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TREES

PROTECTING FROM ILLEGAL WOOD

**Timber Regulation Enforcement to protect European wood Sector from criminal infiltration**

# FORESTRY CRIMES TOOLS FOR LAW ENFORCEMENT

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TREES Project (Timber Regulation Enforcement to protect European Wood Sector from criminal infiltration – HOME/2013/ISEC/AG/FINEC/4000005240) is a transnational project aiming at enforcing the EU Timber Regulation (N. 995/2010) implementation as instrument to fight corruption as facilitator of organised crimes activities. It is a research project funded by the Internal Affairs DG of the European Commission as part of the ISEC Program (Prevention of and Fight against Crime). The project is developed by Conlegno (EU Monitoring Organization for EU Timber Regulation), PEFC Italy, RiSSC,- Research Centre on Security and Crime (IT), Risk Monitor (BG) and CNVP (NL), and supported by a range of partners including INTERPOL, PEFC International and several PEFC National members.

**For more information**
*www.trees-project.eu*



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# 1. INTRODUCTION

## 1.1. The TREES Project

Since 2014, TREES Project (Timber Regulation Enforcement to protect European wood Sector from criminal infiltration), co-funded by the European Commission DG Home, has been working to monitor the evolution of the phenomenon of corruption in the timber sector in Italy and in the Balkan Countries, and to evaluate the impact of the enforcement of the EUTR 995/2010 (European Union Timber Regulation) in risk assessment and risk mitigation strategies to combat this crime. The Project was implemented by a consortium of 5 partners (Conlegno, RiSSC, PEFC, CNVP, Risk Monitor), supported by 6 experts (University, Forestry Sector Consultants, Citizen Association, Ministry of Agriculture, UNECE, Environmental Association) and by 8 Associate Partners (INTERPOL ENS (Environmental Security) PEFC UK, PEFC Slovenia, PEFC Slovakia, PEFC Germany, PEFC Council, PEFC Norway, Bulgarian Investigators' Chamber).

Specific objectives achieved by the TREES Project are: 1) to check the vulnerability of the EU timber market to corruption; 2) to exploit the anti-corruption potential of the EUTR, analysing the weak points of the DDS; 3) to reduce the timber market vulnerabilities to corruption by means of new tools/experience/best practices; 4) to strengthen the capacity of private companies, business intermediary organisations, and LEAs to identify and mitigate the risk of corruption in EU timber market; 5) to promote and disseminate at EU level the best practices on the prevention of corruption in Timber sector; 6) to share knowledge among relevant EU stakeholders.

## 1.2. Corruption in the timber sector

Corruption can be defined as "the abuse of entrusted power for private gain" (Transparency International, World Bank). This abuse of power can take many forms, including fraud, forgery, turning a blind eye to crimes, extortion, coercion, making decisions that favour friends or relatives, nepotism, trading in influence, embezzlement and laundering of the proceeds of crime, and bribery. Corruption is widespread in almost all countries and economic sectors, forestry included.

Corruption may take place at a high level of government or business and involve the distortion of political, economic and legal systems by individuals in power to benefit themselves or their friends or family ("grand" corruption), or may occur in day-to-day abuses of power by low- and mid-level officials or employees in their interactions with each other and members of the public, as they illegally exchange favours for money or gifts ("petty" corruption).

Corruption is a predicate offence, opening the doors to other crimes, including forestry crimes. The strong correlation between illegal logging and corruption has been studied for years, and evidences clarified that corruption and illegal logging are ''twin brothers''.

As recently defined in the EUTR, illegal logging can be considered as the harvesting of timber in contravention of the laws and regulations of the country of harvest. Another very recent definition of illegal logging defines it as: "all illegal practices related to the harvesting, processing and trading of timber".

Illegal logging is a problem with a significant economic, environmental, social impact, with global implications because: 1) it may lead to loss of revenue for the state, the discrepancies in the distribution of purchasing power of natural persons and other damages; 2) from an environmental perspective, is associated with deforestation, climate change and biodiversity loss; 3) from a social perspective, illegal logging is often linked to conflicts regarding land and resources, to local and indigenous communities power loss, and also to armed conflicts; 4) it also undermines the efforts of operators responsible for illegal activities, as they provide cheaper market wood and wood products but illegally obtained. Furthermore, illegal logging revenues might feed terrorist groups around the globe.

## 1.3. EU Timber Regulation 995/2010

To fight illegal logging and related activities, European Union Timber Regulation 995/2010

(*http://ec.europa.eu/environment/forests/timber_regulation.htm*) entered into force on 3rd of March 2013, as a new regulation on wood harvesting to combat the trade in illegally harvested timber and it refers to timber and timber products placed on the internal (EU) market for the first time and for commercial purposes. It brings the following three key provisions: 1) prohibition of placing of illegally harvested timber and timber products derived from such timber on the internal market; 2) obligation for EU economic operators (e.g. forest owners/companies, wood and paper processors and importers) when placing the timber products on the EU market to exercise the "Due Diligence", by assuring certain information on their timber supply (county of harvest, tree species, quantity, supplier, trader and compliance with applicable legislation), by performing risk assessment of risks on entering illegal timber into their supply chain and by undertaking measures for risk mitigation; 3) when for the second time on the market, the timber and timber products can be freely sold on and/or transformed, but the operators and traders shall assure traceability of the products by keeping the records (at least for five years) of their suppliers and customers.

The products subjected to regulation are a wide range of wood products, including massive wood products, flooring, plywood, pulp and paper. The regulation does not include recycled products or rattan, bamboo and printed paper products, such as books, magazines and newspapers.

The EUTR is based on "Due Diligence System" (DDS) procedure. There are three key components of the DDS: 1) Gathering of information; 2) Risk assessment; 3) Risk mitigation.

The EU Timber Regulation is not focused directly on fighting corruption in the timber market, but its Due Diligence System, that commits private operators to carry out a risk assessment and a risk mitigation procedure, can represent a valid tool to prevent and detect it, and an opportunity to ensure transparency and legality both formally (in the documents) and substantially (in the production process), for private sector and for LEAs.

An effective implementation of EUTR should impact on the level of illegal activities in the forestry sector and, as a consequence, the DDS can help in pointing out the corruption risk within the risk assessment, and can become relevant, as well as the whole EUTR, as a tool in preventing corruption.

On the other hand, limits in the existing DDS procedures can reduce the potential impact of EUTR to tackle corruption. For instance, the limited capacity to detect forged or falsified documents, the lack of operator's specialised training, the difficulties to detect and being aware of criminal routes and modi operandi. Finally, the lack of precise and standardised guidelines on risk assessment and risk mitigation procedures, leaves enough space for some "grey areas", that can be exploited by criminal organisations to get illegal gains from the timber sector, by minimising the risks of being punished.

The main limits to the DDS's capacity to address the phenomenon of corruption, remain the absence of incentives to perform more in-depth assessment, and the consequent increasing costs of DDS.

## 1.4. The focus on the Balkans

TREES Project selected the Balkans as operative area where implementing the pilot study, in particular Albania, Kosovo, FYROM and Bulgaria. The Balkans represent an important area for the European timber market, because these countries are big exporters of wood, mainly fuelwood. Major challenges for the Balkan´s forest sector include unregistered use of firewood (estimate up to 40%), illegal trading activities, and high level of corruption in the forestry sector and in the public sector in general.

