



PROPERTY VALUATION OF ENVIRONMENTAL CRIMES IN ALBANIA

CASE STUDY:

Illegal Logging in the Mali me Gropa
Biza-Martanesh Protected Area





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LIST OF ACRONYMS AND ABBREVIATIONS

CITES	Convention on International Trade in Endangered Species
ECD	Environmental Crimes Directive
EFFIS	European Forest Fire Information System
ELD	Environmental Liability Directive
EU	European Union
EUTR	European Union Timber Regulation
FLEGT	Forest Law Enforcement, Governance and Trade Action Plan
INTERPOL	International Criminal Police Organization
NAPA	National Agency of Protected Areas
PES	Payments for Environmental (Ecosystem) Services
RAPA	Regional Administration for Protected Areas
SIEFWT	State Inspectorate of Environment, Forestry, Water, and Tourism
TEV	Total Economic Value



1. INTRODUCTION

Illegal logging began to attract public attention in the late 1990s as a result of adverse economic, social, and environmental impacts. Illegal logging usually occurs when trees are cut, transported, bought or sold in violation of national and international law. Cutting itself can be illegal, for instance, as a result of using corrupt means to interfere in gaining concession rights, or when harvesting has taken place without permission or in a protected area.

According to the Convention on International Trade in Endangered Species (CITES)¹, the term “illegal” also refers to cutting protected species or producing timber that exceeds the agreed limits.² But in addition to cutting, “illegal” can occur during transportation, processing and export, for example through refusal to declare to customs, or avoiding taxes and other duties. INTERPOL has recently documented that forestry crimes including corporate crimes and illegal logging account for an estimated 51–152 billion USD.³

A property valuation of consequences of environmental crime is not an easy task even at world level. Indeed, scarce

data make this challenge even more cumbersome. Yet, in some specific areas, the data on environmental crime have become available and the figures are illustrative of the severe damage. For example, as indicated by Saunders et al (2015), illegal export of electronic waste to China and other countries have caused an economic loss of about 30,000 jobs to the European recycling industry only in 2012. In Italy, forest arson killed 50 people and injured approximately 450 people during 2003–2012.⁴

In our country, environmental crime in 2018 constituted only 0.78% of the total crimes committed at country level.⁵ In quantitative terms, out of a total of 247 cases of environmental crimes 57.8% were crimes related with forestry and illegal logging.⁶

In addition, in a timespan of 2005–2012,⁷ the Ministry of Environment has released information on the damage caused from these offenses, estimating the value for each case. The highest value of damage is calculated to be 11,308,467 Euros (about 1,385,136,689 Albanian Leks (ALL)) in year 2010, of which 1.1 billion ALL of damage caused by administrative infractions and 215 million ALL of damages triggered by criminal offenses.⁸ Administrative infractions of 2010 (See Table 1) capture the highest value dam-

1 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

2 Saunders, J. And J. Hein. 2015. EUTR CITES and money laundering: A case study on the challenges to coordinated enforcement in tackling illegal logging. A study for the EFFACE project. London: Chatham House. p. 15-16

3 Nellemann, C., Henriksen, R., Kreilhuber, A., Stewart, D., Kotsoyova, M., Raxter, P., Mrema, E., and Barrat, S. (Eds). 2016. *The Rise of Environmental Crime - A growing threat to natural resources, peace and development and security*. UNEP and INTERPOL p. 7

4 Saunders, 2015, p. 8-9

5 General Prosecutor Office. 2019. Annual Report of the General Prosecutor Office for Year 2018. Tirana, p. 161

6 General Prosecutor Office, 2019, p. 162
7 The available data enabled an analysis for this timespan only.

8 Ministry of Environment, 2013, p. 1

	2005	2006	2007	2008	2009	2010	2012
Criminal offenses (number)	335	525	321	212	321	169	148
Criminal offenses (thousand ALL)	411,467	272,886	283,569	758,429	283,569	215,461	280,162
Average value of a criminal offense	1,228	520	883	3,577	883	1,275	1,893
Administrative infractions (number)	2,820	2,793	2,096	1,495	1,204	1,408	1,417
Administrative infractions (thousand ALL)	87,196	74,330	132,230	282,991	78,402	1,164,172	233,280
Average value of an administrative infraction	31	27	63	189	65	827	165

Table 1.

Administrative infractions and criminal offenses and their value for 2005-2012

age accounting for about 1.1 billion ALL. The value registered in this year is the highest of all other years combined.

The real valuation of environmental damage in our country builds on a reference to Article 61 of the Administrative Procedure Code “Civil lawsuit in criminal proceedings” or “Damage Compensation” as provided for in Civil Code Articles 640 through to 644, which are based on compensation of caused damage or missed profit.⁹

From the practical aspect, actions undertaken to determine the damage are guided by the sectoral law, basically by the Council of Ministers’ Decision (CMD) No. 391, dated 21.06.2006, “On Determination of Tariffs in the Sector of Forestry and Pastureland”, as amended, and CMD No. 1064, dated 22.12.2010, which determines the reparation of damages caused in the forestry fund as well as the tariffs set forth in attachment 8 of the Annex attached to

⁹ Civil Code (2014), Articles 640 - 644, p.

the decision therein.¹⁰

Alas, this method only refers to the evaluation of the property damage and does not consider other elements of environment, health, biodiversity, and additional functions of forests. Above all, this method does not determine how to assess the damage when it happens in a protected area.

By means of a draft Council of Ministers’ Decision, the National Agency of Protected Areas (NAPA) has requested a review of the manner of calculation of damages in protected areas in order to introduce administrative fines instituted by the State Inspectorate of Environment, Forestry, Water, and Tourism, and an addendum proportionate to the importance of the area where the crime has been committed.¹¹

Administrative fines proposed include:

¹⁰ Decision No. 391, dated 21.6.2006, “On Definition of Tariffs in the Sector of Forestry and Pastureland

¹¹ Draft CMD (2018), The Value of Damage Caused in Environmental Protected Areas, Manner of its Valuation, Collection, and Administration, Tirana

- a. Strict nature reserve (Category I), at 70%;
- b. National Park (Category II), at 60%;
- c. Nature monument (Category III), at 50%;
- ç. Managed nature reserve/national park (Category IV), at 40%
- d. Protected landscape (Category V), at 30%;
- dh. Protected area of managed sources (Category VI), at 20%.

An economic assessment of the environmental damage is a challenge not only for our country but also for Europe. The discourse on economic valuation of environmental damage has now shifted from the academic and scientific research to law enforcement agencies that are facing the need to make a fair appraisal of the damage.¹² An asset valuation of damages caused by illegal logging is of great importance to our country's environmental economy.

Irrespective of this, the information on damages caused by illegal logging in forests and protected areas is scarce or is practically missing at all. The difficulty in conducting an economic valuation of illegal logging is also linked with the functions damaged by repeated illegal logging.

Today's literature elaborates on the major components linked with the damages, such as:

- determination of damage entity, as value of the impact of the event on

economical-financial components in the event period

- determination of compensation, payable to who endured the damage, for economic-financial losses

In this context, economic valuation of environmental damages is essential even in terms of damage compensation. If we were to make a correct valuation of it, the damage would be classified as follows:

- Damage caused to things;
- Damage caused to environment.

Therefore, the main goal of this study is to establish a methodology on asset valuation of damages from illegal logging in protected areas. This method will be able to run an assessment of damages to products and services (with or without costs) that characterize the protected forest areas damaged from illegal logging.

The purpose of such initiative is to introduce to Albanian state institutions an **additional and detailed prospect** for the protection of forests from illegal logging in protected forests and areas. To this end, understanding environmental and monetary damages is essential to enforcing efficient preventive policies on environmental crimes.

1.1 Specific Aims of the Study

1. Analysis of standards, studies, reports and methods for economic valuation of damages on protected forest area.
2. Methodological proposal for economic valuation of damages by illegal logging.

The proposed methodology will have to take into account various aspects, by

¹² D. Pattenella et.al "Proposal for a harmonized methodology to assess socio economic damages from forest fires in Europe", University of Studies of Molise, Final Report, Italy, p. 8; http://effis.jrc.ec.europa.eu/media/cms_page_media/41/FireDamagesJRC_Finale.pdf

analyzing the costs linked with the operations of valuation of economic damage (costs of staff for verification on site, expertise used) and the environmental damage.

An analysis of operation costs includes:

- Cost of occupied staff
- Cost of experts engaged in damage valuation
- Other costs, such as administrative and judicial expenses.

An analysis of costs of environmental damage considers:

- Average economic value for damaged forestland;
- Costs for restoration of damaged area separating the area with touristic-recreational function from other functions of the forests and protected area;
- Single functions offered by protected area (timber production, non-wood goods production, tourism and recreation, fight against climate change in terms of CO₂ emission, biodiversity, nature assets).

1.2 Some Challenges in Assessing Impact of Crime on Forests

The analysis of economic valuation of illegal logging crime presents a few difficulties in terms of the methodological issues and data availability. From the methodological viewpoint, an assessment of the impact of illegal logging should take into account the fact that each illegal logging crime produces several impacts (environmental, health, economic and social), which are very

specific to the particular area where it occurs. Furthermore, it is worth noting that forest crimes directly affect the benefits and resources people receive from the environment, including, for example, the provision of food, water and fiber, flood regulation, drought, and soil degradation (feed cycle). However, only a small portion of them display a market price tag that can be used as a potential representative for estimating their value, while most goods and services are not traded. For instance, there is no market for habitat and biodiversity value.

Forest crime statistics are often incorrect. In order to improve the availability of information and to support forest crime prevention activity in the European Union (EU), the Joint Research Center and the European Forest Fire Information System (EFFIS) have been established, which help with forest fire statistics.¹³ Whereas, through the EU Forestry Law Enforcement and Governance Action Plan (EU FLEGT), the EU has obliged member states and timber market operators to go through dual control process, including its traceability to the place of production regulated by the EU Timber Regulation (EUTR).¹⁴

However, while EFFIS represents a useful and effective data collection effort in a harmonized way between Member States, accurate indicators to measure the economic, social, and health impact of forest crimes are lacking. To better

¹³ EU Emergency Management Service; <http://effis.jrc.ec.europa.eu/>

¹⁴ EU FLEGT facility; <http://www.euflegt.efi.int/flegt-action-plan>

cope with the lack of data and indicators related to the impact of forest crimes, the CCC decided to develop two operational models for assessing their social and economic impacts. (Mavsar et al., 2011). The first Rapid Evaluation Model (REM) is used for small logging (i.e., those defined on the EFFIS basis >40 ha) and is designed to calculate the cost of damage using the reconstruction cost approach. The second model (Analytical Evaluation Model, AEM) is conceptualized to estimate the cost of damage for large events (e.g. damage size >500 ha) and is based on the economic analysis of the lost flow of forest goods and services.

