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ILLEGAL LOGGING AND FOREST OFFENCES IN PENINSULAR MALAYSIA: PERCEIVED OPPORTUNITY FACTORS

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ABSTRACT

Background and Purpose: A model by the World Bank (2006) explained the causes of illegal logging and environmental crimes in terms of the simultaneous presence of methods, motives, and opportunities. This paper aims to examine the opportunity factors behind the commission of illegal logging and forest offences in Malaysia based on the perceptions of forest enforcement agencies.

Methodology: Responses from the agencies were mainly obtained through a set of questionnaire though semi-structured interviews were also carried out to support the quantitative findings. The strength of the factors was determined through data analysis using SPSS, where opportunity factors for committing illegal logging were analyzed according to the results of measures of central tendency and measures of dispersion.

Findings: Insufficient enforcement facilities and equipment were found in the study to be the most significant factors which present opportunities for committing the offences. Respondents also perceived the level of enforcement, cooperation between government agencies and the possibility of conviction as the factors which open up opportunities for illegal logging and forest offences.

Contributions: The results of the study may help create awareness and provide inputs for policy makers to formulate appropriate policy responses to curb illegal logging and other forest crimes.

Keywords: Environmental crime, illegal logging, opportunity factors, policy response, Act 313.

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1.0 INTRODUCTION

In the South East Asia region, Malaysia is one of the timber-producing countries other than Indonesia and Laos (Hoare, 2015b). Past research indicates that in Malaysia, illegal timber production accounted for 35% of the total production while 10% of illegal timber in the global market was sourced from the nation (Hoare, 2015b). The rate showed an increase from year 2010, where illegal logging accounted for 14–25% of the total timber production in the country (Lawson & MacFaul, 2010). The likelihood of cases of logging outside agreed boundaries, logging on steep slopes, and overharvesting has been rated by Transparency International 2011 at a grade of 4 (out of a scale of 1-5, 5 being most likely (Nature Economy and People Connected, NEPCon, 2018).

Between 1991 and 2016, cases of illegal logging have decreased but cases of forest offences followed an upward trend. The primary legislation to curb illegal logging and forest offence is the National Forestry Act 1984 (Act 313). Act 313 has been adopted by each state in Peninsular Malaysia to synchronize legislations in the forestry sector (Mohd Gani, 2013). The Act has been amended in 1993 to increase the amount of fine and imprisonment term of related provisions. Illegal logging and forest offences have occurred continuously after the enforcement of the National Forestry Act 1984.

The impact of illegal logging ranges from the reduction of forest area, occurrence of natural disaster, financial loss towards the economy, dissemination of corruption and extinction of wildlife. Illegal logging causes imbalance of ecosystem and disrupts the biodiversity of the forest area. Such activity also results in other environmental problems such as the extinction of flora and fauna, increment of soil erosion, landslide and climate change (Food and Agriculture Organization of the United Nations, FAO, 2005; Reboredo, 2013). Illegal deforestation also causes flood with substantial fatalities, destruction of properties and significant loss for the victim (Reboredo, 2013). Other apparent impacts of illegal logging includes biodiversity loss and disruption of forest function as a water catchment area (Kleinschmit, Mansourian, Wildburger, & Purret, 2016).

The adverse effect of illegal logging towards the economy is apparent through tax and premium evasion that results in the loss of government income (FAO, 2005; Kleinschmit et al., 2016). It is estimated that the amount of government loss due to illegal logging stood at US$10

billion per year (Nellemann, 2012). The distortion of legal supply chain and price of legally harvested wood are another negative impact of illegal logging (Kleinschmit et al., 2016). Such situation results in the reduction of profit by legal logging operators (Kleinschmit et al., 2016). Causes of illegal logging are manifold, ranging from corruption, policy failures, insufficient enforcement, and vulnerabilities in forest-related institutions (Palmer, 2000; FAO, 2005). As with any other crimes, it is almost impossible to stop the occurrence of the offences. Many factors are driving the occurrence of such offences (Mohd & Yaman, 2001), and the definite causes are often ambiguous and might involve the accumulation of several causes. A useful model to understand the causes of the crime combines means, motives and opportunities (World Bank, 2006). Insights into these means, motives and opportunities are crucial to determine the reasons that lead to the occurrence of the crime. While monetary gain is cited as the principal motive of the crime (Foley, 2011; Lin, 2008; Williams & Sickles, 2002), the opportunities available to perpetrators are associated with vulnerabilities, absence and poor control from the regulatory agencies (International Criminal Police Organization, INTERPOL, 2013). Ineffective enforcement as well as weak and poorly managed forest administration have been identified among the opportunity factors causing illegal logging (World Bank, 2006).