Literature reports the following description as common behaviours to all the Balkan countries: 1) volumes of illegal logging are increasing or at best stagnating in most of the countries; 2) many imports from South-Eastern Europe lack complete information (e.g. species, quantity), reducing capacity of EU traders to carry out risk assessment; 3) high percentage of unregistered consumption of firewood on the Balkans while demand of wood for energy and industrial use from EU countries is growing

4) although firewood is one of the main target usage areas behind illegal logging, it does not normally represent the biggest volume; 4) lack of reliable figures for both legally and illegally logged wood; 5) main drivers behind illegal logging are the socioeconomic conditions, especially in rural, forested regions; 6) clear incentive to purchase illegally logged wood since it is significantly cheaper and the quality is the same or better; 8) historically, South-Eastern Europe serves as a corridor for several drug trafficking routes to Western and Central Europe.

## 1.5. Aim of the document

This document is a dissemination and communication product specifically made for LEAs, and it is composed of materials collected during a two day Joint International Meeting on forestry crime that took place at the INTERPOL General Secretariat headquarters in Lyon (France) on 22 and 23 June 2016, organised by TREES Project partners, together with the INTERPOL Environmental Security Programme, in particular by INTERPOL's Project LEAF (Law Enforcement Assistance for Forests). The meeting brought together a total of 74 participants from varied backgrounds, including prosecutors, investigators, customs and forest police officers and traceability/supply chain experts, in addition to EUTR Monitoring Organizations and Competent Authorities from 15 EU Member States (Fig. 1).

Representatives from the European Commission, INTERPOL, CITES along with participants from a range of relevant NGOs and law enforcement representatives from several key source and transit countries also attended. An entire session of the meeting has been dedicated to the description of new technologies developed to monitor timber illegal logging and activities in the forestry sector. The meeting was also an opportunity to exchange and share information about recent activities against illegal logging and corruption in the timber sector and to discuss them with the INTERPOL Forestry Crime sub Working Group, organized during the meeting itself.

Most of the participants have expressed their appreciation to the event and the interest to participate in regular meetings on forestry crimes (participants' survey). RiSSC wishes

*Fig. 1 - The participants of the International Meeting on forestry crimes*

to express its gratitude to INTERPOL Environmental Unit and to the other subjects for the excellent and fruitful cooperation that have contributed to the success of the meeting.

The document is structured as follows: after an introduction (§ 1) describing the background on the relationship between corruption and illegal logging (with a focus on the Balkans area) and about how EUTR and DDS can fight the trade in illegally harvested timber; § 2 presents the main results achieved by the TREES Project and by INTERPOL's Project LEAF.

Chapter 3 contains a compendium of material related to tools/applications/documents/technologies useful to prevent and/or fight illegal activities and corruption in the forestry sector, while the final part provides some conclusions (§ 4) and a list of the online reports, documents and websites cited in the text (§ 5).

# 2. TREES AND LEAF PROJECTS' MAIN RESULTS

## 2.1. TREES Project

EUTR enforcement is too recent to draw strong, quantifiable conclusions regarding the impact of EUTR and its DDS on reducing illegal logging and especially on corruption; nevertheless, the TREES project has revealed that the EUTR has the potential to achieve its objectives, but consistent efforts are needed from both the Member States and the private sector to reach these goals. There are no specific characteristics of the timber market – if compared with other economic sectors – that make it easier to detect the risk of corruption. On the contrary, the licit nature of the products, the long supply chains, and the formal compliance of the documents makes corruption in the timber market particularly insidious. In particular, the TREES project has found that:

- high value timber is an "hot product" for criminal groups, highly exposed to corruption for the high gains and low risks of punishment, connected with its illegal trade;
- timber in not an illegal product per se, so proving illegal origin (when present) and eventual phenomena of corruption is very difficult. In particular, when corruption occurs at an early stage of the supply chain (e.g. concession), this produces authentic documents that legitimate the whole supply chain;
- coverage of illegality is far from being comprehensive and the scale of illegal logging is very difficult to assess: it must rely mainly on estimates that are different in quality and comparability. This is true also for corruption, as the collection of empirical and quantitative data about corruption in forestry is very hard to be achieved;
- illegal timber market follows the same routes and trafficking modalities of the legal timber; moreover, timber is generally imported as a finished product, making harder to trace the origin;
- illegal timber from Asia is introduced through Asian harbours and moved to Europe after several stops; China is the biggest world hub about timber and should provide more cooperation with non-EU Countries in Europe;
- "strong relationships" in timber trade underline the existence of "entry points" between non-EU and EU countries, and suggest that illegal timber routes follow a risk mitigation strategy by criminals, which move illegal products across Countries where the risks of being detected or convicted are lower. The risk of corruption in these "black corridors" is higher where one or more Countries (of origin, destination or transit) have high risk of corruption.

The main drivers of corruption in forestry sector are summarized in Fig. 2. Results about corruption show it is widespread in all countries and affects any economic sector, forestry included. It is perceived (and scored) as particularly high in many origin and transit countries, but it also exists also in destination countries, no one is immune to it. Corruption (Fig. 3) is a rational, victimless, secret and consensual crime that can happen at any stage of the supply chain, from the land planning to the sale of wood and wood products in the

*Fig. 2 - TREES Project results: main drivers of corruption*

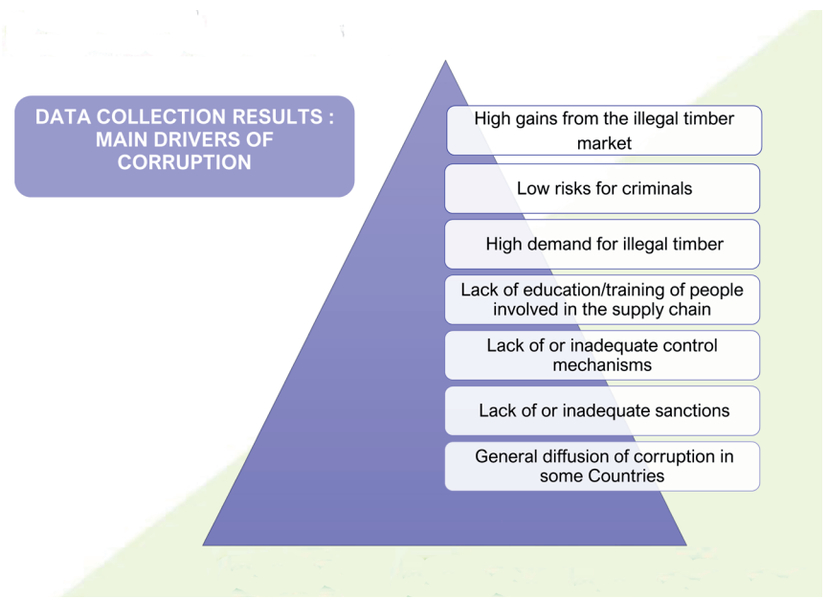


*Fig. 3 - Corruption features*


destination market.

Corruption is a "predicate offence": it opens the doors to organized crime, trafficking and money laundering. TREES studies on corruption show that the schemes are becoming more sophisticated, in particular in those countries that start adopting anti-corruption measures. This is true also in Europe for new entries MS and accessing countries, but also Italy is not immune from this phenomenon.

It is a very difficult crime to investigate, for collecting enough evidence to proof causal relations, and following the money is very hard (e.g. identifying beneficial owners of companies or tracking them in tax heavens). For this reason, the collection, share and analysis of reliable and real time information is so important, as well as transnational cooperation (many mutual agreements, conventions that need to be fully enforced).

In the destination countries, usually more developed countries, corruption is a crime often hidden behind a legal appearances and a shield of respectability. Corrupt practices usually are formally compliant with the national laws, this can undermine the capacity of paper-based assessment and analysis to detect eventual corruption behind the document.

In transit and origin countries, especially the less developed ones, corruption is more grass rooted and evident, thanks to the general cultural acceptance, and the guarantee of impunity for criminals. Corruption usually involves ethnic, familiar, also criminal networks, and often it goes along with violence, including kidnapping, murders, tortures, illegal imprisonment of activists, journalists, members of ethnic groups. Corruption is the tool and the driver that allows all of this happening. According to UNODC, corruption is the most important enabling factor behind illegal wildlife and timber trade.