However, regardless of the general approach of both models in taking advantage of the information available in the EFFIS database, they appear to be quite limited in terms of: (i) understanding other types of impacts (e.g. social and health); (ii) consideration of damage events below 40 ha of the affected area; and (iii) analyzing crimes since the causes of crime are not taken into account. Therefore, given the widespread heterogeneity of forest crime, the existing literature on impact assessment of forest crimes (fires, logging, damage) usually focuses on a case study approach. This seems to be the most effective strategy for gathering detailed information about different levels of damage to develop measures that seek to minimize the negative economic, social and environmental impacts of forest damage.

One of the main challenges confronting Albanian institutions will be the proportionate, effective and convinc-

ing punishment in line with the new amendments to the Criminal Code and the full transposition of the EU Directive (2008/99) on environmental protection through criminal law.





2. OVERVIEW

2.1 Assessment of Environmental Crime in Albania

2.1.1 A Legal Analysis

Given the great importance that environment has for human life, environmental protection is sanctioned in the highest normative act of legal source hierarchy, the Constitution. Environmental protection is part of the category of fundamental human rights and freedoms. The Constitution of Albania has two provisions that are directly linked with the environment and its protection.

The first provision (Article 56) sanctions the right of everyone to be informed about the status of the environment and its protection, as one of the economic, social, and cultural rights. The second provisions (Article 59) is included in the “Social Objectives” chapter, which stipulates that the Albanian state, within its constitutional powers and the means at its disposal, aims to supplement private initiative and responsibility with:

- A healthy and ecologically adequate environment for the present and future generations; and,
- Rational exploitation of Forestry, Water, pastures and other natural resources on the basis of the principle of sustainable development.

In pursuance of the constitutional provisions, the legislation in the area of environmental protection consist of a set of legal and sublegal acts.

In reliance of the Constitution and the laws on the conservation and environmental protection, criminal legal protection is provided under the Criminal Code, Law No. 7895, dated 27.01.1996, as amended. This Code stipulates a set of provisions that proscribe criminal offenses in this area. The criminal legal protection of **forests** is explicitly provided in Chapter IV of the Criminal Code of the Republic of Albania¹⁵, dealing with criminal offenses against **environment**.

Premeditated illegal actions/omissions wrongfully committed to harm environment by causing damage to environment and, consequently, producing an adverse impact on community life constitute **criminal offenses against environment**, as provided for in the criminal legal framework. When committed in a protected area, the illegal actions/omissions are called **criminal offenses in a protected area**.

The overall scope of the figure of criminal offense against environment are the *legal relationship established by law or sublegal acts* on the conservation and protection of environment (air, water, soil) from pollution, specifically protected from criminal actions or omissions by the criminal legislation in force.

The specific and direct scope of these criminal offenses includes air, water, soil, hydric assets, *forests*, decoration plants, vegetation that are specifically protected from criminal actions or omissions by the criminal legislation in force.

15

Articles 201-207 of the Criminal Code

Given that the forestry economy is of particular importance to the conservation and protection of environment from pollution, the crimes against forests are stipulated in the chapter of criminal offenses against environment, unlike the previous Criminal Code that incorporated them in contraventions against economy.

To conclude whether actions or omissions have instigated damage to environment it is important to clarify the concept of the term of “environmental damage”. The definition of the term “environmental damage” is provided in the Law No. 10431, dated 09.06.2001, “On Environmental Protection”, as a specific law, whose one of major objectives is the protection of environment from pollution and damage.

*“Damage to environment” means the harm done to or loss of the natural function of integral environmental parts, caused by the loss of its respective integral parts and/or human-induced internal disturbance of relations and the natural course of their development.*¹⁶

The legal amendments recently introduced to the Criminal Code comply with the EU Directive 2008/99, thus completing the legal framework of criminal offenses against environment.

To build a methodology on assessment of damage to environment, this study will only refer to criminal offenses against forest damage in protected areas.

The previous Criminal Code (prior to amendments made in year 2019) set forth only one provision on damage to forests, Article 205.

*Felling or damaging forests without authorization or when it is undertaken at a prohibited time or place, when it does not constitute an administrative contravention, it constitutes a criminal offense and is punishable by a fine or up to one year of imprisonment.*¹⁷

The scope of this criminal offense, specifically protected by the criminal legislation, includes the legal relationship established *with the law on forests* to ensure the inviolability of the timber and forest environment.

Subject of this criminal offense can be any person who has turned the age for criminal liability¹⁸ (16 years of age) and is **responsible**.

This criminal offense is committed objectively through active actions, such as logging or damage of forests. Cutting of forests is just one form of damage caused to forests. This implies that this criminal offense is considered to have been committed through active actions of logging or actions that cause loss of natural function of the integral parts of the forests/nature course of their development. If this action is to be considered illegal, it has to be carried out without the permission of the authorized bodies, in a prohibited time and place, such as when cutting or damage is done at the time of their regeneration

¹⁶ Article 5 of the Law No. 10 431, dated 09.06.2011, “On Environmental Protection”, as amended.

¹⁷ Article 205 of the Criminal Code

¹⁸ Article 12 of the Criminal Code

or in locations threatened by erosion, floods, etc.

Violations constituting the criminal offense of “illegal logging of forests” are punishable by fine or imprisonment of up to one (1) year.

Given that illegal logging is defined as a **criminal offense**, the **penalty fine** to be paid to the account of the state varies from 50,000 ALL to 3 million ALL, whereas the **jail terms** vary from 5 days to one year, as provided for in the applicable law.¹⁹

Article 205 is a blanket provision, which refers to Law No. 9385/2005, “On Forests and Forestry Service”. This law determines the cases when forest logging and damage constitute **administrative infractions** and are punished by penalty fine as per Article 38 of this law. Penalty fines range from 80,000 (eighty thousand) to 100,000 (one hundred thousand) ALL.

According to Article 6/1 of the Law No. 5/2016, “On Imposition of Moratorium on Forests in the Republic of Albania”, the penalty fine for violations constituting an administrative infraction is 5 million ALL.

The distinction between an administrative infraction and a criminal offense is determined in the Council of Ministers’ Decision No. 108, dated 27.01.2009, “On Criteria on Qualification of Violations with Severe Consequences on Forests”.

Subjectively, a criminal offense is committed on purpose, because the person is aware that illegal logging or damage of forests at a certain place and time is prohibited, yet the person commits the illegal action. This unlawful act constitutes a criminal contravention. Unlike the other provisions of this chapter, this provision does not provide for qualitative circumstances, such as damage to or illegal logging of a forest in protected areas, which constitutes an action with more severe environmental consequences.

This legal handicap has been addressed with the recent amendment introduced to the Criminal Code through Law No. 44/2019, which stipulates two provisions that sanction the consequences of illegal activities to protected areas.

Article 202 is amended to read as follows:

Damage to Protected Species of Flora and Fauna

“The killing, destruction, possession, or obtainment of samples of protected species of the flora and fauna or their parts or by-products, in violation of the requirements of the applicable legislation or permits and authorizations duly issued by competent bodies, with the exception of cases when this act is committed onto an insignificant portion of these samples and produces negligible impact on the status of the conservation of species, are punished by penalty fines or jail terms of two to seven years.”

Article 202/a is added with the following wording:

¹⁹ Articles 32, 34 and 205 of the Criminal Code

Habitats in Protected Areas

“Any wrongdoing that violates the requirements of the applicable legislation or permits and authorizations duly issued by competent bodies and that causes serious aggravation of a habitat located in a protected area is punishable by penalty fine or two to five years of prison time.”

These legal amendments complement the criminal legal framework on the protection of protected areas. The range of illegal acts that harm the environment, such as killing, destruction, possession, acquiring or trade [of flora and fauna species], has been expanded. Article 202/a leaves discretionary scope for actions to be considered unlawful. These actions to be considered unlawful must have been committed in violation of the permits and authorization legislation. Article 202 as amended and the new sub-article 202/a, qualify damages in protected areas as criminal offenses, considering the severe consequences triggered by damages in a protected area. Both provisions stipulate that the action qualifies as a crime when it causes severe damage to the protected area.

The value of caused harm is calculated on the basis of a single sublegal act, Council of Ministers' Decision No. 391, dated 21.06.2009, “On Determination of Tariffs in the Sector of Forestry and Pastureland”, as amended.

The compensation fee for damages caused to forests and timber is categorized by the type and quantity of damages caused to the latter.

When the damage caused is considered

an administrative offense, the relevant administrative body covering the territory where the offense occurred shall, in addition to the penalty fine, calculate the value of the damage caused, in pursuance of the abovementioned Council of Ministers' Decision. It is the duty and responsibility of the protected area administration to assess the damage caused to the protected area. Damage to protected areas is considered an action of serious consequences as referred by CMD No. 108, dated 27.01.2009, “On Criteria on Qualification of Violations with Severe Consequences on Forests”.

In case the damage is caused from a criminal offense, the administrative body administering the forest where the damage has occurred may file a civil lawsuit in criminal proceedings seeking compensations for damages as long as the criminal trial has not commenced²⁰, given that the Civil Code recognizes the compensation of damage in the case of environmental damages.²¹

Damage to the environment constitutes an extra-contractual liability. A person may be held guilty of damaging the environment only when his or her actions or omissions contain these elements cumulatively:

- a) Guilt
- b) Caused damage
- c) Unlawfulness of actions or omissions

²⁰ Article 62 Criminal Procedure Code

²¹ Article 624 of the Civil Code provides: The person having culpably affected the environment by way of deteriorating, changing or impairing it, in full or in part, shall be obliged to indemnify the sustained damage.

d) **Causal connection**

Instigation of liability from caused damage requires that the conditions, elements, and criteria stipulated in Articles 608 and 609 of the Civil Code be met.

Article 608 of the Civil Code:

The person culpably and illegally causing damage to another in person or his/her property shall be obliged to indemnify the caused damage. The person having caused the damage shall not be liable upon proving that he is not culpable. The damage shall be illegal wherever it emerges out of the breach of impairment of the interests of rights of others, being protected by the legal order or good customs.

Article 609 of the Civil Code:

The damage shall be direct and immediate consequence of the action or omission of the person. Failure to avoid an occurrence by a person being legally obliged to avoid it shall render him liable in torts.

Hence, it is necessary that the four elements of the damage cause specified above are fulfilled and existing. The absence of even one of the above elements does not entail civil liability for damages.

Article 640 et seq. of the Civil Code provides for the right to seek compensation for damages and missed profits in a civil court also through the claim filed by the parties that suffered the damage. Compensation for damages may be sought after a criminal court has ruled a guilty verdict for the offense of illegal logging.

In a judicial proceeding, the court will have to refer to the same sublegal act, CMD No. 391/2006, “On Determination of Tariffs in the Sector of Forestry and Pastureland” as amended, in calculating and determining the damage liability.