Insights into the motive of the crime are crucial to determine the reasons that lead to the occurrence of an unlawful act (Compin, 2016). An aggregate of past researchers cited monetary gain as the principal motive of the crime, which refer to the needs and desires that cause an individual to indulge in the prohibited acts (Foley, 2011; Lin, 2008; Williams & Sickles, 2002). Criminal opportunities available to perpetrators are associated with vulnerabilities, absence and poor control from the regulatory agencies (Willison, 2000). In certain cases, offenders will foresee and calculate the risk of prosecution when criminal opportunities are present in a high-risk setting (Schrag & Scotchmer, 1997).

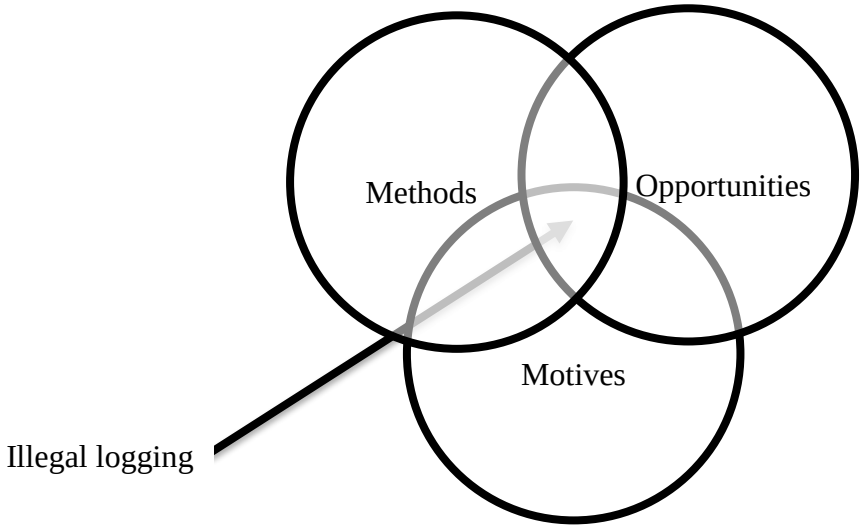
The identification of motives and opportunities are believed to assist related agencies to formulate or revise preventive policies aiming at addressing criminal motivation and opportunities. This paper emphasizes upon recognizing opportunities or chances which result in the commission of illegal logging and forest offences. The outcomes of this study may provide information for policymakers to formulate preventive policies to curb environmental crime.

As stated, the occurrence of crime requires the simultaneous presence of motives and opportunities. Opportunity is defined as current vulnerabilities which exist in the context within which potential criminals operate. The vulnerabilities may provide opportunities for individuals to engage with unlawful acts (World Bank, 2006). Opportunities are also associated

with temptations to commit the crime. Criminal opportunities are exploited by the perpetrators regardless of the magnitude of the opportunity in the pursuit of the benefit or rewards (Richerson, 1996).

Primary methods of carrying out illegal logging include falsifying logging permits, offering bribes to obtain logging permits, and logging beyond concessions. A key element in illegal logging is the laundering of the illegally logged timber, which includes mixing illegal logs with legal ones by exceeding cutting quotas, using permits or logging concessions in one area to cut in a different area, mixing illegally logged timber with legal logs at a sawmill, sometimes exceeding the official capacity of the mill, and under-reporting processed volumes in the mill (Nellemann, 2012).