All the Countries of the TREES Project (Italy, Albania, FYROM, Kosovo and Bulgaria) have a CPI 2015 score below 50 (Fig. 4).

In accordance with common risk assessment, if CPI is below 50 risk is not negligible and additional measures are required without further analysis; but perception-based indicators like CPI - while useful for raising awareness about corruption and helping to advocate policy measures for addressing it - fail to provide clear indications about such sectors like forestry. For instance, the CPI does not account for specific initiatives in the forestry sector (FLEGT, Certification Schemes) that can increase legality of timber, reducing the risk of corruption to a negligible level. Moreover, there are known li-

*Fig. 4 - CPI values with a focus on Italy and South-Eastern Europe*

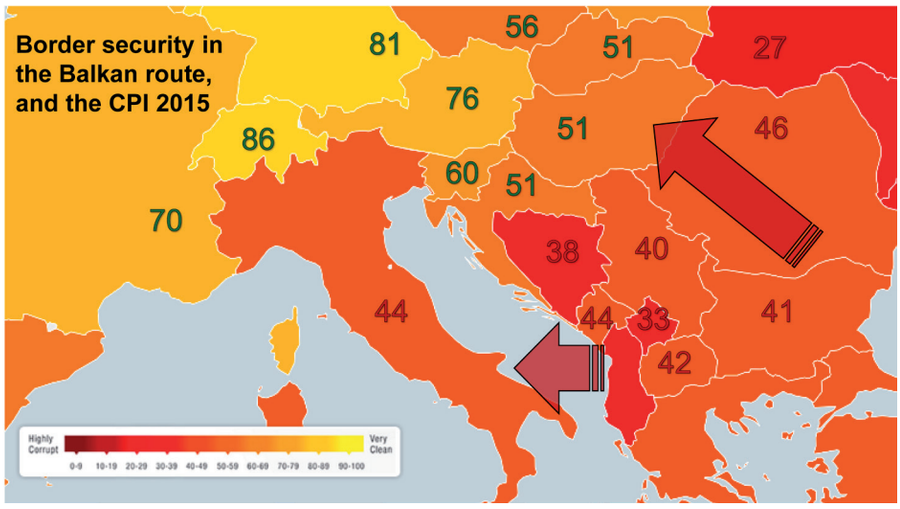
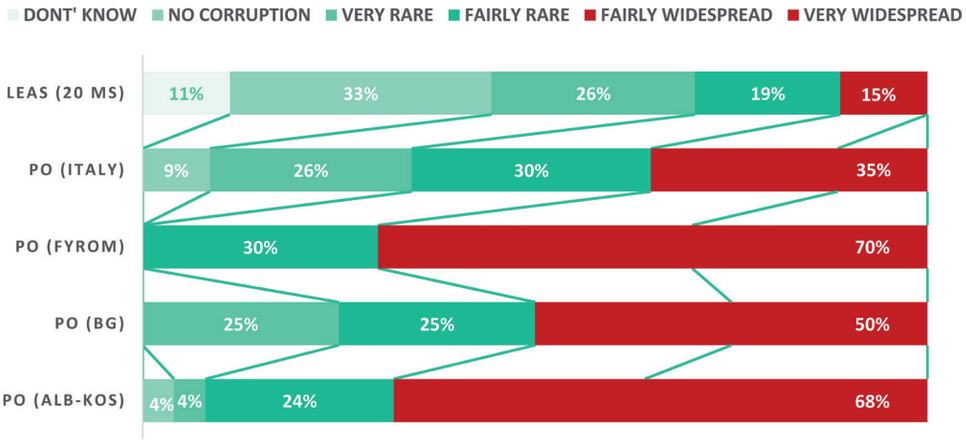


*Fig. 5 - Differences between LEAs and private operators about question "How widespread is corruption in the forestry sector"*



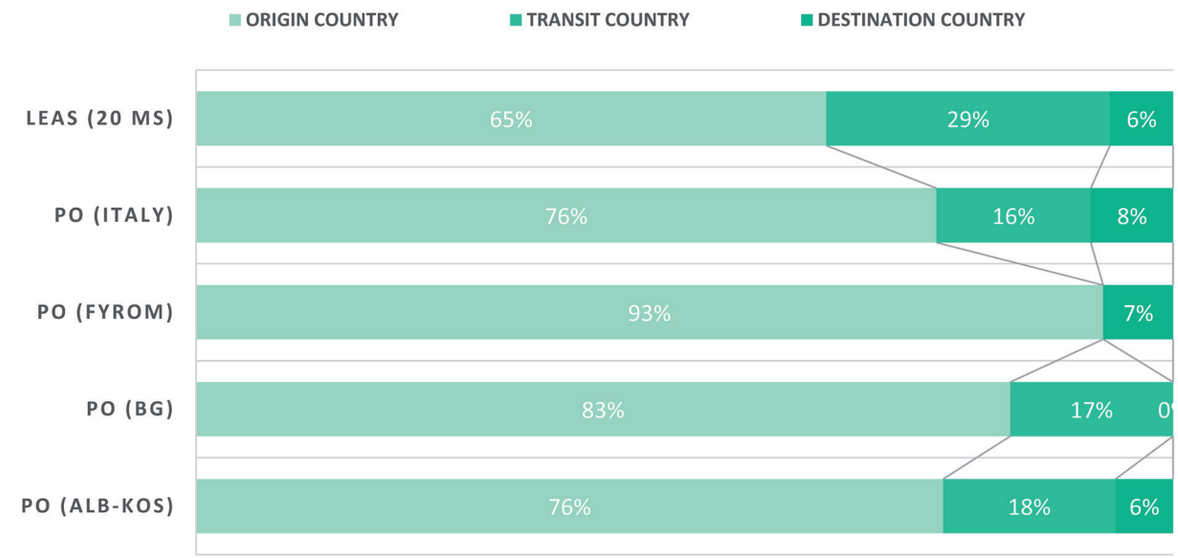

mits of CPI: subjective data, lagging effect, low granularity that does not distinguish between "petty" and "grand" corruption, threshold for risk assessment based on single number for the whole country (even for huge countries like Russia or Brazil). So far, there are no valid or sustainable alternative to the CPI for the DDS in the timber market. There are some ongoing projects for proxy indicators or measures of corruption and it will be interesting to see in the next future what will be available.

In order to investigate corruption and illegal activities in the forestry sector, TREES partners distributed a survey (§ 1.1) among private operators (PO) and law enforcement agencies (LEAs), to understand their perception and experience regarding corruption in forestry sector. Questions focused on corruption and criminal/illegal activities in forestry sector; experience in illegal activities and risks in the forestry sector supply chain; respondents knowledge about EUTR and Due Diligence System (DDS); opinions about impact/enforcement of the EUTR. The survey was anonymous, distributed online through the Google Forms platform and conducted from September 2015 to January 2016. The results of the survey will be available on the website of the TREES project, but three questions are described here below.

Fig. 5 shows the answers to the question "How widespread is corruption in the forestry sector?".

