

Timber Theft: Examining the Factors of Illegal Logging

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Illegal logging has become an issue of global importance. Efforts to achieve sustainable forest management can be hindered by illegal logging activities. The negative impacts of illegal logging are significant on the environment, economy and forest-dependent communities. This conceptual paper examines the causes of illegal logging and identifies an appropriate policy response to overcome the issue. The paper is written based on extensive reviews of illegal logging-related articles published by global forestry organisations. The factors involved in illegal logging are examined with reference to motives, means and opportunities that can result in the occurrences of illegal logging. The findings identify factors relating to bureaucratic issues, demand for logs, corruption, violation of forestry law, and document falsification amongst the causes of the offences. The paper provides input in understanding how illegal logging takes place and how to control or reduce the problem through legislative and other approaches.

Key words: *Illegal logging, means, motives, opportunities, policy responses.*

Introduction

Illegal logging has become an issue of global importance. Efforts to achieve sustainable forest management can be hampered by illegal logging activities. The negative impacts of illegal logging on the environment, economy and forest-dependent communities are significant. Various publications, papers and articles have highlighted numerous negative impacts of illegal logging towards the environment including severe soil degradation, biodiversity loss, water pollution, habitat destruction and extinction of flora and fauna (FAO, 2005; Interpol, 2013; Reboledo, 2013). Illegal logging also poses a threat towards indigenous communities that depend on forest produce for a living (Interpol, 2013, Reboledo, 2013).

Illegal logging also results in monetary loss in countries which rely on the timber trade as a source of government income. Tax and royalties evasion caused loss of government revenues

(Reboredo, 2013). In 2006, it was estimated that a colossal amount of 5 billion USD in tax revenue had been lost due to tax evasion (World Bank, 2006). In 2016, the net annual loss due to illegal logging had increased to 10 billion USD (World Bank, 2006). FAO (2014) highlighted that 5.6 million hectares of forest areas were cleared annually in producer countries. The primary timber-producing countries included Brazil, Cameroon, Democratic Republic of Congo, Ghana, Indonesia, Laos, Malaysia, Papua New Guinea and Republic of Congo. Table 1 highlights the total landmass areas, areas of forest cover and percentage of forest areas in the countries (Chatham House (2018)).

Table 1: The area of forest cover in timber-producing countries

Country	Total area (Million Hectares)	Forest cover (Million Hectares)	Percentage of forest area
Brazil	850.00	493.50	58.16%
Cameroon	47.54	19.00	39.97%
Democratic Republic of Congo	234.54	115.00	49.03%
Ghana	23.96	5.00	20.87%
Indonesia	190.46	23.00	12.08%
Laos	23.79	7.12	30.00%
Malaysia	33.08	16.60	50.18%
Papua New Guinea	46.28	32.40	70.00%
Republic of Congo	34.20	21.30	62.28%

Source: Chatham House (2018)