The simultaneous presence of methods, motives, and opportunities is illustrated in Figure 1. The situation is represented by the overlapping area in the middle of the Venn diagram. Prospective criminals are motivated by greed etc., employ means, and make use of existing vulnerabilities. This paper focuses on the identification of opportunities which can be exploited for the commission of illegal logging and forest offences. The opportunities refer to the vulnerabilities which exist in the context within which potential criminals operate. The identification of these opportunities is believed to help create awareness and assist related agencies in formulating or revising preventive policies aiming at reducing the crime.



Source: World Bank (2006)

Figure 1: The World Bank's model of causes of illegal logging

2.0 RESEARCH DESIGN

A total of 241 close-ended questionnaires were collected from related stakeholders in Peninsular Malaysia. These respondents were people who are engaged in the enforcement operation in forest-rich states. An interview was also conducted with a small number of respondents for additional insights on the issues.

The questionnaire was constructed with reference to the analysis of related literature. The respondents were presented with 5-point Likert scales (1 = totally disagree, 2= disagree, 3=just agree, 4=agree, 5= totally agree) to rank their agreements or disagreements with the items in the questionnaire. The importance and significance of a particular item were determined according to the value of measures of central tendency consisting of mean, median, and mode. This study employed the mean score ($\overline{x}$) as the primary measure of central tendency. Items with high value of mean score were categorized as significant, whereas items with low mean score were insignificant. In the case of data with outliers, the median provides an appropriate indication of central value. The mode score is the preferred measurement to describe nominal data.

The standard deviation (s) and variance (s^2) were used in this research to examine the dispersion and heterogeneity of the data. The value of the standard deviation of more than 1 indicates that the data are widely spread, while the value of the standard deviation of close to 0 indicates the narrow spread of data. The variance provides a measurement on the distance of each individual data point from the mean score. The reliability and validity of the items were verified according to the *Cronbach* value of 0.925. All items also underwent explanatory factor analysis during the pilot test which assured that the items were categorized according to proper constructs, and items failing to meet the terms of the analysis were omitted.

3.0 ANALYSIS AND DISCUSSION

Illegal logging is an environmental issue that is prevalent in many countries across the globe including Malaysia. Understanding the vulnerabilities that would create opportunities for the commission of illegal logging is significant to facilitate a more effective and successful response to the issue. Feedbacks from the respondents provided insights regarding the aspects that open up opportunities which enable forest criminals to commit illegal logging. Table 1 presents the factors that have the potential to constitute opportunities for the crime.

Table 1: Opportunity factors for committing illegal logging and forest offences

Item	Opportunity factor	Mean score ($\bar{x}$)	Standard deviation (s)
1	Adequacy of facilities and equipment	3.86	0.99
2	Level of enforcement	3.34	1.12
3	Cooperation between government agencies	3.17	0.99
4	Possibility of conviction	3.68	0.96
5	Award of concession	2.69	1.09
6	Transparency in the allocation of concession	2.85	1.04
7	Tracking system	3.24	0.98
8	Paper-based removal pass and risk of forgery	3.12	1.09

3.1 Enforcement Factors

"Adequacy of enforcement facilities and equipment" ($\bar{x}$ = 3.86) and "possibility of conviction" ($\bar{x}$ = 3.68) were identified as potential opportunities for perpetrators to engage in the crime (Table 1). "Cooperation between agencies" was capable of foreclosing the opportunity ($\bar{x}$ = 3.17). The respondents slightly agreed with all the items including the "level of enforcement" factor (a median score of 3).

The outcome of data analysis indicated that 'inadequate facilities and equipment' was the most significant factor than can open up potential opportunities for illegal logging activities. Research agrees that enforcement efforts could critically be impaired when enforcement officers do not have sufficient access to transport, surveillance, monitoring, communication, and protective equipment. Lack of equipment creates barriers that can limit the capacity of enforcement, including the ability to conduct surveillance, communicate effectively, or track illegally logged timber. Law enforcement must be provided with new, specialized equipment to stay one step ahead of the criminals and maintain enforcement capacity, as forest crime continues to evolve and develop new methods to carry out illegal logging operations (INTERPOL, 2013). The problem of inadequate equipment is attributable to the limited budget allocated for forest law enforcement. The level of funding in most countries is not enough to allow enforcement agencies to tackle illegal logging. In many countries, forest law enforcement officials lack the equipment to undertake effective enforcement action in the field. In Indonesia, for example, although police and forestry service officials have information on GPS