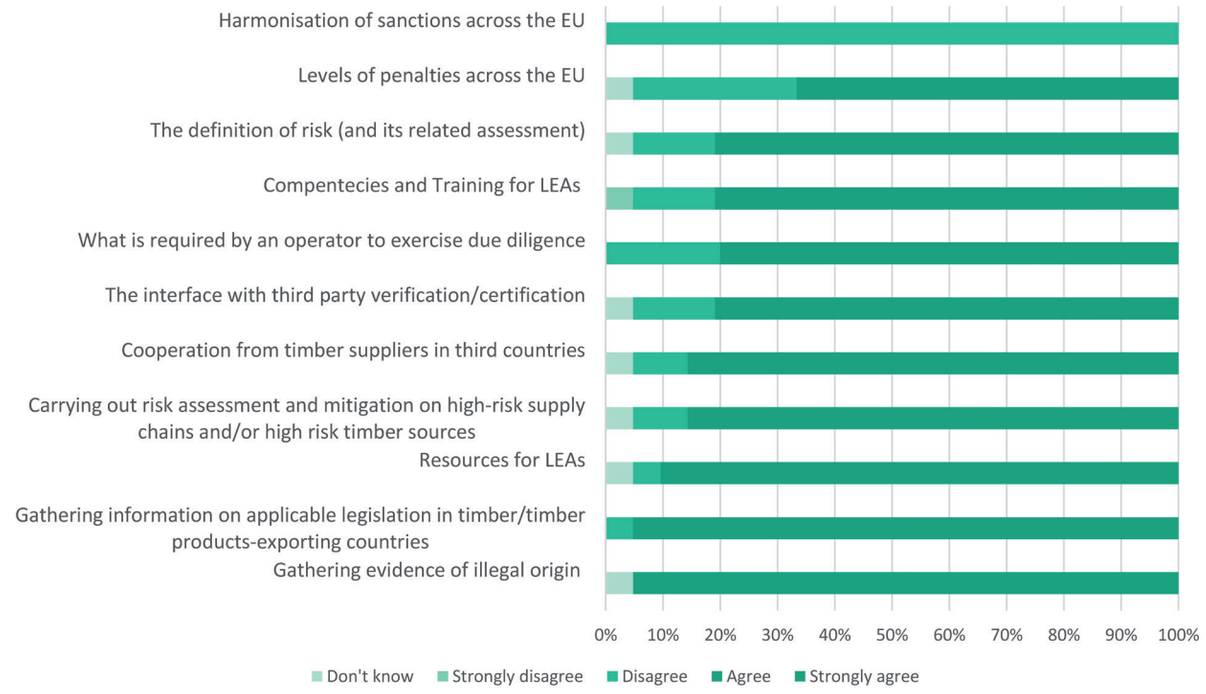
The perception between the LEAs (answer on the top) and the private operators from the

*Fig. 6 - Differences between LEAs and private operators about question ""Where does most corruption occur in the forestry sector?"*



five Countries of the TREES project is very different: almost 45% of LEAs think there is no corruption in the forestry sector, while private companies are fully aware of the phenomenon of corruption in the timber supply chain: in their opinion corruption is very widespread (>30% of the market) in the timber sector (68% in Albania-Kosovo, 70% in FYROM, 50% in Bulgaria, 35% in Italy).
About "Where does most corruption occur in the forestry sector?", private operators and LEAs agree on "origin country" (Fig. 6).
Fig. 7 shows the answers of LEAs to the question "What are the main challenges to enforce the EUTR?". The main issue is "Gathering evidence of illegal origin", followed by "Gathering information on applicable legislation in timber/timber products - exporting countries". In terms of enforcement, the "Level of penalties across the EU" is an issue, more relevant that the "Harmonisation of sanctions across the EU". It must be considered that criminal groups organise illegal market flows through Countries with lower sanctions and high corruption, to minimise the risks of conviction, or the costs of disruption of their traffics.

*Fig. 7 - LEAs' answers to the question "What are the main challenges to enforce the EUTR?"*




## 2.2. INTERPOL's Project LEAF

Project LEAF (Law Enforcement Assistance for Forests) is an INTERPOL/ United Nations Environment Programme (UNEP) consortium initiative against illegal logging and related crimes. It is led by INTERPOL with the financial support from the Norwegian Agency for Development Cooperation (Norad).
Project LEAF aims to: 1) raise global awareness of the impact of illegal logging; 2) develop law enforcement capacity; 3) enhance information and intelligence sharing; 4) form National Environmental Security Task Forces (NESTs) to ensure institutionalized cooperation between national agencies and international partners.
The activities of the project are: 1) criminal intelligence analysis to identify criminals, their reach and their modus operandi; 2) training to strengthen the response of law enforcement agencies; 3) transnational law enforcement operations focused on investigating the criminal networks behind the global illicit timber trade; 4) dissemination of experts' recommendations and best practices for combating forestry crimes. Two main operations were coordinated by INTERPOL's Project Leaf: Operation Amazonas II (§ 2.2.1) and Operation Log (§ 2.2.2).

### 2.2.1. Operation Amazonas II

Operation Amazonas II is an initiative to investigate, arrest and prosecute the criminals and networks involved in the illegal timber trade in Central and South America which began in November 2014.

The objectives of the operation were to:

1) continue transnational investigations of past and current cases related to illegal logging and illegal timber trade using INTERPOL tools and services, notably notices and diffusions;
2) identify and dismantle international criminal networks involved in illegal trade of timber;
3) identify and monitor the main illegal timber transport routes and its trading hubs with a view to inspect the truck's load, shipments and containers.

Meeting were held to prepare and support operation bringing ongoing operational and analytical support to member countries, before, during and after the operation, training them, funding analysts and investigators to meet regularly in order to share information about their investigations, using secure channels and to identify cross-border issues.

Operation Amazonas II was led by the Law Enforcement Agencies (INTERPOL National Central Bureaus, national police specialized in environmental crime, Customs, Prosecutors) and environmental and governmental Agencies from 12 Central and South America countries including: Argentina, Bolivia, Brazil, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Paraguay and Peru.

The operation has led to the seizure of more than 53.000 cubic metres of illegal timber – enough to fill 20 Olympic-sized swimming pools. In addition, 25.000 logs and 1.200 sacks of charcoal were also recovered, and more than 200 individuals were arrested. Types of timber with the highest risk for trafficking were pine, black rosewood, big-leaf mahogany, cedar and laurel – most of which are protected species.

In total, 131 timber species were identified by Operation Amazonas II countries (Fig. 8).

Five species protected by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) were identified by countries. Non protected timbers were also trafficked.

Common modus operandi identified during Operation Amazonas II include the use of forged documents to transport illegal timber across international borders, and the transport of illicit timber during certain times of day to avoid detection.

Links between the illicit timber trade and other serious crimes were also uncovered during the operation, especially: drug trafficking, corruption and document fraud.

The main trade routes identified saw the illegal timber destined for the US, Europe and Asia (Fig. 9).

