



***VILLAGERS' PERSPECTIVE OF CONTRIBUTING FACTORS TO  
ILLEGAL LOGGING AND LAND ENCROACHMENT IN ULU SAT  
PERMANENT RESERVE FOREST, KELANTAN, MALAYSIA***

**NUR AFIFAH BINTI MOHAMAD AMRAN**

**FH 2019 7**



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By

**NUR AFIFAH BINTI MOHAMAD AMRAN**

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia,  
in Fulfilment of the Requirements for the Degree of Master of Science**

**January 2019**

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## DEDICATIONS

Alhamdulillah...  
With all of His help and bless.

Special dedicated to:

My beloved Abah & Ma  
Mohamad Amran Bin Haji Che Hassan & Rosma Binti Haji Yaacob

My siblings  
Noor Amalina, Nur Afrah, Ahmad Aiman, Ahmad Anasaei, Nur Anis Najihah and  
Ahmad Afham

My brother-in-law  
Mohd Ezuwar

My lovely nephew  
Muhammad Emir Aisar & Muhammad Eyyan Alfiy

All my friends and Family of Faculty of Forestry

Love Is A GIFT... And Yours is the Best Present I've Ever Gotten



Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Master of Science

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**January 2019**

**Chairman : Associate Professor Pakhriazad bin Hassan Zaki, PhD**  
**Faculty : Forestry**

Ulu Sat Permanent Reserve Forest (PRF) comprises of three recreation areas, namely Jeram Linang, Bukit Baka and Lata Tujuh located within the Ulu Sat district of Machang, Kelantan. Ulu Sat PRF is comprises of 14,432 hectares of forest reserves area. There are 12 sub-districts of Ulu Sat, namely Baka, Bakat, Banggol Judah, Belukar, Bukit Tiu, Cherang Hangus, Kemuning, Kepang, Kepas, Kweng Hitam, Pangkal Durian and Sungai Hala that accommodate with total population of 29.233 people comprising Malay (92.20%), Chinese (7.63%), Indian (0.10%) and others (0.07%). Illegal logging and land encroachment are increasingly prevalent in Ulu Sat PRF as intruders gain access via the recreation areas. The first objective of this study was to identify villagers' consciousness about the types of forest offences commonly committed by intruders. The second objective was to classify the factors of illegal logging and land encroachment. The third objective was to assess villagers' perceptions of illegal logging and land encroachment based on age. The study was conducted through interviews using questionnaires in cooperation with the village headman by selecting 360 respondents from 69 villages in the 12 sub-districts. By using random sampling, respondents were aware of the forest offences that occurred in the study area. Data from the study were analysed using IBM SPSS (Statistical Package for Social Science) version 24.0.

The villagers were aware that most common offence being timber extraction without a licence (67.5%). The least common infringement was poison fishing, disposal of toxic substances or fish bombs in rivers or lakes (30.8%). Principal Component Analysis (PCA) revealed that enforcement (20%), economic (15.6%), socio-economic (15%) and human-attitude (11%) were the main factors for illegal logging. While enforcement (22%), locality (21%) and knowledge (11%) were the main factors for land encroachment. As for the villagers' perception based on age, it was

influenced by high cost of living (0.001), jobless/fixed income (0.003), lack of awareness about illegal logging activities (0.046) and lack of knowledge about forest management (0.004). For land encroachment, the three significant factors are lack of knowledge about the law (0.042), land sales syndication (0.006) and weak law enforcement (0.025). Therefore, this study is able to find out clearly the factors that cause the occurrence of forest offenses in the study area from the perspective of the villagers. Subsequently, the outcome of this study could be channelled to the State of Kelantan Forestry Department to assist them in obtaining information to address the difficult issues of this uncontrolled forest offense.



Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

**PERSPEKTIF PENDUDUK KAMPUNG YANG MENYUMBANG KEPADA  
FAKTOR PEMBALAKAN HARAM DAN PENCEROBOHAN TANAH DI  
KAWASAN HUTAN SIMPAN KEKAL ULU SAT, KELANTAN, MALAYSIA**

Oleh

**NUR AFIFAH BINTI MOHAMAD AMRAN**

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**Fakulti : Perhutanan**

Hutan Simpan Kekal (HSK) Ulu Sat terdiri daripada tiga kawasan rekreasi iaitu Jeram Linang, Bukit Baka dan Lata Tujuh yang terletak di daerah Ulu Sat, Machang, Kelantan. HSK Ulu Sat mempunyai keluasan hutan simpan sebanyak 14,432 hektar. Di daerah Ulu Sat terdapat 12 mukim iaitu mukim Baka, Bakat, Banggol Judah, Belukar, Bukit Tiu, Cherang Hangus, Kemuning, Kepang, Kepas, Kweng Hitam, Pangkal Durian dan Sungai Hala yang menampung seramai 29,233 orang penduduk yang terdiri daripada kaum Melayu (92.20%), Cina (7.63%), India (0.10%) dan lain-lain (0.07%). Pembalakan haram dan pencerobohan tanah yang berlaku di kawasan HSK Ulu Sat semakin berleluasa disebabkan oleh penceroboh memasuki kawasan HSK melalui kawasan rekreasi yang terdapat di daerah ini. Objektif pertama kajian ini adalah untuk mengenalpasti kesedaran penduduk kampung tentang jenis-jenis kesalahan hutan yang sering dilakukan oleh penceroboh. Tujuan objektif kedua adalah untuk mengklasifikasikan faktor-faktor pembalakan haram dan pencerobohan tanah. Objektif ketiga adalah untuk mendapatkan persepsi penduduk kampung berkaitan dengan pembalakan haram dan pencerobohan tanah berdasarkan kategori umur. Kajian ini dilakukan melalui temubual menggunakan soal selidik dengan kerjasama daripada ketua kampung dengan memilih 360 responden daripada 69 kampung yang terdapat di dalam 12 mukim. Dengan menggunakan kaedah persampelan secara rawak, responden sekurang-kurangnya mengetahui tentang kesalahan hutan yang berlaku di kawasan kajian. Data daripada kajian dianalisis dengan menggunakan IBM SPSS (Statistical Package for Social Science) versi 24.0.

Penduduk kampung menyedari bahawa kesalahan hutan yang sering dilakukan di kawasan kajian ialah dengan mengambil kayu balak tanpa lesen (67.5%). Manakala kesalahan yang paling jarang dilakukan di kawasan kajian ialah menuba, membuang bahan toksik atau bom ikan di dalam sungai atau tasik (30.8%). Analisis Komponen

Utama (PCA) menunjukkan bahawa penguatkuasaan (20%), ekonomi (15.6%), sosio-ekonomi (15%) dan sikap manusia (11%) adalah komponen utama bagi pembalakan haram. Manakala penguatkuasaan (22%), penempatan (21%) dan pengetahuan (11%) adalah komponen utama bagi pencerobohan tanah. Bagi persepsi penduduk kampung berdasarkan peringkat umur, untuk pembalakan haram terdapat empat faktor yang signifikan iaitu kos sara hidup yang tinggi (0.001), tiada pekerjaan / pendapatan tetap (0.003), kurang kesedaran tentang aktiviti pembalakan haram (0.046) dan kurang pengetahuan tentang pengurusan hutan (0.004). Bagi pencerobohan tanah pula terdapat tiga faktor yang signifikan iaitu kurang pengetahuan tentang undang-undang (0.042), sindiket penjualan tanah (0.006) dan penguatkuasaan undang-undang yang lemah (0.025). Oleh itu, kajian ini dapat mengetahui secara jelas faktor yang menyebabkan berlakunya kesalahan hutan di kawasan kajian dari sudut perspektif penduduk kampung. Seterusnya, hasil daripada kajian ini dapat disalurkan kepada Jabatan Perhutanan Negeri Kelantan untuk membantu mereka mendapatkan maklumat bagi menangani isu kesalahan hutan yang sukar di kawal ini daripada terus berleluasa.



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Thank you.