coordinates identifying the exact locations of illegal activities, they are unable to carry out appropriate law enforcement action because there are no helicopters or planes to provide rapid transportation to the areas. Foresters often rely on antiquated weapons and have limited ammunition, and sometimes even lack radio communications (Goncalves, Panjer, Greenberg, & Magrath, 2012). In another example, the Nicaraguan Forest Service office in Puerto Cabezas municipality has a team of staff consisting of only one officer, two assistants and a secretary, with a single motorcycle as transportation. The team is responsible for enforcing the law in a territory of 1.5 million hectares, which includes monitoring the forest and apprehending criminals. The small and poorly-equipped team has no capacity to monitor the vast forest area (Contreras-Hermosilla, Doornbosch, & Lodge 2007).

Effective enforcement can be impeded by insufficient information from intelligence team, inadequate manpower, and limited funding for enforcement activities and procurement of enforcement equipment (Hawari et al., 2012). The respondents slightly agreed that weak enforcement effort can present potential opportunity that contributes to the occurrence of illegal logging. Previous research has indicated that there is weak enforcement and control over forest management in Malaysia, as reported by the 2009 audit report (Hoare, 2015a). The weakness of enforcement may relate to the implementation of enforcement, surveillance and monitoring activities. The formulation of enforcement strategies should integrate the participation of multiple stakeholders and interested parties related to the forestry sector (FAO, 2005). Bribery and corrupt forest officers can potentially weaken enforcement efforts and promote occurrences of forest crime (World Bank, 2006; Transparency International EU, 2017). Based on stakeholders' inputs, there are indications that forestry department rangers in Malaysia rarely conduct on-ground patrols, and it is widely perceived that bribes are paid to forest officials (NEPCon, 2018).

Mohd and Yaman (2001) highlighted the shortage of field staff for forest monitoring. Additional enforcement officers have been recruited by the forestry department; however, the personnel and resource remain insufficient for effective enforcement (Hoare, 2015a). A recent research also highlighted the inadequate number of enforcement staff at state forestry departments to conduct detection and enforcement patrols and routine surveillance activities, and investigations on forest offense cases and forensic practices (NEPCon, 2018).

Detection of offences is carried out by forest officers as well as mobile enforcement units tackling individual incidences of illegal harvesting and timber transportation. In addition, forestry departments rely on public informants and anti-corruption agents and will enlist the support of the police and armed forces in enforcement operations (Mohd & Yaman, 2001;

Wells, Thang, & Chen, 2008). A low risk of detection can present a potential opportunity for crimes, and cooperation in the joint operations will help foreclose the opportunity by reducing the likelihood of crimes being undetected. The respondents slightly agreed that this factor can foreclose opportunities to commit illegal logging. Forest officers are rarely trained in law enforcement operations, and the help of specialized agencies of the government may be needed (Contreras-Hermosilla, 2002). The use of a multi-prong strategy through the cooperation can reduce potential opportunity for the crime (Mohd & Yaman, 2001).

The respondents slightly agreed that a low possibility of conviction provides a potential opportunity for forest offences. The rate of successful prosecutions in Malaysia stands at 60–70% (Lawson & MacFaul, 2010). A study in 2005 in Papua, Indonesia, showed that convictions are only secured in 13 out of 186 cases. In Brazil, Mexico, Indonesia, and the Philippines, studies showed that the cumulative probability of conviction is less than 0.082% (Goncalves et al., 2012). Hawari et al. (2012) indicated that weaknesses in investigation result in incomplete evidences which in return make prosecution difficult, or in some cases necessitate changes of charges to lighter offences instead of section 15 [1] of the National Forestry Act 1984. Investigation weaknesses are caused by the lack of intelligence-based information. This information is important for determining the type of offence, the type of raid to be carried out, the planning of an investigation, and the evidences for a prosecution. In many instances, raid teams carry out their tasks based on reports and informers' information, which do not result in arrests as only stumps and machinery are found at the sites. Often, particulars of the accused and the employees are incomplete, and verification with the National Registration Department must be made. Longer time is required to trace the offenders and complete the investigation. Often, registration details of machinery are fabricated, raising the difficulty to trace ownerships for the Department of Road Transport. Efforts to obtain solid and compelling evidence can be affected by the lack of forensic experts and skilled investigation officers. The legal provision also poses a challenge in evidence gathering. The word 'take' employed in section 15 presents a difficulty to investigation teams when obtaining evidences. Despite the interpretation given for the word in section 2[2], problems are faced because most of the cases are not discovered while the acts of 'taking' are being committed. Illegal loggers exploit the vulnerability by