*Fig. 8 - Operation Amazonas II: the ten timber species most often trafficked*

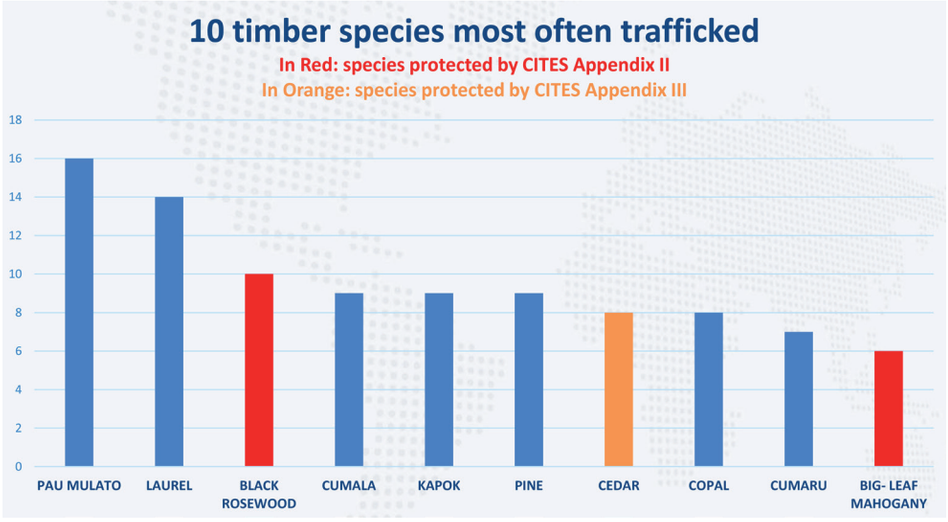


*Fig. 9 - Operation Amazonas II: timber trade routes*


### 2.2.1. Operation Log

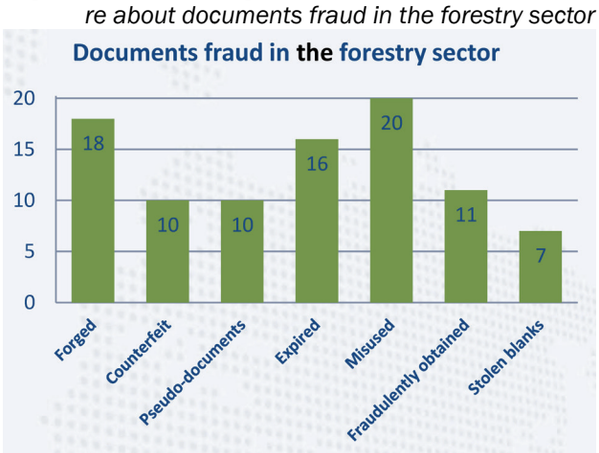
Operation Log is a very recent operation, started in 2015 with a launch meeting of the project in Togo, that aims to target the illegal timber trade in West Africa. Operation Log took place in 9 West African countries: Benin, Burkina Faso, Gambia, Ghana, Ivory Coast, Mali, Mauritania, Senegal and Togo, with investigations into the criminal networks involved in illegal logging in the region continuing.

At the beginning of the project, it was asked to Countries to fill a questionnaire to understand which are the most common document fraud in the forestry sector. Results of the questionnaire are shown in Fig. 10.

Preliminary results from Operation Log saw the seizure of more than USD 216 million in illegally harvested rosewood (Pterocarpus erinaceus) and other timber species, with several arrests and investigations (still ongoing). Rosewood is highly sought after worldwide for its pink- or red-coloured wood, and therefore commands extremely high prices on the international market. Countries have issued 2 INTERPOL Red Notices and 2 INTERPOL purple notice on modus operandi used by the offenders - only available to Law Enforcement (accessible through INTERPOL's tools).

The main challenges faced during the operation were: difficulty of communication becau-

*Fig. 10 - Operation Log: answers from the questionnaire about documents fraud in the forestry sector*



se these Countries are English only or French only speaking countries; different documentation (import/export) hard to be understood; available equipment of law enforcement officials on the ground is poor; capacity of law enforcement officials (customs & border control units – forestry inspections) are very low; lack of species identification experts at border check points. Law enforcement in the participating countries identified major trade routes used by criminal networks to traffic timber within and out of the region, with Asia (especially China and Vietnam) highlighted as the main destination for illegally harvested rosewood (Fig. 11). Links between the illicit timber trade and other serious crimes were also uncovered during Operation Log, including corruption through the issuance of fraudulent permits, firearms trafficking and wildlife crime.

*Fig. 11 - Operation Log: major trade routes used to traffic illegal timber*

# 3. MATERIAL

This chapter describes some technologies and initiatives that can support LEAs' efforts to fight illegal logging, presented during the Joint International Meeting on Forestry Crimes, held in Lyon on the 22-23 June 2016. The list is not exhaustive, but represent a valid example of what is currently available on the market, or even on the web at no cost. The initiatives are grouped in websites and online platforms, documents, technologies for timber origin, traceability systems, and apps for smartphones.

## 3.1. Website and online Platform

### *3.1.1. CITES Virtual College*

The CITES Virtual College (*http://campusvirtual.unia.es/cites/*) (Fig. 12) has become a resource in efforts to enhance capacities of countries, increase awareness of the Convention and provide learning and training materials on CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora).

The objectives of CITES is to ensure that wild fauna and flora in international trade are not exploited unsustainably, through ensuring: legality, sustainability, traceability. CITES sets the global controls for trade in wildlife and regulates nearly 35.000 species of animals and plants. 3 % of these species are generally prohibited from international commercial trade. For 97 % of them international trade is permitted but regulated.

Species protected by CITES are listed in three categories (Appendices): App. I: species threatened with extinction; App. II: species not necessarily threatened with extinction, but for which trade must be controlled to avoid their becoming so; App. III: species for which a country is asking Parties to help with its protection. The differences on the protection of the different appendices is related to differences in the international commercial trade of the species listed. It is possible to see the species listed in the CITES Appendices on the following website:

- CITES Website – Appendices page (*cites.org/eng/app/appendices.php*);
- CITES Checklist (checklist.cites.org/);
- Species+ (*www.speciesplus.net/*).

Returning back to CITES Virtual College, on the website is possible to find the following material:

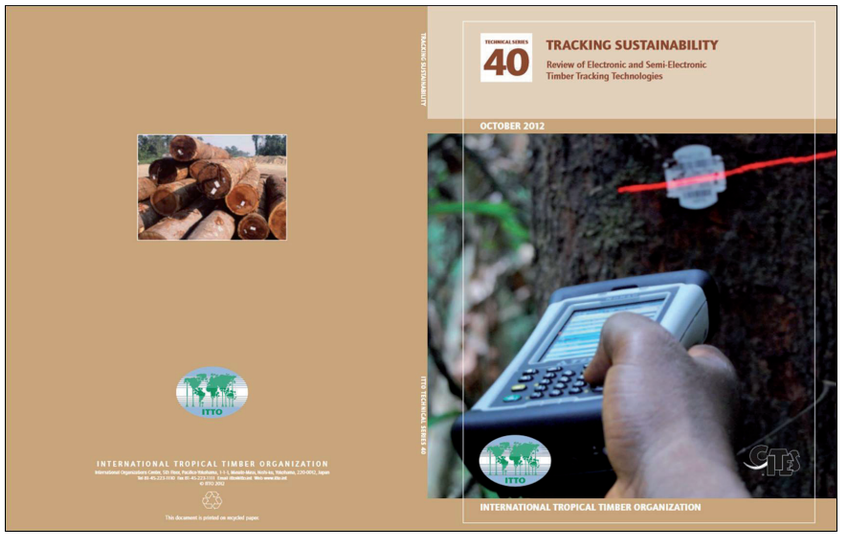
- On-line Courses in English, French and Spanish: Introduction to CITES for Customs; Training course for enforcement officers; Information module for prosecutors and the judiciary;

*Fig. 12 - The main page of the CITES Virtual College website*

- CITES Train the Trainers Presentations;
- Green Customs Knowledge Series;
- Identification material;

A report on timber tracking sustainability (Fig. 12), practically a review of electronic and semi-electronic timber tracking technologies (https://cites.org/eng/prog/itto/tracking_sustainability.pdf);

*Fig. 13 - ITTO/CITES report on timber tracking sustainability*




- Author tools available online to authorized users at CITES virtual college, developed by INTERPOL, CITES Secretariat and WCO as: Manual for Controlled Deliveries – A Technique For Investigating Wildlife Crime (2010); Questioning Wildlife Smugglers – A Technique for Investigating Wildlife Crime (2010); Wildlife Smuggling Concealment – Case Study Handbook (2010).

### 3.1.2. Global Forest Watch

Global Forest Watch (GFW) (http://www.globalforestwatch.org/) (Fig. 14) is an interactive online forest monitoring and alert system designed to empower people everywhere with the information they need to better manage and conserve forest landscapes. Global Forest Watch uses cutting edge technology and science to provide the timeliest and most precise information about the status of forest landscapes worldwide (especially to track deforestation over time), including near-real-time alerts showing suspected locations of recent tree cover loss.

