

Comparison of illegal logging crimes and penalties in forest laws in some selected countries

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Abstract: Illegal logging, one of the crimes that damage the forests most, may cost human life as well as tax losses in the world. Only even with commercial concerns, 908 people were killed in 35 countries between 2002 and 2013 due to environmental conflicts. However, the absence of comprehensive international legal norms on forest crimes indicates that domestic law is primarily responsible for determining the nature, scope and consequences of these crimes. In this study, Brazil, Indonesia and the Democratic Republic of the Congo, which are among the top countries that suffer the most from forest crimes, and Türkiye, which experienced a significant increase in forest crimes after 2015, were examined in terms of illegal logging crime, forest law and the fine balances related to this crime. It is aimed to discover if there is a relationship between punishment/fine and the number of crimes.

Keywords: Forest crime, Forest laws, Illegal logging

Seçilen bazı ülkelerin orman kanunlarındaki yasa dışı ağaç kesim suçları ve cezalarının karşılaştırması

Özet: Ormana en çok zarar veren suçlardan biri olan kaçak kesim dünyada vergi kayıplarının yanında insan hayatına da mal olabilmektedir. Sadece ticari kaygılarla bile 2002 ile 2013 yılları arasında 35 ülkede 908 kişi çevre çalışmalarını nedeniyle öldürülmüştür. Buna rağmen orman suçlarıyla ilgili kapsamlı uluslararası yasal normların olmaması, bu suçların niteliğini, kapsamını ve sonuçlarını belirlemek için öncelikle iç hukukun sorumlu olduğu gösterir. Bu çalışmada, orman suçlarından en çok zarar gören ülkelerin üst sıralarında yer alan Brezilya, Endonezya ve Kongo Demokratik Cumhuriyeti ile, orman suçları konusunda 2015 yılı sonrasında kayda değer bir artış yaşayan Türkiye'nin kaçak kesim suçu, orman kanunu ve bu suça ilişkin ceza dengeleri incelenmiş, ceza ve suç adedi arasında ilişki olup olmadığının keşfedilmesi amaçlanmıştır.

Anahtar kelimeler: Orman suçu, Orman kanunları, Kaçak kesim

1. Introduction

Forest crimes are all kinds of actions that damage the forest property or endanger its future and are prohibited with the threat of a penalty (Güneş, 2004). Forest crimes are examined by official authorities of the Republic of Türkiye under six main headings: illegal logging, transfer, land clearing, occupation, consumption and grazing. Until 2000, an average of 38 thousand forest crimes were committed every year in Türkiye, and although the number of crimes decreased rapidly after this date, it has increased again since 2015 (OGM, 2021). According to General Directorate of Forestry (OGM) statistics, one of the most damaging crimes to the forest is illegal logging. The fact that this crime has increased again in the last 5 years in Türkiye has necessitated researching some other countries in the world where this crime has been committed and the penalties in the legal regulations of these countries. Thus, it is important to discuss if the punishments attributed to this crime are sufficient to prevent the crime by making a comparison with the countries where this crime is committed the most in the world.

Illegal logging has detrimental effects on essential ecosystem services such as conservation of biodiversity and water filtration, deprives countries of the income they need, thereby depleting natural resources (World Bank 2019). This situation also triggers the climate crisis with its direct and indirect effects such as increasing environmental pollution, especially carbon emissions during transportation, reducing soil and water productivity and increasing greenhouse gasses. According to Interpol's (2019) report, the illegal logging trade is between 51-152 billion dollars annually, and this crime accounts for up to 90% of the cut in many tropical countries and almost 30% of the global timber production in the world. The majority of deforestation and illegal logging take place in the tropical forests of Amazonia, Central Africa and Southeast Asia (INTERPOL, 2019).

International law consists of agreements designed for the protection of the environment and the sustainable use of natural resources (UN, 2012). However, the absence of comprehensive international legal norms, especially regarding forest crimes, indicates that domestic law is primarily responsible for determining the nature, scope and consequences of these crimes (UN, 2012). However, it is

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difficult to combat forest and wildlife crimes internationally without comprehensive national forest laws, including criminal offences (Zimmermann, 2003). This approach of Zimmermann directs us to examine the legislation of the studied countries fighting this crime, which has shaken the balance of the global forest products economy in the world.