[1] Section 15 provides for the offence of illegal logging (Mohd Nor & Mahli, 2017). It states "(1) No person shall take any forest produce from a permanent reserved forest or a State land except-(a) under the authority of a license, minor license or use permit; or (b) in accordance with any other written law.

[2] Section 2 states "take" in relation to forest produce includes every activity involved in (a) the harvesting, collecting, tapping, mining, quarrying or removing, of any forest produce; (b) the injuring or damaging of forest produce; or (c) the grazing of cattle upon the forest produce".

moving the machinery to the neighbouring alienated land or plantation site, thereby rendering evidence gathering to prove the offence under the provision difficult. There might be information or indications that the machinery has been used for illegal logging, and certain parties might have rendered assistance to the accused; however, proving these in courts under section 15 of the Act can be challenging given that the offence was already committed and the accused was not caught red-handed. Attempts to commit the prohibited act or abetment are not provided as offences under the Act.

3.2 Concession Award

Table 1 indicates that while the respondents slightly agreed with "transparency" (median score of 3) and "tracking system" ($\overline{x}$ = 3.24), they did not agree with the process of "concession award" (median score of 2) as a factor providing opportunities for corruption/forest offences. The collection of forest produce can be permitted through a tender process, concession agreement, or general application (Forestry Department Peninsular Malaysia, FDPM, 2019). In Peninsular Malaysia, concessions are categorized by size, each with its own length of tenure. Concessions up to 1000 hectares in area are allocated for 1–2 years; 1,001–2000 hectare concessions are allocated for 1–5 years; 2,001–20,000 hectares are allocated for 10–30 years; and those exceeding 20,001 hectares are allocated for 20–30 years (NEPCon, 2018). Illegal logging is often associated with corruption, with bribes being paid to government officials for favourable decisions (Contreras-Hermosilla et al., 2007). Corruption in forestry sector may be used to facilitate preferential treatments (Transparency International, 2010). With reference to the survey results, the respondents disagreed that the process in concession awards can create potential opportunities for corruption. Research indicated that the process can potentially allow for corruption. State governments have the authority to give preferential timber concessions and logging licenses without ensuring competitive bidding. The concern is the legislation's inability to address issues of preferential treatments. No cases have been successfully prosecuted although research showed that 13 cases of alleged corruption have occurred in the issuance of licenses (NEPCon, 2018). Potential corruption can presumably be contained by encouraging competition in the procurements of logging permits and concessions (Alemagi & Kozak, 2010).

The respondents slightly agreed that lack of transparency in the allocation of log concessions opens up potential opportunities for illegal logging. The award of timber concessions and logging licenses were identified as areas of weakness for corruption in Peninsular Malaysia by Transparency International 2011 (NEPCon, 2018). Research has

indicated that there is little transparency of information in the forest sector in Malaysia. There is no requirement to make concession maps or locations publicly available or to publish harvesting and forest management plans. It is a legal requirement to make the results of resource allocation processes available on request, and requests to see concession maps are allowed, but such information is not always provided in response to such requests (Hoare, 2015a). Research indicated that in producer countries many times contracts have been awarded under the market value and without disclosing where the lands are located and the identity of the concession holders (Transparency International, 2010). The use of logging concessions as a means of rewarding allies can place legal contenders for timber harvesting right at a disadvantage (Brack, 2005). Greater transparency can be achieved through open tender systems, and full information on the funds paid for licenses and concessions is useful for increasing transparency (Transparency International, 2010). Better publicly available information for bidding procedures for forest concessions can improve transparency and accountability of government decisions (Contreras-Hermosilla et al., 2007).