GFW is free and simple to use, enabling anyone to create custom maps, analyze forest

*Fig. 14 - Global Forest Watch main map*

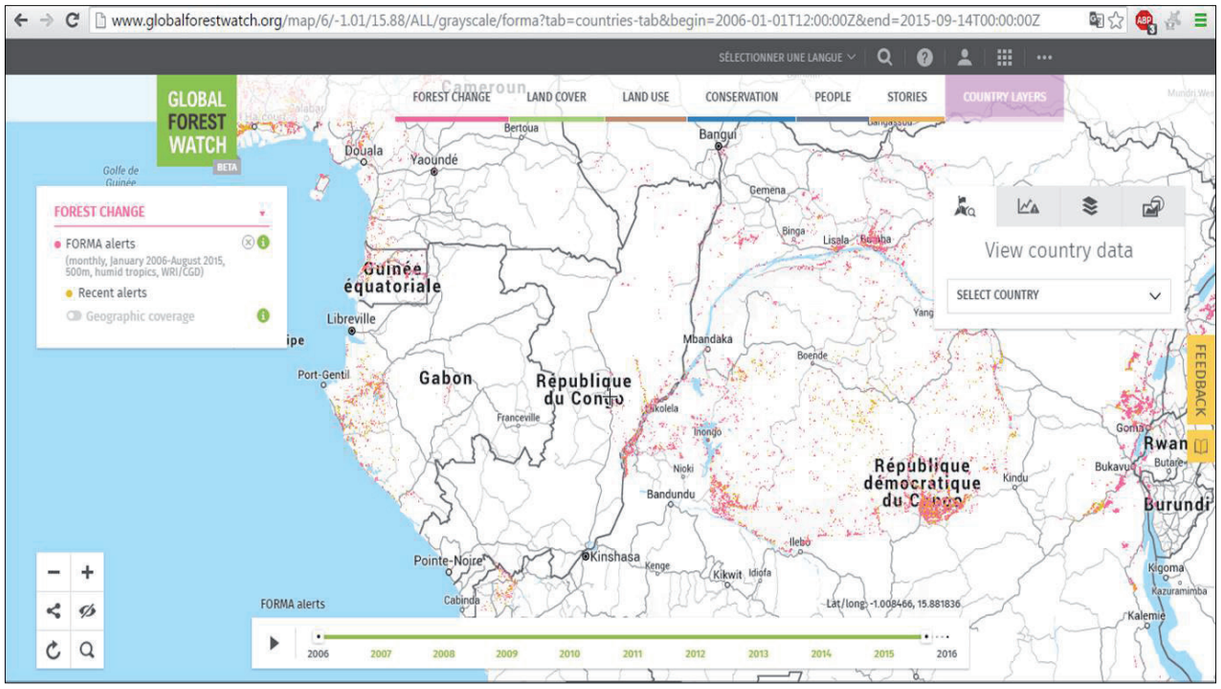
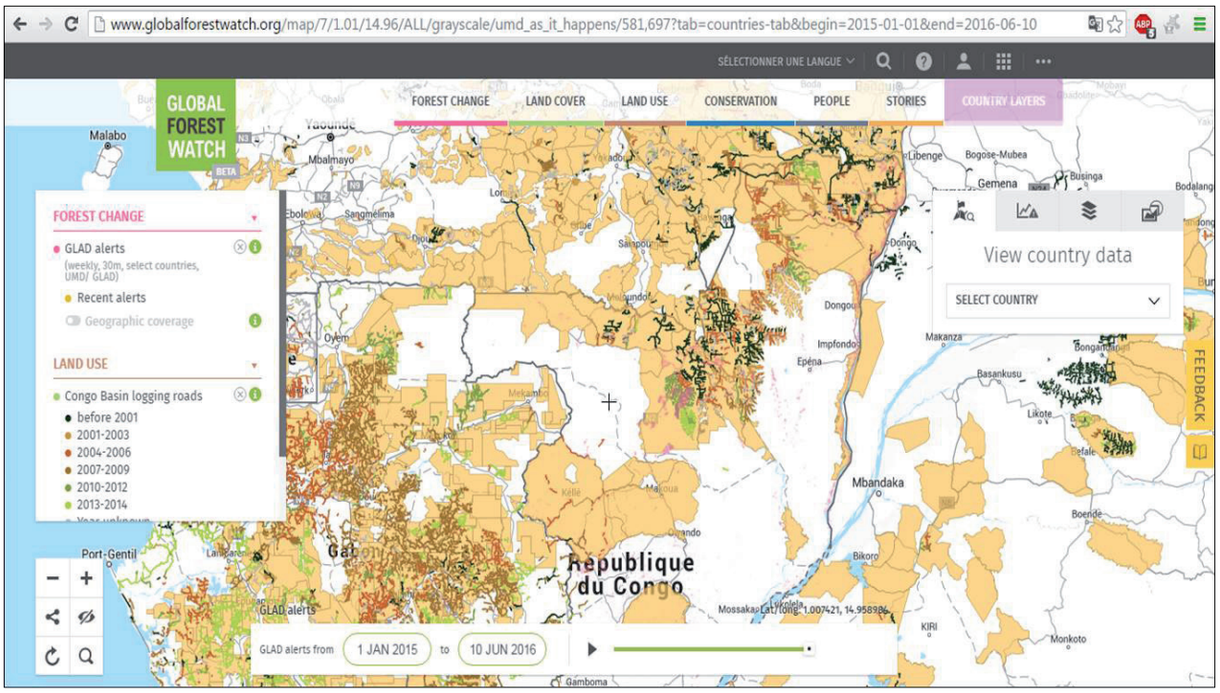


*Fig. 15 - A map available on Global Forest Watch with layers about concession and logging routes*




trends, subscribe to alerts, or download data for their local area or the entire world.

The data available on Global Forest Watch are:

- forest change data: this information indicates change within forests at different resolutions, frequencies, and geographic extents. Here it is possible to find tree cover loss and gain data, near real-time forest alerts and active fire data;
- forest cover data: these data represent types of forest cover at different resolutions and geographic extents;
- forest use data: these data represent ways humans use forests, such as allocating forests for agricultural concessions or infrastructure development. When available it is possible to overlay forest data with concession layer, logging routes, etc. (Fig. 15);
- conservation data: data representing forest conservation and preservation efforts, biodiversity and natural resources;
- people data: areas over which indigenous peoples or local communities have rights over land and/or certain resources. Data such as forest management units and indigenous reserves are available here.

Basically, the map displays tree cover gain and loss data based on satellite imagery within plots having 500x500 meters accuracy and the frequency of the updates is monthly. So this accuracy is not so good if you want to perform forest control. In some zones (f.i. Peru, Indonesia, Congo Basin), the accuracy is higher and the plots have a geographic resolution of 30x30 meters and are updated every 8 days enabling the possibility to perform forest control and detect illegalities.