This DCM contains no provisions on the calculation of damage caused in a protected area. To address this legal gap, the Ministry of Tourism and the Environment has proposed the adoption of a special by-law on the assessment of damage caused to protected areas, where it is envisaged that the administrative fine will be several times higher in proportion to the type of protected area.

2.1.2 An Institutional Analysis

The National Agency for Protected Areas (NAPA), the State Inspectorate of Environment, Forestry, Water, and Tourism (SIEFWT), and their subordinate bodies are the competent institutions for the identification, prevention, and punishment of illegal actions committed to protected areas.

National Agency for Protected Areas

The National Agency for Protected Areas (NAPA) is the central state authority responsible for the overall management of protected areas in Albania, reporting to the minister that covers the administration and control of protected areas in the Republic of Albania.

NAPA operates through Regional Administrations for Protected Areas

(RAPA) which are directly responsible for on ground management and monitoring of protected areas within the territory of their region.

In pursuance of the Law No. 81/2017, “On Protected Areas”, municipalities play an important role in the protected areas located in the jurisdictional territory of their activity.

In conformity with the protected area management plan, the regional administration for protected areas is responsible for the management of forests and timber fund, water and water bodies in private or public property located within the protected area.

The monitoring of activities in environmental protected areas is conducted by the regional administration for protected areas and entities it hires for monitoring.

The Law on Protected Areas grants almost the same competences to the National Administration of Protected Areas as those for the Forestry Police Inspector (of the State Inspectorate of Environment, Forestry, Water, and Tourism), thereby providing double protection to the protected areas. While the law expressly stipulates that the Forestry Police Inspector has the right to lay down administrative fines in the event of administrative violations, Article 66 of the Law does not clearly provide for the NAPA’s right to impose administrative fines. However, in a systematic interpretation of the law referred to in Article 69, the Administration of Protected Areas has the right to

rule on administrative offenses, as does the Forestry Police Inspector.

Paragraph C of Chapter IV of the Council of Ministers’ Decision No. 102, dated 04.02.2015, “On the Creation and Manner of Organization and Functioning of the National Agency of Protected Areas (NAPA) and of the Regional Administrations of Protected Areas (RAPA)”, as amended, provides that, when finding administrative infractions in the management of protected areas, NAPA and RAPA must notify the competent state bodies, proposing to the relevant bodies to take measures against the responsible persons, according to the legislation in force. This provision is in contradiction with Article 69 of the aforementioned Law 81/2017 “On Protected Areas”, which states: “*The Forestry Police Inspector and/or protected area administration shall decide on the administrative penalty for violations provided for in Article 67 of this Law, as defined in the applicable legislation on inspection in the Republic of Albania.*” This conflict between the law and the by-law should be remedied by repealing the provision incorporated in the aforementioned Council of Ministers’ Decision and replaced by detailed regulations on the right of RAPA to lay down administrative penalties in the event of illegal activities.

The proposal made by the Ministry of Tourism and Environment on the approval of the by-law “Value of Damage Caused in Environmental Protected Areas, Manner of Its Evaluation, Collection and Administration” reflected this change. This proposal reiterated

the right of Regional Administration of Protected Areas to lay down administrative penalties.

Municipalities

In reliance of the Law No. 139/2015, “On Local Self Governance”, Law 81/2017, “On Protected Areas”, has designated local authorities, such as municipalities, as bodies responsible for the management of protected areas. In the course of exercising their functions, municipalities cooperate with the regional administration of protected areas and with the administration of the respective areas with regard to protected areas. Within the powers granted by law, these local self-government units establish an environmental protection unit within their administration to protect the environment in which they exercise their functions, including the protected areas located within the administrative territory of these municipalities.

Representatives from municipalities, the NAPA, local institutions that are directly linked to them, civil society, and forest and pasture owners establish the protected area management committee.

State Inspectorate of Environment, Forestry, Water, and Tourism

The State Inspectorate of Environment, Forestry, Water, and Tourism (SIEFWT) is a central public budgetary institution, subject to the Minister responsible for the environment, established by Law No. 10433, dated 16.06.2011, “On the Inspection in the Republic of Albania”, as amended. This law provides for the right of the Council of Ministers to issue bylaws to establish

state inspectorates for the performance of an inspection function provided under applicable laws. SIEFWT has competences in the field of environmental protection, forestry, water and tourism. Consequently, the Council of Ministers of Albania established the State Inspectorate of Environment, Forestry, Water and Tourism by means of its Decision No. 103/2015.

The Forestry Police Inspectorate has a variety of tasks in pursuance of the Law 81/2017, “On Protected Areas”, Law 10433/2011, “On Inspection in the Republic of Albania” and bylaws issued pursuant to them, for the purpose of inspecting protected areas. The most essential task of this inspectorate is the punishment of cases of damage to protected areas by imposing administrative fines, supplementary penalties, and business activity freeze. In cases the wrongdoing constitutes a criminal offense, the inspectorate is bound by law to file a criminal report with the Prosecutor Office. These powers confer on the Forestry Police Inspector the attributes of a Judicial Police. Therefore, the Inspectorate has an essential role in identifying, preventing and punishing illegal activities committed to protected areas.

2.1.3 Assessment of Environmental Damage – State of Affairs

Referring to the above legal analysis and Criminal Code, anyone who commits a wrongdoing that causes damage to a protected area or part of it will not only be fined but will also be held liable for the damages as well as for the costs incurred to remedy the damage as well as

for the rehabilitation and restoration of the damaged area.

The RAPA will assess the damage caused in the protected area upon detecting unlawful actions against protected areas.

The Law No. 81/2017 “On Protected Areas” stipulates that the determination of the manner of damage assessment, the value of damage, the form and management of this value will be set forth in a Council of Ministers’ Decision.

The normative acts in pursuance of this law have not been adopted yet. Consequently CMD No. 391/2006, “On Determination of Tariffs in the Sector of Forestry and Pastureland”, as amended, issued pursuant to the old repealed Law No. 8609/2002 “On Protected Areas”, remains in force as long as it does not conflict with the new law.

The service fee for damages caused to forestry is categorized by size of logged tree and type of damaged forest.

The service tariffs vary from 250 ALL per hectare (ha) to 34,000 ALL/ha for cutting of seedlings, saplings and trees of 2 cm up to 60 cm in diameter.

In case of massive logging in new forests, the tariff is 400,00 ALL/ha; for mature forests the tariff increases to 650,000 ALL/ha and for shrubs it drops to 125,000 ALL/ha.

According to the Council of Ministers’ Decision, massive logging is the cutting of more than 50% of trees in a given

area unit.

Massive damage on over 50% of the area in any means and forms:

- In new afforestation, new forests and nursery plots – 320,000 ALL/ha;
- In mature forests (more than 10 cm of diameter) – 630,000 ALL/ha;
- In shrubs – 108,000 ALL/ha.

In terms of deforestation of the forestry fund or forests without the consent of competent bodies, the tariff for trees is 7,000,000 ALL/ha, for coppices 4,000,000 ALL/ha, for shrubs 2,000,000 ALL/ha and in other parts of the forest fund the tariff is 1,500,000 ALL/ha.

The manner of assessing the damage to date consists only of estimating the economic and financial damage without taking into consideration the fact that forest damage also means ultimate deprivation of the right to benefit from the goods of environment. In addition, this manner does not even consider the administrative costs incurred in handling the cases of environmental damage. In the case of forest damage, the harm is not simply economic, in the form of monetary cost for the replacement of timber. It also produces consequences on the wellbeing of all living creatures that are inextricably linked with the functions that forests have on human life both physically and mentally as well as with the biodiversity, that is, with the entire food chain of living things.

On the other hand, this sublegal act

does not provide for a method of calculating the damage.

The deficiencies mentioned above have resulted in a valuation of current damage in huge disproportion to the real damage caused to environment and mankind from illegal logging.

2.2 Assessment of Environmental Crime in EU Countries. EU Environmental Crime Directive (ECD) and Environmental Liability Directive (ELD)

In 2009, numerous cases of illegal disposal of highly toxic waste in disbanded open pits were discovered in the German state of Brandenburg. In 2015, bridge workers illegally dumped hundreds of tons of concrete into a Scottish river. In Italy, organized crime groups have been involved for more than two decades in the illegal dumping and trafficking of millions of tons of hazardous waste. Thousands of birds have been killed in Spain and other EU Member States through illegal poisoning in the last decades. In 2010, a caustic waste reservoir at the Ajka aluminum plant in Hungary collapsed. More than one million cubic meters of highly alkaline red sludge flooded several nearby villages, killing several people, and eventually polluting local rivers. The illegal trade in wildlife is one of the fastest growing organized criminal activities worldwide with an estimated annual turnover of USD 18.5 billion.²² Europe is both a consumer of illegally traded wildlife

and endangered species as well as an important point of transit. It is estimated that illegal wildlife trade threatens a third of the world's species. Moreover, it is known to overlap with organized crime and money laundering.

These are just a few examples of an uncountable number of one-time and continuous offenses against the environment committed year-to-year within the European Union (EU) and elsewhere. Many offenses are of a local nature such as the dumping of concrete in Scotland. Other offenses have a transnational component such as trafficking in wildlife, electronic waste, timber, and toxic materials, involving several EU Member States, their neighboring states, and states in Latin America, Africa or Asia. Some offenses are committed by groups of people over longer periods of time and may involve corrupt transactions. For instance, transnational environmental crime is often organized, involving dozens of private actors and sometimes public officials. In other cases, environmental crime is largely unorganized, consisting of offenses committed by individuals such as the dumping of smaller amounts of waste oil into streams and lakes.²³

2.2.1 Environmental Crime Directive (ECD)

Individuals and companies usually commit crimes against the environment for **monetary gain**. The profit margin ranges from just a few euros to millions

²² Christiane Gerstetter, et al., 2016. *Environmental Crime and the EU. Synthesis of the research project EFFACE*. Research Project, EFFACE.

²³ Christiane Gerstetter et al., 2016. *Environmental Crime and EU*, EFFACE, Chatham House, p. 9

of euros. What makes environmental crime so lucrative is that few perpetrators are actually caught and even fewer are eventually punished.²⁴ Sentences that are handed down are often light. Fines are negligible compared to the profits and few perpetrators are sentenced to jail. Given the extent of harm that environmental crime can inflict on humans, animals, and plants, law enforcement efforts and sentencing often seem inadequate, failing to deter potential offenders.

In view of this development and the challenges encountered in protecting environmental legislation through the enforcement of environmental law, the European Union and EU countries have developed a specific directive to combat and protect the environment through criminal law. Therefore, the EU 2008/99 Environmental Crime Directive was developed to establish several minimum criteria for member states to criminalize certain actions as environmental administrative violations. However, many questions about environmental crime in the EU still remain unresolved, such as the economic impact of environmental crime. How do states assess the true economic impact of environmental crimes?