3.3 Tracking System

On the issue of tracking systems, criminals can only profit if the illegally cut timber can be transported, processed, or sold. To prevent these activities, most producer countries have systems which are designed to document legally felled logs. The systems also ensure that revenues are collected and illegal timber cannot enter the supply chain (Lawson & MacFaul, 2010). The respondents slightly agreed that potential flaws in the tracking system can open up opportunities for illegal logging. The timber tracking systems are used for logs harvested from permanent reserved forests. The tagging system and the removal pass system can trace logs from the forests to the mills (Hoare, 2015a). Timber tagging is conducted during the assessment of forest inventory. Suitable trees for timber harvesting are marked with a PVC tag which contains information about the code of license area, the serial number of the trees, the number of log pieces obtained from the felled tree, and the acronym of the forestry authorities (Forestry Department Peninsular Malaysia, FDPM, 1997). Once the payment is made, a removal pass is issued for each lorry load. The removal pass carries a record of the type/species, volume of produce, and the payments made. The licensee must ensure that all logs transported to the mills are accompanied by a removal pass or exchange removal pass (NEPCon, 2018). On the basis of the removal passes, forest checking stations verify that domestic logs come from designated licensed areas, and that royalty payments have been made by the licensees (Hoare, 2015a). At the timber manufacturing premises, the operators are obliged to maintain and update a log

register i.e. a record system which contains the information about the logs (*Manual Perhutanan*, 2003). The removal pass will be cancelled to avoid multiple usage of the document. The tracking system can ensure that only legally felled logs are received and processed at the wood-manufacturing premises.

While loggers choose remote areas to carry out their illegal operations to avoid detection (Mohd Gani, 2013), they must still get the wood out of the forest. The literature has indicated that there is little likelihood that illegal timbers will be mixed with the legal ones under the tracking system because of the tagging requirement. Licensed wood-based industries are not likely to purchase illegal timbers to avoid a bad reputation and image. Records are kept on all logs received and stored in the mill premises, including the dates of processing. Regular inspections of documents carried out by forest officers will detect cases of discrepancy (Mohd & Yaman, 2001). Most mills would prefer legal timbers to illegal ones if the prices are the same, but if illegal timbers are mixed with legal ones, there is a high incentive for complicity in illegal logging due to potentially increased profits (Nellemann, 2012). The absence of forest officers at the mills can raise potential loopholes for timbers from unauthorized areas. Forest rangers are not permanently stationed at mills, and current systems rely on self-reporting by mills. While the reports may be examined for inconsistencies, there are no routine verifications carried out by the district forest officers. This constitutes a potential opportunity for timber from controversial sources to enter the production chain (Wells et al., 2008). Research showed that illegal loggers have resorted to forged documents to launder timbers from unauthorized areas (Urrunaga, Andrea Johnson, & Mulligan, 2012). In this study, Respondent 5 indicated that on a rare occasion there were cases of untagged trees which still obtained removal passes and were transported to the sawmills but were luckily stopped by the forest authorities. Further investigations revealed that false issuance of removal pass was due to bribery paid to certain officers. There were also cases of multiple usage and falsification of removal passes. In those cases, the forged documents enabled logs to be transported to the sawmills. Research acknowledged that there might be some scope for illicit transfer of logs but 100% tree tagging and the administration of transport permits through removal passes make the system sufficiently secure to prevent unlawful transfers on any significant scale (Wells et al., 2008).

Respondent 1 highlighted that the existence of illegal sawmills can provide opportunities for illegal logging operations. Illegal sawmills could serve as the destinations for processing illegally harvested logs. The premises do not keep records of incoming woods such as the dates of the log entries, the number of logs, the species of logs received, and information about removal passes (Ministry of Plantation Industries and Commodities, 2007). The presence

of illegal sawmills facilitates illegal logging since the premises provide alternative avenues for timber processing.