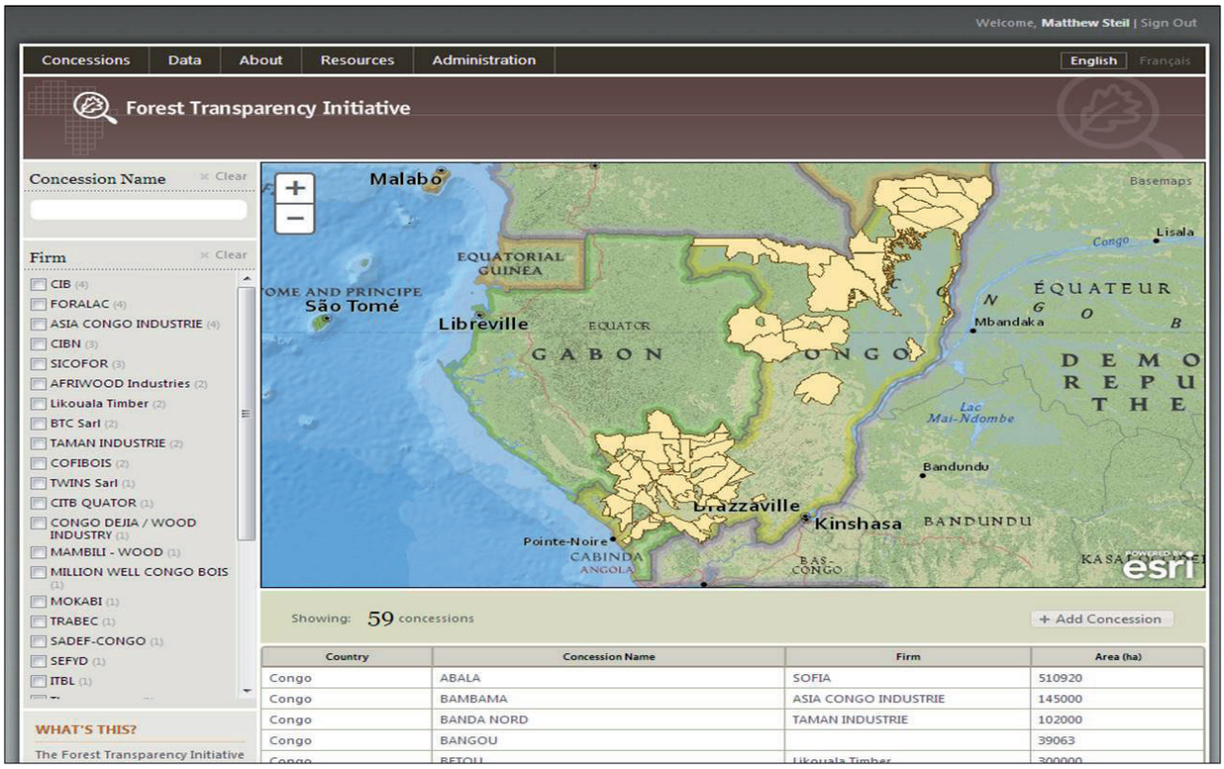
### 3.1.3. Forest Transparency Initiative

The Forest Transparency Initiative (FTI) (http://alpha.foresttransparency.org/en/home) is a dynamic online database for site and company level information on the commercial forest sector in Central Africa (fig. 16).

The main objective of this initiative is to reduce illegal logging by facilitating tropical timber decisions makers' job. FTI is a repository of information on the logging and wood processing concessions and companies operating in forest rich countries of Central Africa. The FTI targets making relevant, credible and up-to-date information on logging, wood processing and timber trading companies operating in Central Africa, publicly available to decision-makers, consumers and other forest/timber stakeholders through a one-stop shop website.

This beta site, launched in 2012, is part of a pilot initiative to improve access to credible commercial forest sector information and se-

*Fig. 16 - Example of a map available in Forest Transparency Initiative website*




eks to help recognise in the marketplace those companies operating legally and according to recognised social and environmental norms, by offering all actors a verified means by which to communicate the nature and specific content of their operations.

While largely targeting private timber operators (proving information from source of trustful operators, accessing logging companies' legal assessments and perform due diligence), the FTI site seeks to set up a centralised portal for forest information on Central Africa, by engaging all interested forest stakeholders to use, critique and contribute to enriching content of the site such as:

- Competent authorities (allowing to: easily perform due diligence verification; focus their investigations on the riskiest suppliers and document prosecution cases);
- logging companies (simplifying their administrative documents compilation task for due diligence purposes; measuring their own legal compliance progress; demonstrating the efforts made to comply with their obligations and compare themselves against other competitors);
- civil society organisations (giving access to objective information about logging operators and allowing to focus their investigations towards the most suspicious logging companies).

A new version of the website is currently under development and a new live version for Congo and Republic of Congo will be available on fall 2016.

## 3.2. Documents

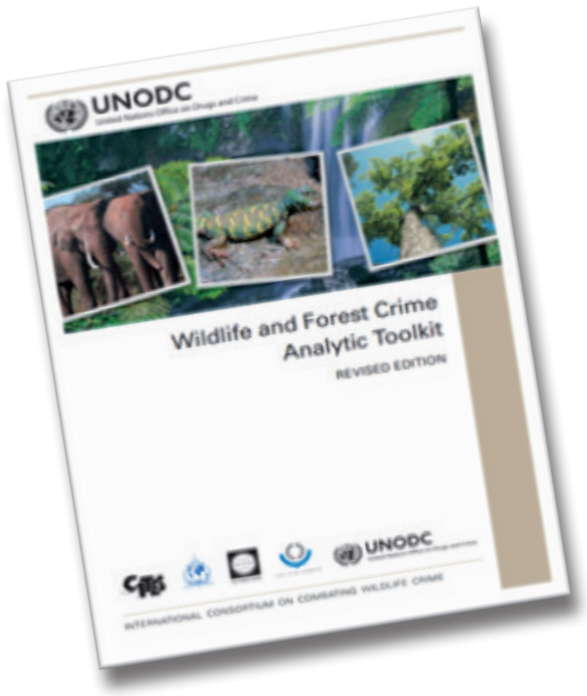
### *3.2.1. Wildlife and Forest Crime Analytical Toolkit*

ICCWC is a collaborative effort of 5 inter-governmental organisations to bring a coordinated support to the national wildlife law enforcement agencies and to the sub-regional and regional networks that act in defence of natural resources. The ICCWC partners are the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Secretariat, INTERPOL, the United Nations Office on Drugs and Crime, the World Bank and the World Customs Organisation. ICCWC's mission is to provide coordinated support to regional and national law enforcement agencies to combat wildlife and forest crime.

The most important tool available through the

Consortium is the Wildlife and Forest Crime Analytical Toolkit (downloadable at *https://www.unodc.org/documents/Wildlife/Toolkit_e.pdf or at https://www.cites.org/common/resources/pub/ICCWC_Toolkit_v2_english.pdf)* (Fig. 17).

