa*, 14 (1), 20478–20487. <https://doi.org/10.11609/jott.7560.14.1.20478-20487>
- Pemadasa, D.G.C.L. (2022). The Human-Macaque Conflict and Management Strategies of Sri Lanka (With Special Reference to Uva Paranagama Divisional Secretariat Division in Badulla District). *Vidyodaya Journal of Humanities and Social Sciences VJHSS*, 07 (02), 62–80. <https://doi.org/10.31357/fh>
- Raitio, K. (2016). Seized and missed opportunities in responding to conflicts. Routledge, 229–248.
- Rudran, R., Cabral De Mel, S.J., Sumanapala, A., De Mel, R.K. & Mahindaratna, K.K.T.I. (2021). *The Conservation Status of Two Threatened Primates in the Korup Region, Southwest Cameroon*
- University of Sri Jayewardenepura (2023). Human Monkey Conflict: The Reasons and Mitigation Strategies. <https://www.sjp.ac.lk/blog/human-monkey-conflict-the-reasons-and-mitigation-strategies>.
- Walker, G.B., Senecah, S.L. and Daniels, S.E., 2006. *From the forest to the river: Citizens' views of stakeholder engagement*. In: S.L. Senecah, ed. *The Environmental Communication Yearbook*, Volume 3. Mahwah, NJ: Lawrence Erlbaum Associates, pp. 73–87.

## Popular science summary

Increasing interactions between humans and monkeys have led to growing challenge in managing human-primate conflict (HPC) in Sri Lanka. The expansion of urban areas and degradation of natural habitats, have caused primates to enter human residential areas. This results in damage to crops and property, leading to significant economic damages. Therefore, managing these complex issues requires intervention and cooperation among relevant government agencies, local communities, and conservation groups.

This study focused on how various government bodies respond to HPC and examine the where they work together and where conflicts are occurred when handling HPC. Although several agencies are involved in managing HPC, their efforts are often fragmented, with unclear responsibilities, limited coordination, and low levels of trust. While regular meetings are held to discuss current concerns, sustainable long-term strategies remain largely absent.

To address these issues, this study highlights recommendations for establishing a single national task force to coordinate efforts and define clear roles for stakeholders. Promoting community participation through awareness programme, educating the public about waste disposal, and enforcing laws against feeding monkeys and waste disposal are considered vital steps. Long-term plans should include data collection, habitat management, and strategic interventions instead of reactive measures.

In conclusion, building collaboration, mutual respect, and shared goals is key for peaceful coexistence. It is crucial to moving beyond individual efforts toward an integrated management system that involves all stakeholders. Then it helps protect both humans and primates, finally ensuring a harmonious balance that take advantages everyone in Sri Lanka.

# Acknowledgement

First and foremost, I want to thank my family and friends for supporting me through the process of writing this thesis. My heartfelt thanks go to my beloved husband, Damith, and my daughter, Senudi, for their patience, love, and sacrifices they gave up their time and comfort to support me in countless ways. My heartfelt gratitude goes to my parents, sisters and their families, and my husband's family for their constant prayers and encouragement, which gave me the strength to complete this task successfully. I want to thank to my dear friends, for helping me contact relevant stakeholders and for capturing photographs of macaques at my request.

I would like to express my gratitude to the government official who gave up their precious time to be interviewed and share their opinions and experiences. Without their participation, this work would not have been possible, and their insights gave my research a solid foundation.

I would especially like to thank my supervisor, Sara Holmgren, for helping me along the way with insightful comments, support, and encouragement while still letting me do the work myself. Her insightful advice enabled me to stay on the right way and successfully complete this task.

## Appendix 1

Topic	Questions
Substances	<ol style="list-style-type: none"> <li>01. What do you see as the primary causes of human-primate conflict in Sri Lanka?</li> <li>02. What is your department's primary interest or goal in addressing human-primate conflict?</li> <li>03. What specific projects/programs has your department implemented to address human-primate conflict? Have these interventions/projects been effective? Why or why not?</li> <li>04. What root causes involve in falling HPC management in Sri Lanka?</li> </ol>
Processes	<ol style="list-style-type: none"> <li>01. What specific policies or regulations has your department implemented to address HPC? How would you evaluate their effectiveness?</li> <li>02. Do you perceive any gaps or limitations in the current legislation that hinder effective management of human-primate conflict?</li> <li>03. What types of resources (may be financial, human, technical) are currently allocated by your department to manage HPC?</li> <li>04. In your opinion, are these resources sufficient? If not, what additional resources or would be necessary?</li> <li>05. Which other government bodies are involved in decision-making regarding HPC management?</li> <li>06. Can you describe decision-making process? Is there a formal process for coordination or meetings among stakeholders?</li> <li>07. How does your department collaborate with other government agencies, non-governmental organizations, or local communities to address this issue?</li> <li>08. Are there any challenges in coordinating efforts across different stakeholders?</li> </ol>
relationships	<ol style="list-style-type: none"> <li>01. How would you describe the relationship and level of collaboration between your department and other government stakeholders working on this issue?</li> <li>02. What factors have contributed to building or eroding trust among stakeholders?</li> <li>03. In what ways does your department depend on other stakeholder groups to manage human-primate conflicts effectively?</li> </ol>

	<p>04. Are there areas where collaboration has been particularly strong or weak?</p> <p>05. Do you feel that all stakeholders have an equal voice in decision-making processes? Why or why not?</p>
--	---

## Publishing and archiving

Approved students' theses at SLU can be published online. As a student you own the copyright to your work and in such cases, you need to approve the publication. In connection with your approval of publication, SLU will process your personal data (name) to make the work searchable on the internet. You can revoke your consent at any time by contacting the library.

Even if you choose not to publish the work or if you revoke your approval, the thesis will be archived digitally according to archive legislation.

You will find links to SLU's publication agreement and SLU's processing of personal data and your rights on this page:

- <https://libanswers.slu.se/en/faq/228318>

☒ YES, I, Manisha Kithmini Hewavitharana have read and agree to the agreement for publication and the personal data processing that takes place in connection with this

☐ NO, I/we do not give my/our permission to publish the full text of this work. However, the work will be uploaded for archiving and the metadata and summary will be visible and searchable.