The literature highlighted that illegal sawmills are usually constructed in remote areas in close proximity to the forest reserves (Geraldine, 2018; Mamat, 2019). Previous research indicated that operations of illegal sawmills are caused by the practice of corruption. Corruption enables the operators of illegal wood manufacturing facilities to anticipate inspections and avoid arrest by forest authorities (Honey-Roses, 2009). Illegal timber processing is perceived as less risky activities in comparison with transporting and harvesting of illegal timbers. In certain cases, illegal sawmill operators are members of illegal logging syndicates, and they will be informed about sawmill inspections (Scotland, 1999; Honey-Roses, 2009).

Logging licenses obtained through non-compliance with procedures and legal requirements may arise in cases where applicants forge documentation to prove compliance (Transparency International, 2010). Paper documents are at risk of forgery (Hoare, 2015a). In certain countries, cases on using forged documents or counterfeit forest permits indicated that more than 60% of authorized contractors utilize fabricated documents. Violations relating to paper-based documents include false inventories, fake plans, and false signatures of consulting forestry engineers (Urrunaga et al., 2012).

The timber tracking system in Malaysia is primarily paper-based and involves multiple logbooks to verify the legality of harvests (*Manual Perhutanan,* 2003). Because of its paper-based nature, the system is vulnerable to delay and inefficiency. To be most effective, it is suggested that tamper-resistant document system such as barcode is used, and that the system is fully networked, and it facilitates verification of timber volumes at different checking points (Lawson & MacFaul, 2010; Hoare, 2015a). The respondents slightly agreed that paper-based removal passes can present potential opportunities for illegal logging. The respondents also slightly agreed that paper-based timber tracking system creates difficulty to trace logs. Feedback from the interviewed respondents however indicated that the current paper-based system is relatively capable of tracking the movements of logs in the production chain. Occurrences of counterfeiting of the documents are rare, mainly because the current practice requires the preparation of the removal passes in three copies. Latest research also indicated that the paper-based removal pass system is capable of preventing massive frauds. Despite potential holes in the paper-based tracking system, it is generally considered well implemented (NEPCon, 2018).

Malaysia has tested a bar-coded and radio frequency identification system, but it has

not been implemented more broadly (Hoare, 2015a) This is an automated online-based system which enables the creation of a virtual map of the forest area to capture data regarding forest inventory, pre-harvesting, harvesting, transportation of logs out of the concession area, and checking stations (The International Tropical Timber Organization, ITTO, 2012).The electronic timber tracking is undeniably more efficient and reliable to track the movements of timber from the forest to the production and supply chain. However, the adoption of such technology calls for the development of new facilities and the necessary capacity building among small operators to operate the system (ITTO, 2012).

4.0 CONCLUSION

Past research has highlighted various environmental, economic, and social impacts of illegal logging. Illegal logging negatively affects the ecological function of the forests, poses risk towards government earnings, and threatens the source of income of communities that rely on forest produce for subsistence. In particular, environmental problems caused by illegal logging involve biodiversity loss, extinctions of forest ecosystem and natural resources. Government income may shrink because of tax evasion, refusal to comply with forest law, and corruption. Apart from the environmental, economic and social implications, illegal logging may promote environmental crimes.

Illegal logging can occur when the perpetrators take advantage of the vulnerabilities of the current system practiced by the forest authorities. The global epidemic has far-reaching environmental, economic, political, and social impacts towards the producer, processor, and consumer countries. Efforts to suppress and prevent illegal logging prove that there is no quick fix or short cut to overcome this issue. Continuous research to comprehend the factors of illegal logging has become important to reduce the problem. This study scrutinizes perceived aspects that open up opportunities for committing illegal logging in Peninsular Malaysia. The output of data analysis indicated that there are aspects which are not fully agreeable with in the current system. The most significant limitation includes the lack of facilities and equipment for enforcement. The findings of this study should be viewed as preliminary, and more studies may be conducted to verify the results. The findings of the study might help to create awareness and might be useful for the policy planers to formulate appropriate policy response to address the issue in the long run.

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