2.2.2 Environmental Liability Directive (ELD)

The ELD entered into force on 30 April 2004 after a long drafting process;

²⁴ PP (2019), Annual report shows that out of X adjudicated offenses only X people have been convicted for committing wrongdoing.

the European Commission had issued a Green Paper in 1993 and a White Paper in 2000. According to the 2010 Commission report on the ELD, there are diverging national transposing rules which could potentially create difficulties; for example, there is an uneven implementation of the permit and state of the art defenses and an uneven extension of the biodiversity scope to cover species and natural habitats protected under domestic law.

The European Commission has carried out an evaluation of the effectiveness of prevention and remediation of damage to the environment on the basis of gathered experience. The purpose is to suggest practical measures and/or legislative adaptations at EU level to increase effectiveness. The result is that the number of ELD cases per Member State varies considerably from 95 annual cases to less than one annual case²⁵. The evaluation also identifies some weaknesses, such as low awareness of operators and authorities of the provision implementing the ELD; lack of expertise and resources in financial, economic and liability matters; difficulties in establishing causality and identifying the liable operator; no mechanisms (insurance etc.) in place to remedy large scale damage; use of undefined legal terms.

The enforcement of the ELD, and its potential to contribute to remedy the damage caused by environmental crime, can be also hampered by enforcement problems related to other directives. For instance, an EFFACE case study on

²⁵

Christiane Gerstetter et al., 2016, p.38

mining concludes: “The Kolontar case shows that even though Hungary complied with the Environmental Liability Directive (ELD), the incorrect enforcement of the waste management directive undermined the enforcement of the former and other directives”.²⁶

Different approaches exist in the ECD and the ELD concerning the identification of the “liable” person or entity. In the ECD the offender (who can be anyone, including under certain conditions a legal person) is liable when the conduct, falling within the list of Article 3 of the ECD, is unlawful and committed intentionally or with serious negligence. In the ELD, only the “operator” which can be a natural or legal person, is liable if he is in fault or the activity is dangerous for health or the environment.

The term “significant” in respect of environmental damage in the ELD probably does not have the same meaning as “substantial” damage in the ECD. Both terms refer to the result of an activity or conduct, but the term “significant” in the definition of land damage in the ELD refers to human health; on the contrary the ECD uses the term “death or serious injury” and not the word “substantial” in respect of human health. Moreover, the ELD includes criteria to determine whether the biodiversity damage is significant.

The criteria summarized in ECD, as per Article 3, base their main references on the specific environmental legislation. In most cases, although the ELD and ECD have been referred to by com-

mentators as “sister directives”, complementing each other, more differences than similarities exist concerning their scope and application.²⁷

A major weakness of the ELD is under-deterrence in case of insolvency. Operators that are insolvent cannot be made to pay for damage caused. This is linked to the issue of financial security (e.g. through insurances). Art. 14 ELD merely states in respect of financial security: “Member states shall take measures to encourage the development of financial security instruments and markets by the appropriate economic and financial operators, including financial mechanisms in case of insolvency, with the aim of enabling operators to use financial guarantees to cover their responsibilities under this directive”. The lack of strong rules on financial security reduces the chances that the ELD contributes to remedy the damage caused by environmental crime.

2.2.3 European Union Timber Regulation (EUTR)

The EU Timber Regulation (EUTR) entered into force in 3 March 2013. According to this directive, the placing on the EU market for the first time of illegally harvested timber and products derived from such timber is prohibited.

The ‘legal’ subject is defined as timber produced in conformity with the

²⁷ Vagliasindi et al., note 36; Valerie Fogleman, presentation at the EFFACE Éorkshop, available at <http://efface.eu/efface-workshop-environmental-liability-and-environmental-crime>

domestic laws of the country where timber is logged.²⁸ Similar to any regulation, the EU Timber regulation is legally binding on all EU member states. Stakeholders within EU are required to impose prohibition on illegal timber; EU traders who place timber products on the EU market for the first time will need to exercise 'due diligence'; and keep records of their suppliers and customers without the need for additional domestic legislation. The enforcement of these requirements and the sanctions employed to enforce them are the sole responsibility of individual member states. To this end, every member state will assign a competent authority and determine sanctions on compliance failure.

2.2.4 Case Studies of Monetary Valuations of Environmental Crimes in EU

Generating economic valuation of environmental crimes is very difficult as it requires a robust methodology, since it attempts to translate ecological, economic, health, social and health impacts into a monetary sum. This assessment requires complex methodological formulas and difficult ethical processes as well. Many impacts cannot be economically estimated such as the loss of ecology, biodiversity or forests to future and existing generations. However, a difficult issue is the communication of these results or monetary impacts. The

28 Regulation (EU) No 995/2010 of the European Parliament and of the Council of 20 October 2010; http://ec.europa.eu/environment/forests/timber_regulation.htm

European Union Action to Fight Environmental Crime (EFFACE) recognizes that there is no common method available to assess environmental crime, but specific elements have been analyzed using different methods and through case studies.²⁹

2.2.4.1 Case study of Italy

The Italian Academy of Forest Fire and Italian Forest Corps have designed a methodology of economy valuation of forest crime by analyzing forest fires. This approach proposed by Ciancio et al.³⁰ represents the most accurate and articulated method for estimating the monetary impact of forest fire. In particular, the environmental damage rests on the appraisal of seven forest functions: (i) wood production loss; (ii) non-wood production loss; (iii) tourism-recreation loss; (iv) hunting activity loss; (v) soil protection; (vi) protection from climate change; and (vii) biodiversity protection.

The following section represents a case study of an estimation of the economic impact of a forest fire, as an example of the various methodical approach that was taken into account in the valuation considered to be credible by the court in a criminal proceeding.

Presentation of the case:

29 (Saunders 2015),

30 Ciancio O., Corona P., Marinelli M., Pettella D., 2007. Valutazione dei danni da incendi boschivi. Accademia Italiana di Scienze Forestali, Corpo forestale dello Stato, Firenze

Wildfire in Trevignano Romano forest	
Region	Lazio
Municipality	Trevignano Romano
Affected area	22 ha
Fire cause	Negligence
Type of affected area	oaks, chestnuts, hornbeams
Beginning of fire	7 August 2013
End of fire	10 August 2013 (Ciancio O. 2007)
Utilized vehicles	2 airplanes, 6 firefighter trucks
Material damage	None
Injured and / or deceased	None

Table 2. Case study of Trevignano Romano

The total value of environmental damage results from the sum of the aforementioned seven functions. However, the identification of the seven components of the damage does not imply their contextual involvement in each forest fire event. It is, in fact, unusual that a wildfire produces, for example, both significant damages to the hunting activities of the forest and biodiversity. It is worth noting that, in this case, the hunting function has to be ignored since the Italian law forbids hunting activities in protected areas.³¹ Therefore, appraisal of the environmental damage, in this specific case, will take into account the following forest functions: i) the wood production, ii) the non-wood production (in this case it refers to, among others, the collecting of mushrooms), iii) the tourism-recreation and iv) the protection from climate change.

a) For the estimation of wood production (WP), we recognize that:

$$WP = M/n * Pz$$

where M is the average forest mass per hectare; n represents the average age of the forest and Pz the average price of stumpage

The average forest mass per hectare (M) was estimated by the weighted average (i.e. number and size of trees) of the data obtained for each hectare of the affected area and by linking them with the 'volume tables' developed by the Italian Forest Corp for forests comparable to that of the Rocca Romana. The average forest mass is about 230 m³/ha. The average annual increase, given by M/n (where n, average age of the population, is equal to 35 years), is 6.6 m³/ha.

Pz, which is the basic element of the whole economy of forestry production, represents the unit value of the mass in the raw state. It is obtained by subtracting from the end product market value, the necessary processing costs for the management of the raw material (i.e. cutting costs, transportation cost, cost of extraction, cost of insurance and so on). It was calculated by applying data derived from previous experiences in similar conditions and geographical location. Table 3 below shows in detail the different costs of stumpage:

³¹ Edhe në rastin e aplikimit dhe vlerësimit në kontekstin shqiptar, vlerësimi I gjuetisë do të hiqet pasi ekziston moratorium I gjuetisë jo vetëm në zona të mbrojtura por gjithë vendin

Operation	Hours	Cost (€)	Unit cost (€/m³)
Cutting			
- Specialized worker	1	13.00	13.0
- Chainsaw	0.66	4.00	2.64
Collection and transport			
- Tractor	0.33	17.00	5.61
- Specialized worker	0.8	13.00	10.40
Indirect Costs			12.66
Total cost of transformation			€ 44.31

Table 3. Different costs of stumpage for Rocca Romana forest fire

The price of stumpage, equal to the difference between the market value of the product and the cost of processing, is € 15.69/m³ (€ 60.00/m³ - € 44.31/m³). Therefore, the wood production (WP) amounts to:

$$PD = 230/35 * €15.69 = \mathbf{€103.10}$$

b) Non-wood production (NWP)

For the estimation of non-wood production (NWP), it is interesting to verify the existence of ad hoc data on NWP (i.e. chestnuts, mushrooms, truffles, acorns) identified by ISTAT for the investigated area. Looking at mushrooms, it is estimated that the yearly average produced quantity is 25 kg per hectare, divided into 15 kg of mushrooms of the genus *Boletus* and 10 kg of the genus *Cantarellus*, *Russula*, *Lattarius*. The local average market price of the *Boletus* mushrooms sits at 14 €/kg and the value attributable to mushrooms belonging to other genres, which have no local market, equals 3 €/kg, the annual value of the benefit produced by mushrooms, in the forest under evaluation, is € 240 per hectare.

c) Tourism-recreation benefit (TR)

Another possible economic aspect of forests is tourism. The economic growth in the past 30 years and the increase in leisure time, combined with the degradation of the urban areas, have resulted in an increase in visits within the protected areas. The tourism function of forests is typically offered through walks, picnics, guided tours, and educational trips for school groups.

The monetary appraisal of the recreational value of forests (tourism-recreation function) that generates positive effect on the economy of the local population (which here, however, we do not consider) is carried out using a plurality of methodologies: the cost of an individual trip, contingent valuation and the willingness to pay for a visit. The approach we consider in our study refers to the willingness to pay for a visit in the affected area and can be summarized by the following equation:

$$TR = (v * dp) / \text{Sup}$$

where *v* is the recorded number of trips per year in the area under evaluation and *dp* represents the estimate of willingness to pay per visit;

Data from the Touristic Information Point of the Trevignano municipality recorded 4,570 visitors in the whole forest area (200 ha). With regard to the value of willingness to pay for a visit in the forest, a sample survey has been carried out. The interviews show that, on average, a person is willing to pay about 4 € for a day in Rocca Romana forest,

which would be the cost of a hypothetical entrance fee.