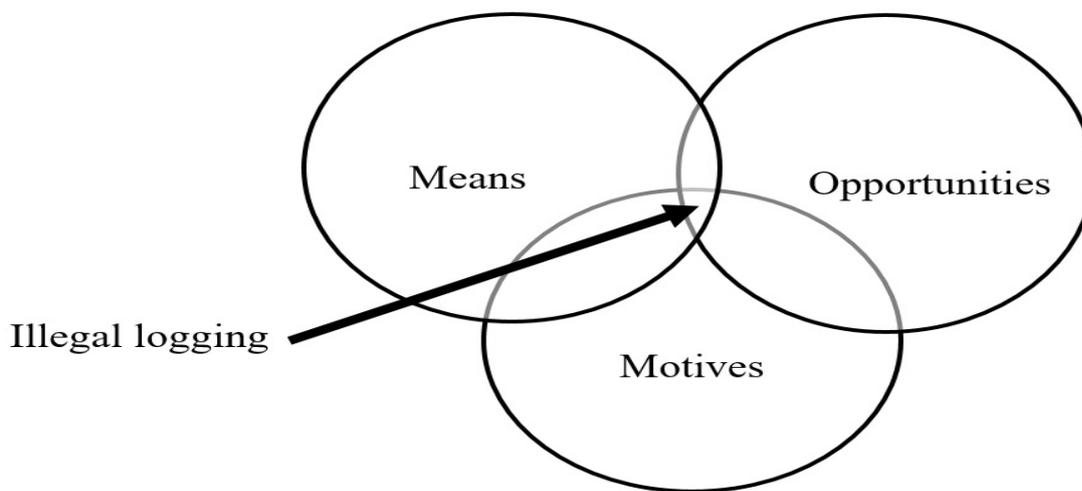
A study by FAO (2005) highlighted legal issues, lack of enforcement, data scarcity regarding illegal logging, and corruption in public and private sectors as the causes of illegal logging. However, in reality, illegal logging involves intertwined and complex issues which makes it difficult to pinpoint causes of the problem (World Bank, 2006). To investigate the causes of illegal logging, a model that integrates means, motives and opportunities from the World Bank (2006) has been adopted for this research. Understanding means, motive and opportunity would enable researchers to gain insight concerning the causes and develop an appropriate policy response to curb illegal logging (World Bank, 2006). Identifying the factors involved in illegal logging is important to control the problem effectively on a long term basis (Miyamoto et al. 2014).

An Approach to Comprehend the Contributing Factors of Illegal Logging

The underlying drivers of illegal logging often involve complex and intertwined issues. Illegal logging indicates flaws rooted in a range of aspects such as forest policies, current legislation, enforcement capacity, transparency of entity and the effectiveness of the judicial

system (World Bank, 2006). With reference to Figure 1, illegal logging is likely to take place when motives, means and opportunities are present simultaneously, which is represented by the overlap; middle region in Figure 1. An offender is likely to commit the crime when the motive is present, carry out the crime with resources acquired (means) and take advantage of the chance (opportunity) available in certain circumstances (World Bank, 2006). The model enables researchers to comprehend the contributing factors of illegal logging and determine appropriate policy responses to address the factors. This can be achieved by reducing the motives, limiting opportunities and eliminating means related to illegal logging (World Bank, 2006).

Figure 1. Relationship between motives, means and opportunity with illegal logging



Source : World Bank (2006)

Methods

The study was conducted in selected states in Peninsular Malaysia with large forest areas. This paper is written based on a review of articles published by the World Bank, International Tropical Timber Organization (ITTO), Chatham House, Royal Institute of International Affairs and The *Food and Agriculture Organization* of the United Nations (FAO). These publications provide information regarding the factors of illegal logging at a global scale.

Motives of Illegal Logging

Bureaucratic Issues

Bureaucratic issues serves as one of the motives to commit illegal logging among small-scale operators. Small scale operators are characterised by a smaller amount of resources (man power, assets and funds) available for their daily operation. Hoare (2015) describes this

situation as ‘informal logging’; a case where small-scale operators find law compliance too costly due to various licensing fees and lengthy procedures. As a result, they resort to illegal logging since they could not afford the fees or the legal logging licences which take a relatively long time to be approved by the forestry authorities. The World Bank (2006) describes this issue as ‘bureaucratic laws’ which impose a high cost on producers to comply with the requirements.

In general, logging operators, regardless of their scale are affected by the high cost related to legal logging operations (Contreras-Hermosilla et al. 2007). Costly law compliance serves as a motive for operators to operate illegally (Alemagi & Kozak, 2010). The high cost of logging concessions causes operators to commit illegal logging to gain extra income to cover their monetary loss due to costly law compliance (Mohd & Yaman, 2001).

Demand for Logs

Demand plays an important role towards the supply of illegal logs, especially demands from international markets. Since illegal logging is a transnational crime, the demand normally arises from ‘consumer’ countries which import logs from ‘producer’ countries (Goncalves et al. 2012). Demand for timber in developed nations contributes to illegal logging in developing countries (World Bank, 2006).