The aim of this study is to investigate the legal basis of illegal logging crime and destruction in selected countries. Because, considering that selected countries – except Türkiye - are among the top 10 countries with the largest part of the world's forests in terms of existing forest assets, in these countries, illegal logging crime and deforestation is more than in Türkiye although they have some similar characteristics that we discuss, (FAO and UNEP, 2020).

2. Material and method

2.1. Determination of the study area

Good forest management is indispensable to ensure legality in the sector (Chatham House, 2018). For this purpose, a study was conducted in 2018, covering 19 countries indexed the countries' forest management success in 5 different categories as failing, weak, fair, good and very good (Chatham House, 2018). According to this ranking, the Democratic Republic of the Congo (DRC) was rated as "weak", while Brazil and Indonesia, which were in the middle, were rated as "fair". Türkiye is not among these countries.

The World Bank statistics (2019) has listed the countries with the highest tax losses due to illegal logging. Accordingly, Indonesia is in the first place with 1.8 billion, and Brazil is in second place with 1.4 billion dollars (World Bank, 2019). The amount of illegal logging in these countries are respectively stated as 41 and 19 million m³. The estimated loss of the Democratic Republic of the Congo is 81-163 million dollars according to the same source.

There are several reasons for including these countries in the study area. Since these countries are among the developing countries as Türkiye, excluding the Democratic Republic of Congo (DRC), they have almost similar economic characteristics. Moreover, all of these countries are developing economies of their own regions (UN, 2020a). The reason for including DRC in this study is that there is 91.44% similarity between Türkiye and DRC in terms of all processes of Sustainable Forest Management (Şener and Tolunay, 2016). Brazil, DRC and Indonesia are among the top three countries with the highest annual forest loss between 2010 and 2020 (FAO, 2020a).

2.2. Obtaining and processing data

The main source of the study is statistical data and literature reviews. These statistics were obtained from the United Nations National Account statistics, the United Nations Food and Agriculture Organization, and the Ministry of Agriculture and Forestry, General Directorate of Forestry. In the interpretation of these resources, forest definitions and penalties were used, in the forest laws of the selected countries. These are the laws of Brazil No. 4771/1965 (FAO, 2021a), Indonesia No. 41/1999 (FAO, 2021c), DRC No. 11/2002 (FAO, 2021d) and Türkiye No. 6831/1956 (Mevzuat, 2021a). This study has been conducted by

evaluating, interpreting and reporting statistics and research together.

3. Results

3.1. Socio-economic situation of Brazil and state of its forests

With a population of 212.5 million (World Bank 2020), about 13% of which are rural, Brazil is the largest country in South America in terms of surface area. According to the Human Development Report by United Nations Development Program (2020), Brazil ranks 84th among 189 countries in terms of the human development index (Table 1) and is in the level of high human development.

According to the United Nations Official National Accounts data, Brazil ranks at the first place in terms of Gross Domestic Product of the studied countries, with 1.8 Trillion dollars, and ranks second after Türkiye in terms of the value per capita (Table 2). With 497 million hectares of forest area (Table 3), Brazil is the country having the most forest area in the world after Russia (FAO, 2020b). Large-scale destruction of the Brazilian Amazon for many reasons, especially logging, started in the 1970s (Boekhout van Solinge, 2014). About 60% of the Amazonia, the world's largest rainforest, of which 18% has been lost in the last 40 years, is located within the borders of Brazil (GREENPEACE, 2021a).

Table 1. Ranking of Countries in the Human Development according to the Report of Human Development (UNDP, 2020)

Place	Country	Human development index	Level of human development
54	Türkiye	0.820	Very high human development
84	Brazil	0.765	High human development
107	Indonesia	0.718	High human development
175	DRC	0.480	Low human development

Table 2. GDPs and GDPs per Capita of the countries in 2019 (UN, 2020b)

Country	GDP	GDP per capita
Türkiye	761 billion \$	9167 \$
Brazil	1.8 trillion \$	8755 \$
Indonesia	1.1 trillion \$	4136 \$
DRC	47.3 billion \$	545 \$

Table 3. Forest areas of the studied countries and its percentages by world forest (FAO, 2020b)