Therefore, the tourism recreation function amounts to

$$TR = (4570 \cdot 4) / 200 = \text{€ } 91$$

d) Carbon sequestration tax

One of the most important functions of a forest is carbon sequestration. Over the past decades, forests have moderated climate change by absorbing most of the carbon released by human activities such as the burning of fossil fuels and the changing of land uses. Carbon uptake by forests reduces the rate at which carbon accumulates in the atmosphere and thus reduces the rate at which climate change occurs. The protection from climate change function (PCC) is estimated by looking at the economic value of the carbon immobilized by the forest ecosystems. This estimation is very complex and involves several methodological approaches. Our case study relies on the assumption that a forest represents a natural storage for the emissions of carbon. Therefore, we introduce the concept of carbon tax for a forest as the “shadow price” of its associated absorption benefit. This seems quite reasonable since, if we assume that the emission of carbon dioxide could be taxed, then the activities that have an opposite effect represent a social benefit. Hence, the PCC function is given by:

$$PCC = M/n \cdot X_n \cdot X_c \cdot C$$

where M is the average forest mass per

hectare, n represents the average age of the forest, X_n is the ratio Total biomass/above ground biomass (equal to 1.8), X_c is the biomass conversion factor m^3/t carbon (equal to 0.65) and C is the economic value of 1 ton of carbon based on the carbon tax estimation (average carbon tax 10 €/t). The PCC function is equal to:

$$PCC = 60/35 \cdot 1.8 \cdot 0.65 \cdot 10 = \text{€ } 22$$

Therefore, monetization of the environmental damage for each single forest function is:

- For WP function on 22 hectares: $\text{€ } 103 \cdot 1 = \text{€ } 103$
- For NWP on 22 acres: $\text{€ } 245 \cdot 1 = \text{€ } 245$
- For tourism and recreation function of 22 hectares: $\text{€ } 91 \cdot 1 = \text{€ } 91$
- For PCC on 22 hectares: $\text{€ } 22 \cdot 1 = \text{€ } 22$

The total amount of environmental damage is equal to: $[(103/0.03) \cdot 22 + (240/0.03) \cdot 22 + (91/0.03) \cdot 22 + (22/0.03) \cdot 22] = \text{€ } 334,400$

The value of 0.03 is the deduction rate ($n = 0.03$)

e) Fire extinction costs

Fire extinction costs (or suppression costs) are costs relating to machines and personnel's equipment used during the operation of active firefighting. According to the AIBFN report N°3/2010/3775 of the Italian Forest Corp, we are able to quantify the total cost of intervention. Particularly, two

Canadair airplanes were used in the firefighting activities on the 22nd and 23rd July 2010, in Favale of Morfasso forest fire. One CAN 20 for eight hours and dropping of fire suppressing foam eleven times for a duration of one minute and a one-time use of fire retardant; one CAN 2 for seven hours and forty-six minutes, dropping fire suppress-

ing foam eleven times and fire retardant one time. This totals fifteen hours and forty-seven minutes, twenty-two fire suppressing foam drops and two fire retardant drops. Taking into account the duration of the extinction operations and the cost of the equipment used the total cost of the intervention is € 100,504.54 (See Table 4).

Autoriteti që punoi për shuarjen e zjarrit	Orë pune shtesë	Kosto e misionit	Karburant/agjentë shuarës ose kimikat	Kosto e fluturimit për orë/fluturim/qera/punë
Departamenti i mbrojtjes Civile			€ 5,233	€ 68,445.58
Trupa e Mbrojtjes së Pyllit	€ 1,393.34	€ 244.64	€ 142.38	
Zjarrfikësit	€ 383.33		€ 196.96	
Vullnetarët e Mbrojtjes Civile		€ 561.00	€ 632.31	
Bashkia				€ 7,272.00
Departamenti i Fluturimeve-Romë				€ 16,000.00
Total	€ 1,776.67	€ 805.64	€ 6,204.65	€ 100,504.549

Table 4. Cost analysis of fire extinction

2.2.4.2 Case study 2: Monetary Valuation of Natural Forest Habitats in Protected Areas in the Czech Republic

A new method for monetary valuation of natural forest habitats in protection areas is designed in the Czech Republic by a group of researchers (*Vilem Pechanec, Ivo Machar, Lenka Sterbova, Marcela Prokopova, Helena Kilianova, Karel Chobot, Pavel Cudlin 2017*)³², based on a real estimation of costs incurred to transform the forest in shape prior to enroll in the NATURA 2000 network.

If in Italy's case study we saw all the elements of monetary valuation of direct and indirect functions of the forest, what was missing was the answer to the question: How will environmental damage be assessed in a protected area that is also the subject of our research?

Through the case study of the system of economic damage assessment of protected areas in the Czech Republic, we will present an additional opportunity for decision making by introducing an instrument for asset valuation in protected areas. However, it should be noted that this type of point-based method requires habitat mapping or forest inventory. At the time of writing this study, Albania was in the process of

³² Vilem P. et al., (2017)., Monetary Valuation of Natural Forest Habitats in Protected Areas, MDPI (Forests Magazine) 08-00407

completing its forest cadaster including protected areas.

Monetary Valuation of Natural Forest Habitats in Protected Areas

Economic growth can lead to a degradation of ecosystems and loss of biodiversity. Biodiversity loss presents significant economic challenges. Econometric techniques for biodiversity evaluation can help with its sustainable use. This is why methods of **monetary valuation** have been developing. Econometric methods for the valuation of biodiversity are usually divided in literature into three fundamental groups: (i) revealed preference methods (for example, methods of analysis of transportation expenses, hedonic methods), (ii) stated preference methods (for example, contingent valuations), and (iii) production function methods (for example, valuation of crop production, etc.)

The method of monetary valuation of natural forest habitats presented in this study cannot be decidedly placed in any of these groups. This method is based on **actual expenses**, not only on the hypothetical willingness to pay. Additionally, we must not forget that the econometric techniques for cultural forest services are weak. Researchers in the Czech Republic have applied the approach of “**payments for ecosystem services (PES)**” taking into account the “Beneficiary Pays Principle”. This approach provides the opportunity that when an individual who pollutes, damages or commits an environmental crime, the society will compensate for the pollution, the value of damage and

crime by presenting at least the minimal cost for remuneration.³³ We say the minimal cost and not the maximal one, because biodiversity is not a marketable product that can be named a price. This approach has been applied in about 57% of the total Czech national forest areas, which are mapped natural forest habitats (15.203.45 km²).

a) Study area and application of method

The hypothesis was tested within the national scale of the Czech Republic, where, between 2001 and 2004, detailed field mapping was made of the distribution of natural habitats [32] in order to create a network of the areas of European importance within the conservation aims of the so-called Habitat Directive (Council Directive 92/43EEC on the conservation of natural habitats and of wild fauna and flora). From the terrain mapping results, the Habitat Catalogue of the Czech Republic was created (hereinafter referred to as the “Catalogue”) including 43 forest types of natural forest habitats. The results of the field mapping were completely digitalised and the created data layer was applied for the definition of areas suitable for conservation as protected areas of European importance (SAC, see Figure 1) on the basis of the criteria stated in the Habitat Directive.³⁴

a) Methodology of the Monetary Valuation of Natural Forest Habitats

³³ Ibid

³⁴ EU Habitat Directive 2004/35/ EU dated 21.04.2004,

The elementary principle of the method is an innovative application of the idea on which the method of ecological harm on habitats in Hessen (Germany) was based [35]. Hessen method is a method of economic evaluation of non-market environmental resources and their life-long functions. The method is based on a combination of **environmental benefits** and **costs for the revitalization of the relevant habitat types**. It is a method of expert arrangement of habitats according to their **point values** depending on their abilities as an environment for plant and animal species. This method also expresses the value of a point in monetary units according to the size of the average national cost necessary to achieve the increment of one point of nature and landscape quality. The method is based on interdisciplinary expert assessments of all types of habitats that occur in a particular area.

The Hessen method has been recommended for use on the EU White Paper on Environmental Liability and is used in Hessen for environmental damage estimates caused by natural and landscape interventions. Currently, this habitat assessment method can be used to implement Habitat Directive 2004/35/EC of 21 April 2004 on environmental liability in relation to the prevention and remedying of environmental damage.

The method proposed by the Czech researchers is based on a created national list of habitat types and their expert evaluation. Each habitat type has been valued using points according to eight

ecological characteristics, each of them with a potential point value ranging from one to six points. The first four characteristics are:

i) **the expression of the ecological quality of the habitat:**

1. matureness
2. naturalness
3. diversity of plant species
4. diversity of animal species.

ii) **while the other four characteristics express the degree of rarity or threat to the habitat³⁵**

5. rareness of biotope
6. rareness of species
7. vulnerability
8. threat to existence.

35 Referred to the IUCN List on categorization of habitat threat.

The sum of the points for the first four characteristics is multiplied by the sum of the points for the second group of four characteristics (Equation 1).

$$\text{Equation 1: } [(M + N + Dps + Das) \times (Rb + Rs + V + Te)] / 576 \times 100 = \text{point value}$$

M	matureness
N	naturalness
Dsb	diversity of plant species
das	diversity of animal species
Rb	rareness of biotope
Rs	rareness of species
V	vulnerability
Te	threat to existence
576	Maximal points by Czech Habitat Catalogue

Table 5. Legend of characteristics of point system

	Type of habitat	Matureness	Naturalness	Diversity of plant species	Diversity of animal species	X	Rareness of biotope	Rareness of species	Vulnerability	Threat to existence	Maximal points for type of Habitat
L10.1	Birch mire forests	5	6	5	3	X	6	3	4	4	56
L.2.2 B	Degraded alluvial forests	2	4	6	6	X	2	3	3	3	33
L.2.4	Willow-poplar forests	4	6	6	6	X	6	3	3	5	65
L.6.2	Pannonian oak forests	5	6	6	6	X	6	4	3	5	72
L.8.2	Pine forests	5	6	6	5	X	6	3	3	4	61
L.9.1	Fir forests	5	6	5	3	X	3	2	3	3	36

Table 6. Catalog of types of habitat by 8 criteria

The evaluation process is related to one square meter of each habitat, the final point value is valid for every one square meter of the habitat. The point evaluation of the particular types of natural forest habitats in the Czech Republic (Figure 2) ranges from the lowest value of 33 points for an L2.2B habitat up to the highest value of 72 points for an L6.2 habitat and are then transferred into monetary terms by average national costs (ANC) of restoration measures, necessary for a one point increase, i.e., for maintaining and improving the habitats as environments for healthy increase.

The monetary value of a mapped habitat is given by the relation (Equation (2)).

**Point value × average national costs
× real area of mapped habitat in one
square meter (2)**

For a specific type of habitat, the result of the point evaluation (related to 1 m² of the habitat area) represents the relative ecological value of a specific habitat type in comparison with other habitat types. In the Czech Republic, the list of point values of habitat types was prepared according to the results of the habitat mapping shown in the Catalogue.