Influence of Monetary Gain

The prospect of a higher profit margin also serves as the motive for illegal logging. In the forestry sector, illegal operators engage in illegal activities to gain short-term and long-term profit (Goncalves et al. 2012). Illegal operators may also be involved in money-laundering offences through the profits gained through illegal logging (Goncalves et al. 2012).

In the pursuit of higher profit, operators may also be engaged with a range of offences that can cut down their operating costs. Such offences occur at the post-harvesting stage, especially when illegal logs are transported and sold (Goncalves et al. 2012). Examples include timber smuggling, timber trafficking, and tax evasion (Goncalves et al. 2012).

Means of Illegal Logging

Corruption

Corruption is one of the widely reported means of illegal logging. It may be expressed in several other terms including bribery, grease payment, and securing protection from government officials (Goncalves et al. 2012). Corruption in the forestry sector may involve

the lowest level of officers (local forest officer, local forest law enforcement) up to high-ranked directors and politicians (Goncalves et al. 2012). Corruption may be practised in both public and private sectors (FAO, 2005).

In the forestry sector, corruption occurs in various forms in multiple locations. In most cases, corruption takes the form of bribery for personal gain where it is often given in secrecy. Several forms of corruption in the forestry sector include:-

- a) Bribery towards government officers and politicians to acquire a logging contract.
- b) Payment towards a high-ranked officer to allow the violation of laws in relation to logging licences and permits.
- c) Logging operators receiving protection from legal action by corrupt personnel or politicians.
- d) Bribery towards officers to allow logs to pass through checking stations.
- e) Allocation of logging rights to certain individuals for political purposes.
- f) Bribery to allow excessive logging beyond the permitted limit and prescribed borders.

Adapted from: FAO (2001), Hoare (2015), Laurance (2004)

Violation of Forestry Law

The violation of forest law, rules, regulations and procedures is another means of illegal logging. Aspects of law violations include:-

- a) Operators acquiring legal permits and harvesting trees beyond the permitted volume.
- b) Construction of illegal forest roads in protected area that target valuable timbers.
- c) Logging beyond the prescribed boundaries.
- d) Illegal timber harvesting in the forest reserve areas.
- e) Logging in the buffer zones such as river banks and water catchment areas.
- f) Harvesting immature trees.
- g) Harvesting trees which are dedicated as protected species.
- h) Violation of terms and conditions stated in the logging permits and licences.

Adapted from: Nelleman (2012); Callister (2002)

Document Falsification

Illegal logging may also be carried out by using fake and falsified logging-related documents. Goncalves et al. (2012) assert that falsification of logging permits is one of the principal means of illegal logging. It may involve the element of corruption where forest officers accept forged documents which enable illegal operators to commit forest crimes (Goncalves et al. 2012).

In the case of log transport, fake transport documents enable illegal loggers to pass checkpoints. Enforcement agencies or police officers might face difficulties in assessing the legitimacy of the documents presented (Goncalves et al. 2012). Hand-written permits can be altered with minimal effort; fake permits can be reproduced, while details in the authentic copies can be changed (Nelleman, 2012). The problem is compounded with having only a limited number of enforcement officers who may find it difficult to check permits of numerous operators. Enforcement officers may need to refer to records, files and data which are unavailable to determine the authenticity of a particular permit (Nelleman, 2012).

Resale and reuse of permits is also practised among the operators. Legal operators who have harvested an area may sell the logging permits to their colleagues, where their colleagues will extract timber from the areas using the same permits (Nelleman, 2012). This situation will negatively affect the forest cover, soil composition and threaten the native species in the designated area.

Using Existing Forest Road Networks and Constructing Illegal Forest Roads

Forest road networks consist of legal roads constructed by the forestry authorities and illegal roads built to facilitate illegal activities. In some cases, these networks also consist of navigable natural rivers which open up access into the forest areas (World Bank, 2006). Forest road networks may intertwine with the nearby roads of agricultural farms. This encourages illegal loggers to carry out log laundering since the agricultural products would provide cover to transport the illegal timbers to the nearby sawmills (Nelleman, 2012).