Country	Percentage by world forest	Forest areas (million ha)
Brazil	12	496620
DRC	3	126155
Indonesia	2	92133
Türkiye	0.5	22220

3.2. Socio-economic situation of indonesia and its forests

Indonesia is a Southeast Asian country and approximately 43.3% of its population of 273.5 million live in rural areas (World Bank, 2020). According to the Human Development Report of the United Nations Development Program (2020), Indonesia ranks 107th among 189 countries in terms of human development index (Table 1) by high human development. According to the United Nations Official National Accounts data, Indonesia ranks at the second place in terms of Gross Domestic Product (GDP) of the studied countries by its 1.1 trillion dollars and third in terms of GDP per capita value among the studied countries by its 4136 dollars (Table 2).

This country having 2% of the world's forests, has lost almost 20% of its forests since 1990 (FAO, 2020b). In fact, Indonesia has entered the Guinness Book of Records in 2008 and has become the country that lost its forests the fastest in the world (GREENPEACE, 2021b). In addition, Greenpeace (2021b) states that Indonesia is the country that destroys its forests the fastest in terms of total forest cover, while Brazil destroys a larger forest area every year.

3.3. The socio-economic situation of the democratic republic of the congo and its forests

The DRC has a population of about 89.5 million, of which about 54.4 live in rural areas (World Bank, 2020). This country ranks 175th among 189 countries in terms of human development and is in the low human development index (UNDP, 2020). The country ranks at the last among the countries studied in terms of GDP and GDP per capita, and it is among the 10 countries with the most forest assets in the world in terms of forest assets (FAO, 2020b).

According to Lawson (2014), only 10% of DRC forests are used for logging, resulting in low levels of official felling. In the country, especially illegal logging and clearing crimes dominate, and for these reasons, almost 16% of its forests have been lost in the last 40 years (FAO, 2020b). In the mid-2000s, some measures were taken in countries such as Indonesia, where forest utilization was high. With these measures, implementation and legal regulations, there has been a decrease in illegal logging, but it has been stated that illegal use of forests has increased in many countries after this decreasing (Lawson and MacFaul, 2010; Nellemann, 2012).

3.4. The socio-economic position and the condition of forests in the republic of Türkiye

Türkiye, with its 84.3 million people (World Bank, 2020), of which approximately 20.1% lives in rural areas, is the country with the highest level of human development and the highest GDP per capita among the studied countries. Türkiye is the 6th country to increase its net forest assets the most between 2010 and 2020, although the country has a very low amount of forest compared to Brazil, DRC and Indonesia in terms of forest assets, and having to deal with many forest crimes, especially illegal logging (FAO, 2020a).

3.5. Illegal logging statistics of the countries in the study area

Indonesia exports the majority of forest products to Asia and the USA. In this category, it exports the most to China with 15.6 million m³, and an estimated 70% of this is illegal

(Chatham House, 2018). Chatham House reports that Indonesia produces an average of 41 million m³ of timber annually, of which approximately 65% is produced in illegal ways. Similarly, the Democratic Republic of the Congo makes 84% of its timber trade illegally, of which the vast majority, 66%, is to China (Chatham House, 2018). Brazil, on the other hand, is more positive than mentioned countries. The biggest part of its own timber export is to China with 24% and only 3% of this is illegal (Chatham House, 2018).

Tax losses due to illegal logging and illegal trade, according to the estimates of the World Bank, are indicated in Figure 1, (World Bank, 2020). This type of statistics has not been prepared for Türkiye yet, but considering the number of illegal logging crimes and the size of the affected forest area, it is estimated that this tax loss remains very low compared to other studied countries.

Forest statistics in Türkiye are released by the General Directorate of Forestry. Accordingly, the total number of forest crimes in Türkiye has almost doubled in the last 6 years (Figure 2). The number of illegal cutting crimes, on the other hand, fluctuated between the same years, but increased by approximately 50%. However, when looking at the amount of illegal cutting in Figure 3, it is seen that it increases 375%.