This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Master of Science. The members of the Supervisory Committee were as follows:

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## LIST OF ABBREVIATIONS

|       |                                      |
|-------|--------------------------------------|
| NFP   | National Forest Policy               |
| NTFPs | Timber and non-timber forest product |
| NGOs  | Non-Governmental Organization        |
| SFM   | Sustainable Forest Management        |
| PRF   | Permanent Reserve Forest             |
| PTG   | Pejabat Tanah dan Galian Kelantan    |
| PDRM  | Polis Diraja Malaysia                |



# CHAPTER 1

## INTRODUCTION

### 1.1 General Background

Malaysia has an extensive natural tropical rainforests that comprises of 20.1 million hectares out of 1.7 billion hectares of the world's rich tropical rainforests (Nik Muhamad et al., 2000). In general, forestry laws is amend to govern forest activities with focus on forest management and timber harvesting while some additional legislation seeks to control the acquisition of forest land and to combat prescribed combustion practices. Forest management laws provide guidelines for policy enforcement to attain sustainable outcome to manage forest resources that is considered as public assets. Government agencies are generally responsible for planning and implementing forestry laws in public forest areas, involving forest inventory, planning, conservation and preservation of forests, and surveillance of timber sales.

Illegal logging refers to illegal activities related to forest ecosystems, forest industry, timber and non-timber forest products (NTFPs). The international debate on illegal logging has been concentrating primarily on the illegal log harvest, probably as a result of at least two factors. Firstly, non-governmental organisations (NGOs) that concern with environmental issues are worried about the impact of illegal logging on the ecology of the forest. They consider that the activities of illegal harvesting and illegal deforestation have a significant negative impact on the environment. Secondly, statistics on the volumes of illegal harvests are more easily obtained from other information regarding forest management such as the number of violations of harvest rules. Therefore, estimating the rate of illegal harvest is easier than evaluating other types of legislation.

Arnold (2001) defined illegal logging as a global problem and a major threat to the forest resources in the Asia Pacific. The region is home to a large share of the world's remaining natural forests, including the largest contiguous tropical forest area in the world. The illegal activities however does not stop at illegal logging, instead it also influence the entire timber industry from illegal transporting or smuggling to industrial processing and trade operations all the way down the line to market chains.

Forest encroachment is classified into four categories, namely illegal logging activities, slash and burn, small-scale logging (sized-wood) as well encroachment by settlers (Zubait, 2000). Pahang, Perak and Kelantan are among states facing with serious forest encroachment problems in Peninsular Malaysia. Nonetheless, the extent of encroachment seems difficult to be measured and figured accurately. Almost no systematic statistical data are available for reference despite encroachment is not a new problem while has been widely acknowledged by the

forestry sector. Almost all infringements in dealing with illegal logging and sized-wood logging have been successfully alleviated. Nevertheless, encroachment by settlers is an issue with many intricacies, prompting the government to deal with it amicably. Looking at Kelantan's demographic and socio-economic status, forest-based activities are not only a source of livelihood for the rural community but have contributed significantly to form their economic well-being. This indicates enforcement alone without getting to the root of the problem will not be able to prevent settlers from encroaching in the near future. Considerations must at times be given to the traditions, culture and micro-economic status of the community involved in order to justify for an efficient law that can satiate with environmental, social and economic needs.

Local activities such as illegal logging and land encroachment seem to undermine the rule of law poses as a forest crime and serious economic and social implications which eventually causes substantial loss of forest acquisition to the state government. Illegal forest activities and encroachment contribute to increased poverty and conflict, foster a vicious cycle of bad governance, pose a significant threat to the sustainability of forest ecosystems, and cause significant losses of tax revenues (Arnold, 2001). In short, any forest extraction and occupation activities without rights could upset the planning for sustainable forest management programs.

Nevertheless, some illegal acts are unintended as a consequence of defective laws. Imperfect law enforcement encourages and sometimes forces parties to operate outside of the law. In Malaysia, the management and enforcement of forest lands are mostly carried out by the State Forestry Department, the State Land Office and in some cases the Land and Mines Office. Sound management and enforcement policies of the National Forestry Act 1984 should assist in managing forest resources in the state. Successful implementation of these policies is vital, as conflicts arise not only over the settlers' livelihood but also the management of the forest resources itself which affects the efficacy of enforcement activities. In other words, it is important to understand behaviour of settlers involved with forest activities in order to strategize better enforcement practice to be carried out by the authority.