For the purpose of monetization of the point evaluation of habitats, economic analysis was made for the 136 realized projects within the Program for the Restoration of River Systems in the Czech Republic. This state program is aimed to financially support habitat restoration in the cultural landscape in order to improve the retention capacity of the landscape. Because we know the budgets of

these restoration projects in detail, we could derive precisely initial costs for establishment natural forest habitats in diverse ecological conditions.

The final monetary value of an individual point for the Czech Republic amounted to **EUR 0.592** in year 2015 and is based on actual spent budget investments, which were spent by Czech society on specific projects of ecological restoration. Methodologically, the point value is always related to an area of about 1 m². The conversion to financial value is given by Equation (2)

(L10.1) 56 points × 0.592 (average national costs) × 7.63 km² restored area = € 252,859,000

b) Result

The point evaluation of the particular types of natural forest habitats in the Czech Republic (Figure 2) ranges from the lowest value of 33 points for an L2.2B habitat up to the highest value of 72 points for an L6.2 habitat (Table 1). The habitats of the L2.2B national code represent types of a bottomland forest degraded by influences of eutrophication caused by nitrogenous nutrient runoff from agricultural lands into forest habitats. This manifests itself in the point evaluation of the habitats in the low values of “Matureness” and “Naturalness”. This habitat is quite vast in the Czech Republic as a vegetative accompaniment of medium watercourses and in watercourses of streams, so the value of the “Rareness of habitat” is also low in the point evaluation (Table 6). On the contrary, the L6.2 habitat scored

the highest in all eight characteristics of the point evaluation (Table 6) because it is regarded as a rare habitat type in the climatically warmest regions of the Czech Republic in the Pannonian biogeographic province (high value of “Rareness of habitat”).

After mapping and cataloging the habitats, the research team managed to compile monetary data for all the habitats in the country using equation 2, which clearly shows the functioning of the cost of forest and plant habitat restoration in the respective areas by their size.

	Lloji i habitatit	Zona totale e hartëzuar (në Km ²)	Zona e ruajtjes së veçantë e restauruar (në Km ²)	Vlera monetare e habitatit (në mijëra Eur)
L10.1	Pyje të thuprës	14.48	7.63	252,859
L2.2.b	Pyje të degraduara aluvione	271.7	24.47	477,642
L2.4	Pyje me plepa dhe shëlgje	26.43	9.14	351,457
L6.2	Pyll me lis panonian	16.54	13.94	593,643
L8.2	Pyje pishe	3.84	1.61	58,211
L9.1	Pyje bredhi	438.81	344.16	7,329,289

Table 7. Monetary valuation by area size of habitat in the Czech Republic

The application of this methodology is very important for the monetary valuation of biodiversity in forest and nature protected areas. It is important to point out that the application of this methodology requires:

- i) A catalog of national habitats
- ii) The national value of costs per 1 m² that can be identified by projects funded in the framework of Natura 2000 by the National Agency of Protected Areas;
- iii) An inventory of Albania's forest areas – this inventory is about to complete in our country.



3. ON A PROPOSAL FOR A NEW METHODOLOGY IN ALBANIA

The methodological approaches presented in the previous chapter, based on case studies on monetary assessment of environmental damages in forests in Italy and the Czech Republic, can be taken into account to develop a methodological approach for estimating the costs of environmental crime in Albania. Given the analysis made in the preceding chapters, we suggest the use of two (2) valuation procedures depend-

ing on the severity of damage and the accuracy of the required evaluation:

- Firstly, a **rapid evaluation procedure** where the valuation is based on two information layers: the area of the damaged forest (with a weighing factor related to the status (category) and the level of damage to the forest, vegetation above ground).
- Secondly, an **analytical evaluation procedure** based on assessing individual functions along with some common predefined guidelines.

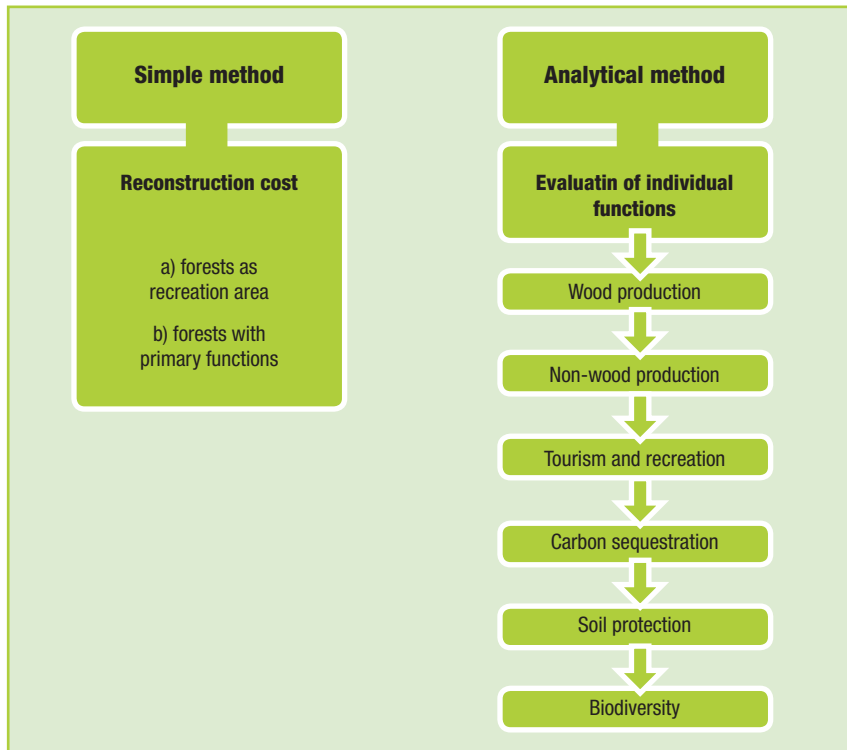


Figure 1. Methods of proposed monetary valuations

3.1 Simple Valuation Method

The simple valuation method will be a conventional approach for an analytical estimation of the environmental damage can be made by determining the cost of reconstruction or restoration. The evaluation criterion is based on the assumption that an asset is worth at least what it cost originally. Thus, the reconstruction cost criterion could lead to underestimations of the value of the damaged asset. Indeed, it is quite logical to hypothesize that if the value of the asset were only linked to its cost and not to the total of benefits (that should exceed the costs), no rational operator would even accept the responsibility for managing the asset.

The approach is relatively simple. The procedure is based on the following formula:

$$ED = RC * FDA * LD$$

where:

ED = environmental damage (€); RC = reconstruction cost (€/ha); FDA = forest affected area (ha); LD = level of damage caused by illegal logging.

The level of damage (DL), expressed by a coefficient between 0 and 1, is a variable that has a high impact on the final outcome of the estimate. We wish to emphasize that the damage level does not correspond to individual tree mortality, a parameter that varies highly in relation to different, specific conditions (tree species, season, vegetative state).

The problem in applying the formula is related to the use of a correct reconstruction cost (CR). There are two considerations in this regard: the first refers to the main function of the damaged forest, the second to the forest's age.

Regarding the main function of the damaged forest, it is useful to distinguish between two macro-types, characterized by two different sets of reconstruction costs:

- for forests used primarily for recreation the most logical reconstruction cost refers to ornamental trees; the reference costs thus refer to operations in urban park type areas;
- other forests the reference is to conventional forest plantation techniques, based on the use of planting stock, with bare roots or in containers from forestry nurseries.

For areas of considerable nature conservation value restoration methods and hence costs can be derived from a combination of these two approaches.

In these areas, in fact, it may be necessary to replant both big trees in some areas and seedlings in others. Other complementary actions such as planting shrubs and small-scale engineering interventions (seeding, drainage works, fencing, etc.) could be also considered.

As to the age of the forest, we must point out that the estimate cannot ignore the difference, for example, between a 10-year-old stand damaged by fire as opposed to a 90-year-old forest. Although the reconstruction costs many

be similar, it is obvious that the environmental damage is much greater in the latter case. In other words, we must assess not only the reconstruction cost per se, but also the “cost” related to the period until the forest reaches an age that allows it to fulfil functions similar to those of the forest before the fire. For this reason, the per-hectare cost of reconstruction must be estimated as follows:

$$RC = PC * (1 + r)^n$$

Where:

RC = reconstruction cost (€/ha); PC = planting cost (€/ha); r = discount rate; n = number of years needed for recuperation.

In light of these considerations the proposed procedure, with the two methods of

estimating planting costs, can be summarized as follows:

$$ED = PC * (1 + r)^n * FDA * LD$$

We must emphasize that this procedure often gives rise to underestimates. In fact, the reconstruction cost criterion does not explicitly take into consideration the benefits (with special reference to the non-commercial products and services) that can motivate any given forest owner to manage a forest.

In the EU Mediterranean area, standard planting costs (PC) for recreational forests cover a very broad range, roughly from 2,000 to 50,000 €/ha. In the other cases, we can refer to the standard costs for reforestation programs

financed under Rural Development Plans (3–5,000 €/ha).

The number of years (n) can be estimated by referring to the age of the damaged forest and the type of planting material used. In most cases, the discount rate (r) can be assumed to be between 2% and 5%, with higher values for r in cases of more productive forests on fertile soil which can yield greater financial profits.

3.2 Analytical Assessment Method

The analytical approach based on the single economic evaluation of differently forest's functions is the most articulated and complex. The proposed method is based on seven functions (Figure 3) estimated with different criteria:

- wood production;
- production of non-wood products;
- tourism-recreation;
- hunting;
- soil protection;
- protection against climate change (CO₂ sequestration);
- biodiversity conservation.

The total value of the environmental damage is the sum of the seven functions.

Identification of the seven components of the damage does not mean that they are all and always involved in the assessments of the various operating conditions. On the contrary, it is highly unlikely that it is necessary to assess all seven components when estimating the economic damage in a specific site. It

is, indeed, unlikely that a fire will cause both significant damage to recreational areas and impact biodiversity protec-

tion at the same time. In addition, the hunting function is not relevant in Albania during this period.

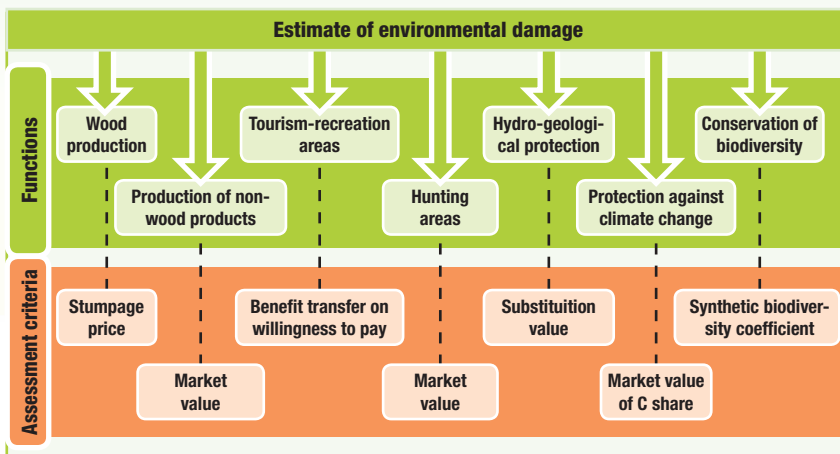


Figure 2. Functions and criteria for the analytical estimate of forest fire damage

3.2.1 Productive Function: Wood Products

The loss of forest biomass and wood-producing capacity is assessed in terms of the market value of the destroyed wood volume. This value is obtained from an estimate of the stumpage value obtained by subtracting the costs of felling and logging from the roundwood market price (i.e. on the forest road price).