3.6. Illegal cutting in the forest laws of the studied countries

In the 21st century, when the world is more sensitive about the protection of forests, all countries should attach importance to the sustainable use of forest assets. One of the countries that received the most public reaction with the changes it made in the forest law is Brazil (Freitas et al., 2018). These changes can endanger more than 15 million hectares of forest areas (Freitas et al., 2018). This requires reexamining the existing forest laws of the studied countries.

When we look at the Brazilian Forest Law, it is necessary to suspend activities in areas that are illegally taken out of forest within the legal boundaries of the Amazonia region after July 22, 2008, with article 17, made in 2012 (Planalto, 2021). With this amendment, it is understood that forest areas exploited before 2008 are forgiven. These and similar situations make it possible to suspect that a new amnesty may arise for those who invaded forest areas after this date.

The importance that countries give to forests is related to how much they protect them with their laws. In this context, the articles regarding illegal logging in the forest laws of the selected countries have been examined. But the forest acts of the selected countries did not define this crime as intentional or unintentional.

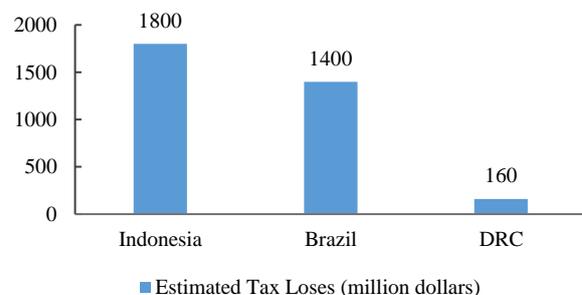


Figure 1. Estimated tax losses due to illegal cutting of the studied countries (million dollars) (World Bank, 2020)

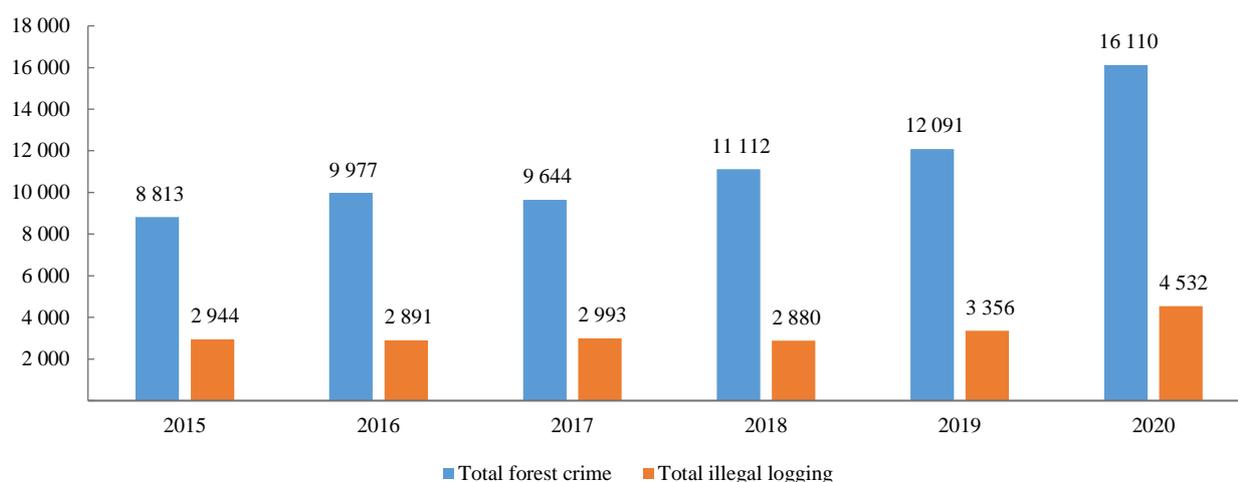


Figure 2. Statistics of total forest and illegal logging crimes in Türkiye (OGM, 2021)