Opportunities to Carry Out Illegal Logging

Weakness of Legislative Aspect

The weak provision of penalties towards forest offenders can cause the commission of the offence (World Bank, 2006). The amount of fine is either too low or there is no imprisonment imposed on the convicted offenders. The penalty is ineffective and recidivism rates amongst the offenders are high (World Bank, 2006). The punishment imposed does not have deterrent effect on the offenders.

Data from the World Bank (2006) reveals that successful prosecution among forest offenders is very limited. One of the reasons behind this is ineffective investigatory and prosecutorial capacity, which adversely affects successful prosecution (World Bank, 2006). Insufficient evidence in cases brought by the prosecutors can also impede convictions of criminals.

Issues Related to Enforcement

The International Criminal Police Organization (INTERPOL) had initiated an assessment of law enforcement capacity to overcome forest crimes. The assessment program, known as ‘Environmental Crime Programme’ has identified several issues regarding forest law enforcement, which include:-

- a) lack of equipment which negatively affects enforcement team mobility, communication, forest surveillance, forest monitoring, the safety of officers on field, and collection of evidence.
- b) lack of human resources which could put enforcement teams at a disadvantage when dealing with many illegal loggers.
- c) lack of skilled enforcement officers that could place an extra burden on the experienced staff.
- c) minimal cooperation between the enforcement division of forestry departments and other enforcement agencies.
- d) lack of institutional reform to reduce corruption among enforcement officers.
- e) lack of local and international cooperation between forestry department and police and customs.

Adapted from: Interpol (2013)

Risk of Paper Based Documentation

Paper based documents are susceptible to fabrication (Goncalves et al. 2012). Details in some documents can be altered, before being reused and resold (Nelleman, 2012). Hoare (2015) asserted that a logging pass (paper document) can slow down the process of timber tracking. However, it is important to point out that an electronic system is also vulnerable to be hacked if the system does not possess robust security features (Hoare, 2015).

Discussion

Policy Response to Address Causes of Illegal Logging. Prevention, Detection and Suppression

The motives, means and opportunities of illegal logging can be addressed by prevention, detection and suppression framework (World Bank, 2006). This is also known as “PDS framework”. PDS framework is applied to address the causes of illegal logging by reducing the motives, limiting opportunities and eliminating means of illegal logging (World Bank, 2006). The mechanism of PDS is explained in details as follows:-

Prevention centres around preventing forest crimes, with consideration towards elements inside and outside the forestry sector (World Bank, 2006). Effective prevention of illegal logging requires consideration of factors relating to the demand and supply of forest products, forest land tenure, and the rights of the indigenous community (World Bank, 2006). The local communities need to be educated about the forest law, why they have the obligation to obey the law and identify illegal acts in the forest area (Ramsay et al. 2004). Prevention of illegal logging also requires the presence of physical signs and boundaries such as gates, fences, and signboard especially in the forest reserve areas (Ramsay et al. 2004).

Detection of illegal logging involves surveillance and monitoring effort to identify the location of forest crimes. Detection also relates to data collection methods and information processing techniques to identify forest crimes (World Bank, 2006). Surveillance and information regarding forest crimes can facilitate the development of relevant preventive policies and strategies related to enforcement. Important equipment and facilities for effective detection include vehicles, communication equipment, and detection systems (satellites, geographical information system, drones etc). Training of surveillance officers is equally important to enable efficient detection forest crime (Ramsay et al. 2004).

Suppression of illegal logging refers to efforts to control and restrain the crime. The involvement of related law enforcement agencies such as the police and armed forces is significant to ensure the success of suppression efforts. This is because suppression activities are risky towards the enforcement officers, the suspects and the community (World Bank, 2006). The authorities may require a secured site to place the seized equipment, logs and the suspects with the aim of preserving the evidence (Ramsay et al. 2004).