In the case of forests that have not reached the maturity age, the commercial value of the destroyed wood does not correctly represent the true roundwood value. For this reason, the stumpage value must be evaluated assuming the roundwood market price at matu-

rity discounted by the number of years equal to the difference between the (usual) rotation age and the mean age of the destroyed trees.

Thus, the estimate is made on the basis of the following formula:

$$ED_{te} = FDA * Vol *$$

Where:

ED_{te} = environmental damage due to wood-producing loss (€); FDA = forest area damaged by the fire (hectares); Vol = volume of wood lost following the fire (m^3/ha); $Pimp$ = mean roundwood price at roadside (€/m³); C_{te} = felling and logging costs (€/m³); r = discount rate; m = years needed to reach mean rotation age.

3.2.2 Productive Function: Non-Wood Forest Products

With regard to the assessment of the economic damage deriving from the reduced availability of non-wood forest products (mushrooms, truffles, aromatic and medicinal herbs, etc.) we proceed with the estimate by referring to the loss of income from the sale of the goods, based on the area damaged by illegal logging. Since the effects of forest damages are extended over time, the damage must be estimated as the initial accumulation of the yearly damages on the basis of the following formula:

$$ED = FDA_{NWFP} * R_{NWFP}$$

Where:

ED_{NWFP} = environmental damage from the loss of non-wood forest products (€); FDA_{NWFP} = damaged forest area that produces non-wood products damaged by illegal logging (ha); R_{NWFP} = mean annual income from non-wood forest products (€/ha); r = discount rate; p = years of lost harvests of non-wood products following the damage.

3.2.3 Tourism-Recreational Function

The tourism-recreational function is estimated with a procedure that refers to the number of visits which, following forest damage, are no longer made. In particular, two variables are estimated for assessment purposes: the total number of visits per area unit and the mean value of each visit.

The reference to area for tourism-rec-

reational purposes is done, however, in implicit form by taking into consideration that the subject of the assessment is the forest area subject to significant use by visitors during all or part of the year. The reference area must be the one used for informal recreation (camping, walks, picnics, etc.), sports (hiking, mountain biking, orienteering, cross-country skiing, etc.) or nature-oriented activities (bird watching, environmental education, etc.).

In this case, too, since the illegal logging effects extend over time, the damage will be estimated as an initial accumulation of a few years' loss of the function. The following formula is proposed for this purpose:

$$ED_{rec} = V_{rec} * N_{rec}$$

Where:

ED_{rec} = environmental damage from loss of tourism-recreational activities (€); V_{rec} = mean value of one visit (€);³⁶ N_{rec} = mean number of visitors per year; r = discount rate; g = years of lost tourism-recreational activities following the fire.

3.2.4 Hunting

In Albania, the Law on Moratorium on Hunting does not allow this function. However, for the purpose of this study we will present the valuation method

³⁶ The average value of willingness to pay will be based on analysis, surveys, or state statistics produced by the National Tourism Agency, NAPA, Ministry of Tourism, and Albanian Institute of Statistics. The Environmental Valuation Reference Inventory (EVRI) of the European Unions could also be a reference. Its ratio of €4 - €10 should be taken into account.

so that when the moratorium law is amended or repealed, the relevant bodies will have an instrument to value damages to fauna under their jurisdiction. In order to estimate the damage related to the decreased potential for hunting we use criteria similar to those given for non-wood products. We evaluate willingness to pay for hunting with reference to the area originally used for this activity. In this case too, as for non-wood products, the environmental damage extends over time and this must be taken into account through an initial accumulation of yearly income loss following the fire. Thus, the proposed formula is:

$$ED_{hun} = FDA_{hun} * R_{hun} *$$

Where:

ED_{hun} = environmental damage from decreased hunting (€); FDA_{hun} = damaged forest area used for hunting (ha); R_{hun} = mean annual income from hunting (€/ha); r = discount rate; v = years of lost hunting activity following the fire.

3.2.5 Soil Protection Function

2.2.5. Soil protection function

In order to estimate the value of the forest's protective function, we suggest an approach based on the criterion of replacement costs, using the lump sum costs for revegetation (i.e. grassland regeneration) of the area damaged by illegal logging. In particular, revegetation costs comprise two components: the *una tantum* costs of the operation and the costs of area maintenance which

we suppose must be done annually for a number of years in order to recover the previous protective capacities of the area that has been damaged.

Hence, the following formula can be used:

$$ED_{prot} = FDA_{prot} * [C_{rev} * r + C_{ann} * i]$$

Where:

ED_{prot} = environmental damage from the decreased water cycle regulation and soil protection (€); FDA_{prot} = damaged forest area with protective functions damaged by illegal logging (ha); C_{rev} = cost of revegetation (€/ha); C_{ann} = annual maintenance costs of the revegetation area (€/ha); r = discount rate; i = years needed to maintain the area.

Note: the average cost for revegetation varies by location, position, and how revegetation works are carried out. This cost ranges from € 3,000 to € 12,000/ha.³⁷

3.2.6 Carbon Dioxide Sequestration Function

Carbon dioxide emissions following the combustion of wood biomass and organic matter, with a consequent increase in the concentrations of greenhouse gases in the atmosphere involve a cost that can be estimated by referring to market prices of carbon credit (see carbon credit prices in a voluntary market like as the Chicago Climate Exchange –

CCX - € 10/ton). The proposed calculation procedure is based on the use of the data relative to the area damaged by illegal logging, the destroyed stock, the price of a ton of carbon and a series of data adjustment coefficients according what is summarized in the formula:

$$ED_c = FDA * Vol_d * BEF * 0.5 * P_c$$

Where:

ED_c = environmental damage from carbon emitted into the atmosphere (€); FDA = forest area damaged by illegal logging (ha); Vol_d = volume of the above-ground woody biomass damaged by illegal logging (m³/ha); BEF = Biomass Expansion Factor (coefficient of transformation by volume of the above-ground woody biomass, expressed in m³, into total biomass, expressed in t of dry matter); P_c = price of one ton of carbon (€/t).

3.2.7 Biodiversity Protection Function

Of all the functions under consideration the biodiversity conservation role of forests (ED_{bio}), that is the value attributed to the biodiversity of its components, is the most difficult to assess. As for the valuation of recreational function, this value could be estimated by using the benefit transfer approach, that is by making reference to the results of estimates of willingness to pay for biodiversity conservation activities done with methodological approaches like the Contingent Valuation methods or the Travel Costs methods.

These results can be used as reference values to be applied in the illegal logging damage evaluation once weighted to make reference to the specific socio-economic and environmental aspects of the damaged area.

We cannot made present some reference data of the value of biodiversity loss for Albania, because, as we mentioned in the previous chapter when we analyzed the Czech Republic case, we need a catalog with national level data on flora and fauna.

Anyway, the suggested formula would be the following one:

$$ED_{bio} = V_{bio} * FDA * LD *]$$

Where:

ED_{bio} = environmental damage (€); V_{bio} = value of biodiversity loss (€/ha/year); FDA = forest area damaged by illegal logging (ha); LD = damage level of the illegal logging; r = discount rate; n = number of years lost in biodiversity conservation (with the case of $n \rightarrow \infty$ that, in extreme cases, could also be assumed).

3.2.8 Total Value of Environmental Damage

After analyzing the seven functions, the total value of environmental damage (TVED) will be the sum of all seven functions taken together that could be expressed by means of the following formula: $* R_{NWFP}$

$$\begin{aligned}
 TVED = & [(FDA * Vol * \frac{(P_{imp-Cte})}{(1+r)^m}) + (FDA_{NWFP} * P_{NWFP} * \frac{(1+r)^{p-1}}{r*(1+r)^p}) + (V_{rec} \\
 & * N_{rec} * \frac{(1+r)^{g-1}}{r*(1+r)^g}) + (FDA_{hun} * P_{hun} * \frac{(1+r)^{v-1}}{r*(1+r)^v}) + (FDA_{prot} * [C_{rev} * r + C_{ann} * \\
 & \frac{(1+r)^{i-1}}{r*(1+r)^i}]) + (FDA * Vol * BEF * 0.5 * P_C0 + (V_{bio} * FDA * LD * \frac{(1+r)^{n-1}}{r*(1+r)^n}))]
 \end{aligned}$$





4. APPLICATION OF ASSET VALUATION METHODOLOGY OF FOREST ILLEGAL LOGGING

In this chapter, the working group will present a case study of asset damage valuation in the “Mali me Gropa Biza-Martanesh” Protected Area by analyzing the standard procedure established in the Council of Ministers’ Decision No. 1064, dated 22.12.2020.

4.1 Case Study: Logging in “Mali me Gropa-Biza-Martanesh” Protected Area

While this study seeks to adopt a more efficient methodology of estimating the property values of environmental damage due to illegal logging, the team of experts has analyzed a real case in the Environmental protected Area

of “Mali me gropa-Biza-Martanesh”. The team verified the Parcel No. 58 of the “Kostenj” forest farm, part of the central zoning of the “Biza-Martanesh Mountain” Protected Area located in a place called “Kaptina e Martanesh” (Head of Martanesh).

Case study: Mali me Gropa Biza-Martanesh

Protected area	Gropa Biza-Martanesh Mountain
Damaged parcel	Forest Farm No. 58 in Kostenj
Date of event	18.07.2019
Wood	Ah (F. Sylvatica)
Quantity (diameter 20.1-30) cm	14 trees
Quantity (diameter 30.1-40) cm	22 trees
Coppice	None
Damage caused	736,677 ALL

Table 8. Case study of Mali me Gropa Biza-Martanesh



Figure 3. Onsite visit of the working group. Photo by O. Nika.

The working group made a visit to the forest site on 9 November 2019, approximately 4 months after the forest damage from illegal logging. The case of illegal logging was initially reported by the environmental guard responsible for the Mali me Gropa-Biza-Martanesh Protected Area during his patrol in the area. According to the procedure, in pursuance of the applicable laws³⁸, the environmental guard has identified the case of illegal logging of beech trees in parcel no. 58 of the Kostenj forest farm, part of the central zoning of the “Mali me Gropa-Biza-Martanesh” Protected Area located in “Kaptina e Martaneshit”. The guard has been able to catch the wrongdoer red-handed by identifying the quantity of logged trees.