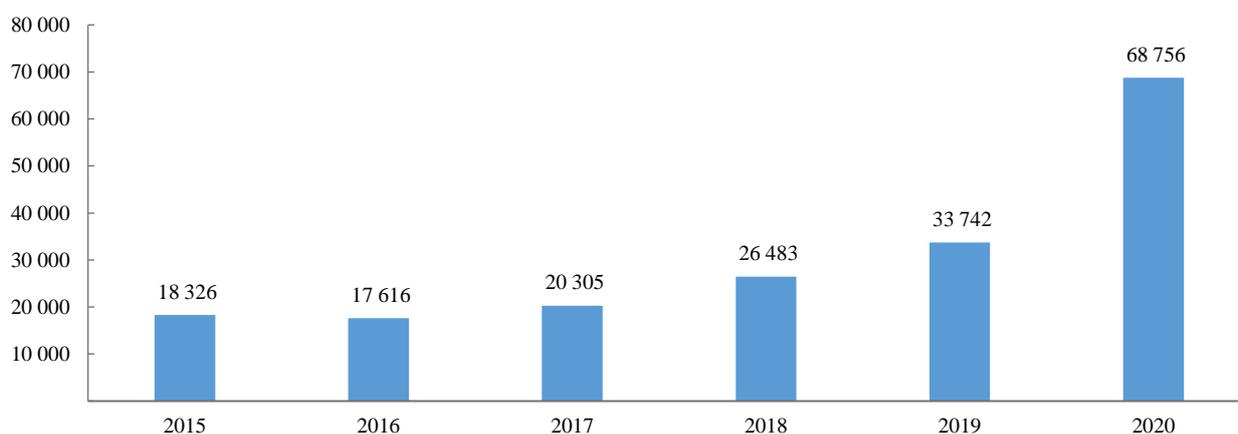


Figure 3. Statistics on the amount of illegally cut trees in Türkiye (m³) (OGM, 2021)

It is seen that sources such as Chatham House and the World Bank give illegal cutting data as “estimates”. This situation indicates that there is both/or a legal gap and/or lack of control in the countries where these two sources worked – which includes all of the countries included in this study except Türkiye. For this reason, it is necessary to examine the forest laws of the studied countries.

Article 26/b of the law no. 4771, which Brazil adopted in 1965, commits the illegal logging crime as follows.

“Cutting trees in permanent preservation forests, without permission from the competent authority constitutes criminal misdemeanors, punishable by three months to one year of simple imprisonment or a fine of one to one hundred times the monthly minimum wage, the place and date of the offense or both penalties cumulatively”. (Planalto, 2021).

Article 78/5 of the law no. 41, which Indonesia adopted in 1999, commits the illegal logging crime as follows (Table 4).

“Whoever deliberately violates the provision as meant in Article 50 sub section (3) letter e (felling trees, harvesting or

harvesting forest products in a forest without the permission of an authorized official) or letter f will be threatened with the punishment of a maximum imprisonment of 10 (ten) years and a maximum fine of Rp 5,000,000,000.00 (five billion rupiah).” (FAO, 2021c).

Article 146/4 of the law no. 11, which DRC adopted in 2002, commits the illegal logging crime as follows.

“Is punished with a penal servitude of one month to three years and a fine of 10,000 to 500,000 constant Congolese francs or one of these penalties only, the forest concessionaire who: ... exploits forest products, without authorization required” (FAO, 2021d).

Article 91 of the law no. 6831, which Türkiye adopted in 1956, commits the illegal logging crime as follows.

“Those who cut trees from standing trees, uproot, end their life by strungling, as among the acts prohibited by subparagraphs (A) and (B) of Article 14, shall be sentenced to imprisonment from three months to five years and a judicial fine up to a thousand days.” (Mevzuat, 2021a).

Table 4 Comparison of the amount of fines attributed by countries to illegal logging (FAO, 2021a; FAO, 2021b; FAO, 2021c; FAO, 2021d, Mevzuat, 2021a; Mevzuat, 2021b)

Country	Article	Penalty		USD
		Imprisonment (max)	Fine (max)	
Brazil	26/b	1 year	100 times the minimum wage	21 153.00
Indonesia	78/5	10 years	5 billion Indonesian rupees	350 632.37
DRC	146/4	5 years	500 thousand Congo francs	250.38
Türkiye	91	5 years	Judicial fine up to 1000 days	11 848.34

Note: USD exchange rates at the date of the research were used.