Motives, means and opportunities

One of the integral motives for illegal logging is the promise of higher profit. This motive of crime is discussed by Becker (1992) where he describes it as the economic approach to analyse crime. A sensible policy response to combat this issue is to implement wide-reaching anti-money laundering laws (Goncalves et al. 2012). Anti-money laundering law would enable the authorities to freeze the account of the persons or companies who gain profits from illegal logging (Goncalves et al. 2012). Anti-money laundering law is an essential policy that complements forestry law, since the law allows legal proceedings against individuals who gain and manipulate profits from illegal logging activities (Goncalves et al. 2012).

Low probability of offenders being punished contributes to the occurrence of forest crimes. This involves issues in the criminal justice system, such as incomplete information regarding the case, lack of evidence or unclear understanding of the forest crimes conducted by the offenders (Goncalves et al. 2012). Prosecutors and investigators play a significant role in the

criminal inquiry (Goncalves et al. 2012). Collaborative efforts from the two parties would ensure evidence collected meets the legal standards set by the courts (Goncalves et al. 2012). Successful conviction also depends on the prosecutor's experience and expertise to determine the relevant provisions with which the offenders should be charged. Prosecutors must develop their knowledge in areas such as connecting each piece of evidence, enhancing understanding of the forestry law and knowledge of previous illegal logging cases with successful conviction (Goncalves et al. 2012). The authorities may consider developing an integrated criminal justice strategy which specialises in forest crimes and illegal logging cases (Goncalves, 2012). Resources should be directed to train specialised law practitioners and equip them with skills required to handle illegal logging cases (Goncalves, 2012). The legal division should construct a specialised team consisting of competent officers, investigators and prosecutors who only handle cases of illegal logging (Goncalves, 2012).

Demand for timber is widely recognized as the motive for illegal logging. In response to this, forestry authorities may consider to enforce due diligence requirements to prevent suspicious timber trade in the forestry sector (Goncalves, 2012). Due diligence measures involve risk assessment and risk mitigation, and ensures only legal timbers enter the wood-processing plant (European Commission, 2017). Public procurement policy allowing purchase of wood products from legal sources may also be an important mechanism in this regard. This policy would encourage the trade of legal wood-based products and procurement from public agencies can influence market demand (Musa et al. 2013).

Illegal roads which are constructed by illegal operators and crime syndicates serve as an access point into the forest reserve. These intricate road networks are often built with one ultimate goal – targeting high-value timber along its path. This is an effective method to illegally harvest timber without the need to roam deeper into the forest. A practical policy to overcome this issue would be empowering enforcement (Brack & Hayman, 2001). In this case, there is a need to establish specialised enforcement unit that could operate without the restriction of state boundaries, district borders and regional bureaucracies (Brack & Hayman, 2001). Aerial surveillance and monitoring are important to detect illegal forest roads constructed without the authorization of the forestry authorities. Aerial detection would enable the enforcement team to efficiently pinpoint the location of illegal roads and undertake necessary actions to eliminate any unauthorized access point into the forest reserve.

Lack of facilities and equipment for enforcement is one of the main vulnerabilities in law enforcement. This includes equipment for transport, surveillance and communication, as well as protective equipment and equipment required at the checkpoints (Interpol, 2013). Lack of skilled enforcement personnel would open up opportunities for illegal activities. Continuous training, increased funding and participation of communities are practical policies to address the constraints (Interpol, 2013). Forest authorities must empower their human capital through



employing competent personnel for the posts (Interpol, 2013). Forest authorities may also consider adopting multi-agency approach in respect to law enforcement. The important element of this approach is the cooperation and collaboration with various law enforcement agencies that goes beyond the forest's physical boundary (Interpol, 2013). The trans-national nature of illegal logging also requires coordinated transnational cooperation at the international level (Interpol, 2013).

Conclusion

This conceptual paper explores the potential causes of illegal logging in terms of motives, means and opportunities. The motives are identified as bureaucratic issues, demand for timber and the promise of higher profit. Corruption, violation of forestry law and document fabrication are ascertained as the means of illegal logging. Opportunities of illegal logging arise from weakness of legislative aspect, vulnerabilities in enforcement and risk of using paper-based documents. This paper also identifies appropriate policy responses to address the specific factors of illegal logging.

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