- about 14 trees of 20,1-30 cm in diameter
- about 22 trees of 30,1-40 cm in diameter

In enforcement of the procedure and in pursuance of the applicable laws,³⁹ the State Inspectorate of Environment, Forestry, Water, and Tourism has estimated the economic damage by taking into account: a) type of logged trees; b) diameter of logged trees; c) volume of logged timber; and, d) purpose of use of cut trees after logging.

38 Law No. 8906/2002, “On Protected Areas”; No. 9385/2005 “On Forestry and Forest Service”; Law No. 9693/2007 “On Pastureland”; Law No. 10253/2010 “On Hunting”; Law No. 10006/2008 “On Protection of Wild Fauna”; Law No. 9587/2008 “On Protection of Biodiversity”

39 Law No. 9385/2005 “On Forestry and Forest Service”; CMD No. 391/2006 “On Determination of Tariffs in the Sector of Forestry and Pastureland” and CMD No. 108/2009 “On Criteria of Qualification of Violations with Severe Consequences on the Forests”



Figure 4. Parcel No. 58 with damages identified in.

Photo by O. Nika

- type of logged trees (tlt) (a) = 14 pieces (20.1 -30 cm) x 15,000 All = 210,000
- diameter of logged trees (dlt) (b) = 22 trees (30.1-40 cm) x 20,000 = 440,000
- thin timber material (ttm) (up to 22 cm) $m^3 = 8.2 \times 1700 = 13,632$
- medium timber material (mtm) (over 22 cm) $m^3 = 22.8 \times 3200 = 70,692$
- value of firewood (vfw) $m^3 = 4.6 \times 500 = 2,348$

Thus, total value of environmental damage (TVED) = [(tlt (A) + (dlt (B) + ttm + mtm + vfw]



- ecological, like the habitat-forming capability of fell trees (shelter to biodiversity), carbon sequestration, self-regeneration capacity of wood
- operational: like the operational costs, beginning from on-the-site identification, drafting various damage assessment reports to litigation costs if the parties see the resolution of the case in a court of justice.

In this situation, we will strive to assess what the costs of asset damage in the case of Biza-Martanesh are if we were to use the simple valuation method expressed by the following formula:

$$ED = PC * (1 + r)^n * FDA * LD$$

Where:

ED = environmental damage (€); RC = reconstruction cost (€ 5,000 -10,000/ha); FDA = damaged forest area (ha); LD = level of damage caused by illegal logging according to rate 0 -1; r = discount rate 2-5%; n = number of years for recuperation.

$$ED = €10,000 * (1 + 0.05)^{20} * 0.055 \text{ ha}^{40*1}$$

In the best scenario, the asset damage is €15,000, while in the worst scenario, when the reconstruction cost is 5,000 €/ha, the asset damage is €7,500.

When compared with the current valuation in Albania, the difference is quite significant revealing an increase from 24% to 148% and higher.

$$TVED = 210,000 + 440,000 + 13,632 + 70,692 + 2,348 = 736,677 \text{ ALL}$$

4.2 Comparison – Simple Valuation Method

Similar to the cases of Italy and Czech Republic, Albania's valuation of damages from forest illegal logging seems to take into account very few elements, failing to consider a series of very important variables, such as:

⁴⁰ 1 ha = 650 average trees. In our case, there were 36 trees = $36 * 1/650 = 0.052 \text{ ha}$

5. CONCLUSIONS

The report presented the current state of property valuation of illegal logging considering a case study in Mali me Gropa - Biza-Martanesh Protected Area. This case study can serve as the start of a dialogue on the collection of accurate data and knowledge on environmental assessment related to environmental crime in Albania.

As we have seen from the cases presented in the European context (Italy and the Czech Republic), there is no common methodology accepted by all. Moreover, lack of accurate quantitative and qualitative data makes it difficult to develop an overall methodology for environmental crime, given the different nature of the offenses that constitute environmental crime.

In Albania, the improved legislation through the criminal code and other sectoral laws makes it necessary for the legal spirit to be reflected in the development of methodologies for the asset valuation of relevant offenses. The simplified comparison presented in the case studies resulted in a significant change in the context of property valuation with an increase varying from 24% to 148%.

The asset valuation analysis of environmental crime presents a number of methodological and data access difficulties. Methodologically, the assessment of illegal logging in a protected area should take into account the typology of the protected area, the considered species and types that vary from area

to area. Due to the lack of qualitative data in our country, the research team did not examine a comparison of specific forest functions such as: non-timber products, soil protection, carbon sequestration or the cost of biodiversity and tourism-recreation.

However, our findings can help open up a wider debate and conduct more in-depth studies on the cost, effectiveness, and economic impact of illegal logging and environmental crime in general in order to ensure more successful prevention.

It is important to highlight the need for additional comprehensive studies in collecting qualitative data from institutions and in establishing a reference system for the future.



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ANNEX A:

Tariffs of Compensation of Damages Caused to Timber

According to the Council of Ministers'

Decision No. 391, dated 21.6.2006, "On Determination of Tariffs in the Sector of Forestry and Pastureland", as amended by CMD No. 1064, dated 22.12.2010 "On Remuneration of Damages Caused to Forests", the tariffs specified in Annex 8 are applied.

Nr.	Description of Damage	Measuring Unit	Value (ALL)
1.	Cutting of saplings, sprouts, and trees of a diameter:		
	- up to 2 cm	pcs	250
	- from 2.1-4 cm	pcs	500
	- from 4.1-6 cm	pcs	2,700
	- from 6.1-8 cm	pcs	3,100
	- from 8.1-10 cm	pcs	5,100
	- from 10.1-20 cm	pcs	8,000
	- from 20.1-30 cm	pcs	15,000
	- from 30.1-40 cm	pcs	20,000
	- from 40.1-60 cm	pcs	24,000
	- over 60 cm	pcs	34,000
2.	Massive logging of saplings, sprouts, and trees:		
	- in young forests (up to 10 cm in diameter)	ha	400,000
	- in mature forests (over 10 cm in diameter)	ha	650,000
	- in shrubs	ha	125,000
Note: Massive logging means felling of over 50% of trees in a given area			
3.	Damage of any form to saplings, shoots and trees in diameter:		
	- up to 2 cm	pcs	320
	- from 2.1-4 cm	pcs	540
	- from 4.1-6 cm	pcs	760
	- from 6.1-8 cm	pcs	950
	- from 8.1-10 cm	pcs	1,250
	- from 10.1-20 cm	pcs	1,600
	- from 20.1-30 cm	pcs	2,200
	- from 30.1-40 cm	pcs	2,700
	- from 40.1-60 cm	pcs	3,200
	- over 60 cm	pcs	5,400

4.	Damage at a rate of over 50% of the area in any form in new forests, new afforestation, and nursery plots:		
	- new forests, new afforestation, and nursery plots	ha	320,000
	- in mature forests (over 10 cm in diameter)	ha	630,000
	- in shrubs	ha	108,000
5.	Damage from forest fire:		
a)	When assessing timber:		
	- in trunks	ha	250,000
	- in coppice	ha	80,000
	- in shrubs	ha	50,000
	- in afforestation and nursery plots	ha	200,000
b)	When timber is damaged completely:		
	- in trunks	ha	1,500,000
	- in coppice	ha	700,000
	- in shrubs	ha	400,000
	- in afforestation and nursery plots	ha	1,200,000
6.	Deforestation of forest fund or forest without appropriate approval, without land use:		
	- in trunks	ha	7,000,000
	- in coppice	ha	4,000,000
	- in shrubs	ha	2,000,000
	- in other parts of the forest fund	ha	1,500,000
7.	Unauthorized occupation or use of forests without damaging them	ha	2,500,000
8.	Misappropriation and unauthorized sale of:		
	- timber material for work	m ³	60,000
	- firewood	mst	30,000
	- a horse load of firewood	load	9,000
	- a donkey load of firewood	load	6,000
	- a man load of firewood	load	3,500
	- different stakes up to 4 cm diameter	pcs	1,400
	- banners, tool handles, stakes, forks, poles and others like these of a diameter of 4.1-12 cm	pcs	4,000
9.	Production, misappropriation and unauthorized sale of:		
a.	Fruits and seeds:		
	- fresh	kg	2,300
	- dried	kg	4,500
b.	Pine resin and tar:	kg	1,200
c.	Laurel leaves:		
	- fresh	kg	2,300
	- dried	kg	4,500

d.	Medicinal and taniferous plants:		
	- fresh	kg	5,400
	- dried	kg	10,000
e.	Roots and stubbles of heather, strawberry-tree, boxwood and the like	kg	10,000
f.	Sticks of willows and other species of this type:		
	- fresh	kg	1,100
	- dried	kg	2,000
	- defoliated	kg	3,000
g.	Charcoal, hot coal, and other materials like these	pcs	30,000
h.	Wooden barrel, firkin, trough, washtub and the like, regardless of size	pcs	15,000
i.	Basket, crate and the likes made of sticks of willow and other tree branches, regardless of size	pcs	10,000
10.	Illegal construction of lime kilns, charcoal bins, hot coals, tar and the like, regardless of size	pcs	8,000
11.	Damage or destruction of breeding facilities, geodetic and topographic and other objects of this kind in the forest fund	pcs	5,400
12.	Damage or destruction of buildings or shelters for hunting and the like, regardless of their location	pcs	10,800
13.	Damage or destruction of observation/watch sites and towers built to protect flora and fauna from diseases, insects and fires	pcs	8,000
14.	Damage to fencing in the forest fund or other places like these	ml	5,400
15.	Conducting excavations or other works in the forest fund for the extraction of stones, sand, gravel, soil, humus, grass, and the like	m ²	7,000
16.	Illegal opening of holes and failure to cover them	m ³	4,500
17.	Uprooting coppices without permission	pcs	27,000
18.	Unauthorized opening of quarry and barriers in the forest fund	m ²	45,000
19.	Opening of roads, lines of telephone, telegraphs, and television, gas pipelines, oil pipelines, canals, high voltage networks, water supply and more of this nature in the forest fund without appropriate approval	m ³	49,500
20.	Illegal grazing in the forest fund:		
	- for cattle (cows)	head	2,700
	- for sheep	head	1,350
	- for goats	head	1,800
	- for pigs	head	2,200
	- for poultry	head	450
	- for horses	head	2,200
21.	Unauthorized mowing and gathering of grass, leaves, brushwood, twigs, and the like in the forest stock	quintal	3,500
22.	Unauthorized placing of haystacks of any type and size in the forest fund and outside approved sites	pcs	2,700



PROPERTY VALUATION OF ENVIRONMENTAL CRIMES IN ALBANIA

CASE STUDY:

Illegal Logging in the Mali me Gropa
Biza-Martanesh Protected Area

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