4. Discussions

Mankind has contributed to the destruction of natural ecosystems by "destroying many animal and plant species around it with behaviors that anthropologists call anthropization" (Uğur, 2021) for their own needs. Illegal logging crimes, just one of these activities, not only harm the forest or ecosystem, it also causes the people of the region to be "killed" (Boekhout van Solinge, 2014). This is considered as organized crime (Boekhout van Solinge, 2014). It is seen that in some regions, the destruction of forest lands has not only environmental but also social effects by increasing the rates of injustice and crime and by negatively affecting the local people (GREENPEACE, 2003). Wich et al. (2011) state that combating illegal logging requires fighting bribery, corruption, violence and many illegal crimes.

It is true that forests are a home to forest-bound communities. The studied countries have both significant portions of the world's forests and they are the countries densely populated. Especially when we consider Brazil's population of more than 200 million and Indonesia's more than 250 million, it is seen that they have low per capita income despite their high GDP. It is inevitable for countries with this surplus population to see nature as a home and a means of survival.

Forest laws come from necessity that emerged for the protection, development and operation of forests (Bayraktaroğlu, 1969). By defining the penalties in Türkiye, it is stated that in relation to the circumstances affecting the crime. While the low value of the forest products subject to the crime is a mitigating factor, the fact that the perpetrator of the crime is a merchant or using a chainsaw aggravates the crime (Toprak, 2017). However, illegal slaughter for commercial purposes is almost non-existent in Türkiye. Illegal logging for personal use is a relatively basic problem in rural areas in Türkiye. Erdönmez and Yurdakul Erol (2021) express the ineffectiveness of the relevant legal regulations and argue that long-term studies should be made in the regulation of laws. When the perception of forest crime in Türkiye is examined, it is seen that the definition of the crime is not accepted by those who use the forest, and it is required that some exceptions to be made for personal use (Yılmaz, 2018). Şen and Toksoy's research (2004) reports that the type of house in which individuals live due to their financial situation - living in wooden houses - increases forest crime in the region. It is seen that illegal logging crime in Türkiye is mostly committed by people living in and around the forested areas, and this is due to educational and economic deficiencies of people living in these areas (Yüksel et al., 2008).

While low-income individuals fear the law, high-income individuals believe that deterrence should be realized by education, not by punishment (Birben et al., 2019). In this case, it may be suggested that increasing their income, raising public awareness and education levels may increase crime

awareness and encourage individuals to protect forests (Mercimek, 2019). In Türkiye, this situation may be discussed in detail, due to the low level of illegal cutting for commercial purposes. However, as indicated in Figure 1 data, illegal cutting causes hundreds of millions of dollars in tax losses in Brazil, Indonesia and KDC.

Considering the penalties imposed by the countries, it is seen that the punishment for the crime of illegal cutting is imprisonment and/or fines in all countries we studied. When these fines are compared, it is seen that the maximum penalty is 10 years of imprisonment and the maximum fine is 350 thousand USD in Indonesia. Despite such a large fine, 84% of this country's logging trade is illegal.

5. Conclusions

This study investigates the legal basis of illegal logging and destruction in selected countries, the following conclusions are reached.

The balance of crime and punishment is disproportionate in the countries studied. Among these countries, it is not possible to identify a country or law that will set an example for others. Despite the high penalties, this is due to two reasons: Insufficient inspection and non-deterrent penalties.

When we look at the penalties in the law for the protection of forests, it is seen that the purpose of the movement is not effective in punishment. Indonesia is the most prominent country in terms of capital punishment. Fining or punishing everyone within the same limit makes the sense of justice question. At the same time, individuals with different income levels do not get the same effect from the deterrent penalties. For this reason, it was concluded that the punishment alone is not sufficient to prevent illegal logging crimes.

It is observed that forest amounts, crime rates and human development levels do not form a direct or inverse proportion with illegal logging crime. For this reason, regardless of the level of development and crime rate, forest crime is a problem not only for countries but also for the whole world and affects everyone.

Even if it is not possible for the society to be completely deprived of this god-given income, forests, it will not be easy to reduce forest crimes unless their dependence on the forest is reduced. Concepts such as poverty, hunger, or necessity are almost one of the main reasons among the studied countries except for commercial use. For this reason, the implementation of policies to reduce rural poverty, although not limited to the countries in the field of study, may reduce and even prevent forest crimes. Reducing this dependency in forest-dependent societies will also be beneficial for preventing the climate crisis. Because illegal logging is one of the components of the climate crisis.

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