## **1.2 Problem Statement**

Illegal logging has direct and indirect impacts on ecosystem related matters. The direct impact is related to loss of resource acquisition in terms of royalties and other charges, while the indirect impact pertains to environmental damages and biodiversity losses. Therefore, rampant illegal logging, land encroachment and other forest offences pose a problem and a challenge to the forestry administration especially in the context of successful Sustainable Forest Management (SFM) practices. Preventing forest offences is dependent on the effectiveness of forest law, policy, and enforcement.

Praxis of enactment with enforcement strategies is envisaged to mitigate with crimes against forest as evidenced from several prosecution on forest crimes. A total of 7,284 ha of Permanent Reserve Forest (PRF) have been explored illegally by syndicates in Pahang and Terengganu (Berita Bernama, 2016). HSK Ulu Galas, Kelantan is worst affected followed by HSK Batu Papan due to villagers land exploration for the cultivation of rubber, oil palm and banana. The Kelantan State of Forestry Department has conducted raids in PRF Ulu Galas involving 34 members of enforcement has seized machinery and equipment used from unauthorized forest exploration for rubber plantations and oil palm and arrested three local residents. Collaboration was made by Kelantan Forestry Department with the Kelantan Director of Land and Mines Office (PTG), Royal Malaysian Police (PDRM) and other relevant agencies to intensify operations to curb illegal syndicates on state forest areas.

Based on interviews with villagers, it was found that villagers voiced about forest offenses that occurred in the PRF Ulu Sat area made them to be in apprehensive. It is of concern to the villagers because they worry about the aggressiveness of the intruder committing the offense especially illegal logging and forest encroachment in the PRF Ulu Sat has been unnoticed by the authorities. This is because there is a recreation area which is the gateway for intruders to enter the forest reserve area. Furthermore, the village area adjacent to the PRF may obscure the authorities from recognizing offenses that occurred in the forest. Additionally, with new development projects near the recreation area, intruders are getting more courageous to commit forest crime in the PRF.

The means for recovering forest acquisition from illegal logging and land encroachment depend on the active enforcement of enactments and laws. The relevant clauses for prosecution under sections of the forest enactments can be commonly referred to sections/sub-sections 20(2), 23(2), Illegal felling; sections/sub-sections 30(1)(g), 30A(1), Evasion of royalty; sections/sub-sections 20(1)(c), 23(1), Encroachment/illegal entry; sections/sub-sections 30(1)(a), (b), (c), (d), (e) and (f), general offences. The trends in forest offences, penalties imposed and fines charged are important factors that affect the costs associated with illegal logging and land encroachment.

Therefore, this study will put forward in these questions:

- i. What is the villagers' awareness about forest offenses in study area?
- ii. What are the factors contributing to the occurrence of illegal logging and land encroachment?
- iii. What is the relationship between villagers' perception with their age category?

### **1.3 Objectives of the Study**

This research seeks to identify the villagers' perspective on factors contributing to illegal logging and land encroachment in Ulu Sat Permanent Reserve Forest, Kelantan.

The specific objectives of the study are:

- i. To identify villagers' awareness of forest offences.
- ii. To classify factors for committing illegal logging and land encroachment.
- iii. To assess villagers' perception in relation with their age.

### **1.4 Research Justification**

This research investigates factors contributing to illegal logging and land encroachment in permanent forest reserves in Kelantan based on local opinion. This research is vital as information that can be relayed for the management's knowledge of the issue. This study is anticipated to be used as a reference to guide other researchers for further exploration on related issue.

### **1.5 Scope and limitations**

This study focused on illegal logging and land encroachment in PRF Ulu Sat across 12 sub-districts and 69 villages. Data collected does not consider the distance of the villages in order to generalize findings that represent the whole population in the studied area. The geographic distance between villages may serve as shortcomings that could affect the villagers' awareness of what happens in the PRF. This study is also aimed to provide exposure to the forest offences committed by intruders in the villagers in the study area therefore any reference to be made from the findings may not suits to be compared with other issue of interest.

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