*Fig. 17 - Wildlife and Forest Crime Analytic Toolkit*

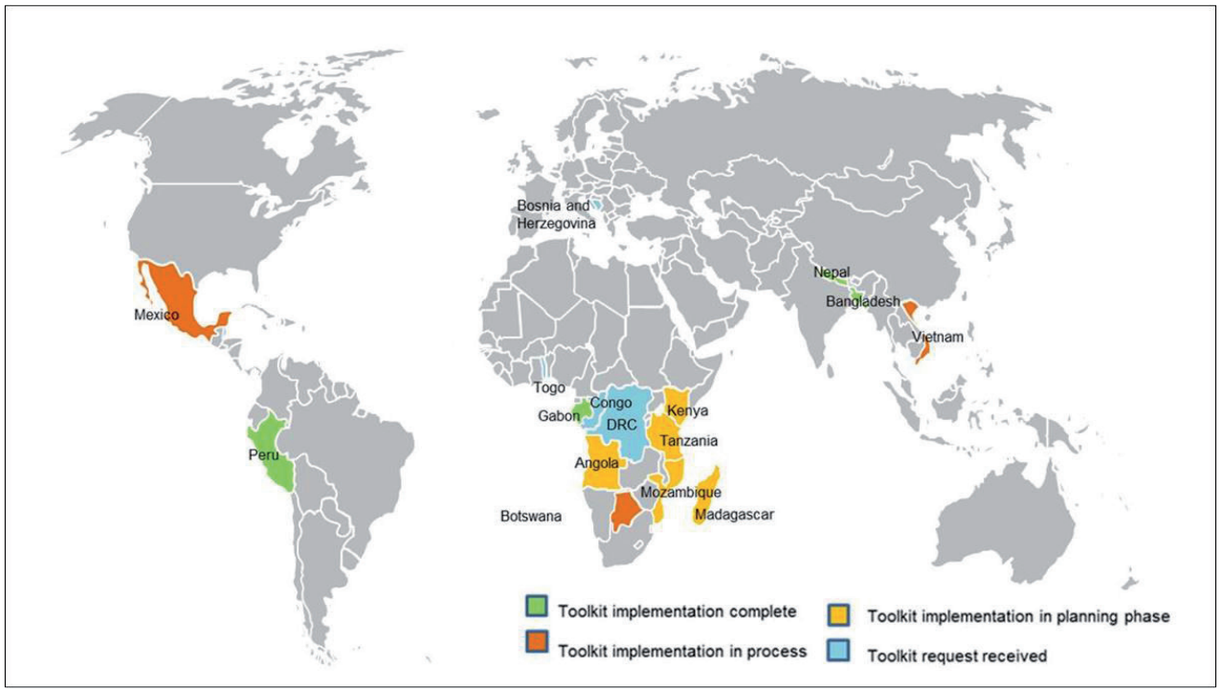



Led by UNODC, the Toolkit is designed mainly to assist government officials in wildlife and forestry administration, Customs and other relevant enforcement agencies. It will help them to conduct a comprehensive analysis of possible means and measures to protect wildlife and forests and monitor their use and thus, to identify technical assistance needs. In this sense, the Toolkit may also be used as training material for law enforcers. In addition, other stakeholders at the international and national levels, as well as civil society, may find the Toolkit useful regarding their daily responsibilities.

The Wildlife and Forest Crime Analytic Toolkit provides an overview of the immense number and great variety of tools available to prevent and combat wildlife and forest offences. Each part of the Toolkit provides a practical and detailed guide on the key issues to be examined, with reference to the relevant international conventions, standards and norms, as well as the relevant guidelines and documents. Every effort has been made to make each section comprehensive so as to provide Toolkit users with a checklist to analyse thoroughly the root causes of crime, preventive mechanisms and responses of the criminal justice system.

The tool is implemented in countries that request the assessment. The areas of assessment are: legislation relevant to wildlife and forest offences and other illicit activities; Law

*Fig. 18 - Implementation of ICCWC Toolkit*



enforcement measures pertaining to wildlife and forest offences; Prosecutorial and judicial capacities to respond to wildlife and forest crime; factors that drive wildlife and forest offences and effectiveness of preventive such crimes; the availability, collection and examination of data and other information relevant to wildlife and forest crime.

Currently eight countries are undergoing the Toolkit assessment: Angola, Bangladesh, Gabon, Mexico, Nepal, Peru, Tanzania and Vietnam (Fig. 18).

### 3.2.2. Best Practice Guide for Forensic Timber Identification

UNODC, as a member of ICCWC, was given the lead for the development of guidelines to address the challenges posed by the illicit trade in ivory and timber and to provide support to law enforcement operations through the use of forensic technology and laboratory data.

UNODC, in close cooperation with ICCWC partners, is coordinating the development of Guidelines on methods and procedures of timber identification and laboratory analysis. It is expected that the development of these guidelines will help tackle the problems of illegal logging, mis-labelling of timber species, and smuggling of wood products. Forensic analysis of timber can provide robust results including the identification of the species, age and geographical provenance of the timber sample. This information is also essential to design efficient law enforcement responses.

The Best Practice Guide for Forensic Timber Identification aims to facilitate the employment of forensic science to the fullest extent possible to combat timber crime, while the target audiences are Law enforcement, crime investigators, the scientific community, prosecutors and the judiciary.

The structure of the guide is made by 4 main parts (Fig. 19).

About part I, information for law enforcement, this part describes initial risk analysis and search guidelines for front line officers with advices for rapid field identification and formulation of forensic questions. Guide provides advices for collection and preservation of evidence, maintaining the chain of custody, including the transport of the sam-

*Fig. 19 - The main parts of the Best Practice Guide for Forensic Timber Identification*

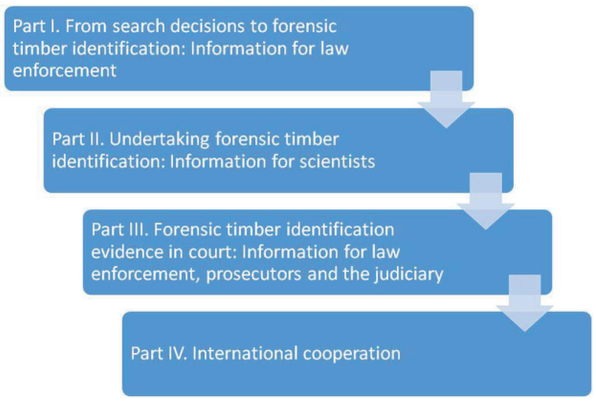
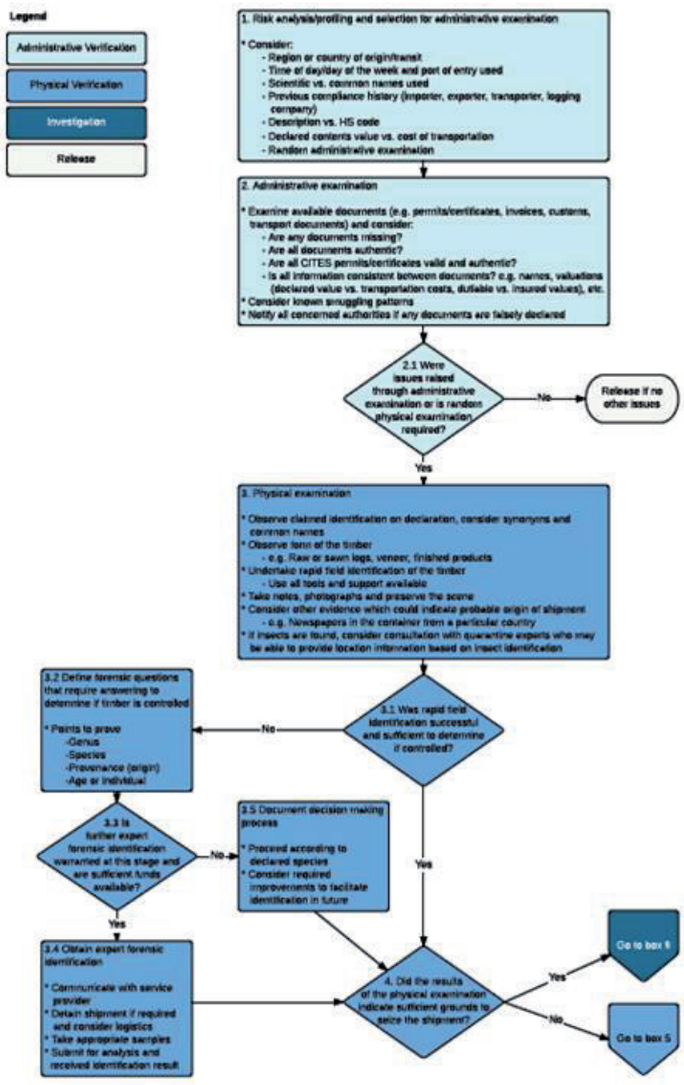



*Fig. 20 - Best practice flow diagram for timber*



ples into the laboratory and also advices for communication with the timber identification service providers.
Fig. 20 shows the best practice flow diagram for timber, that accompanies part I of the guide through a step by step help for the front line officers in order to check the timber who is passing the checkpoints such as international board crossing.
The guidelines are not published yet, but some information about are present online at the website (*https://www.unodc.org/unodc/en/wildlife-and-forest-crime/forensic-guidelines.html*).

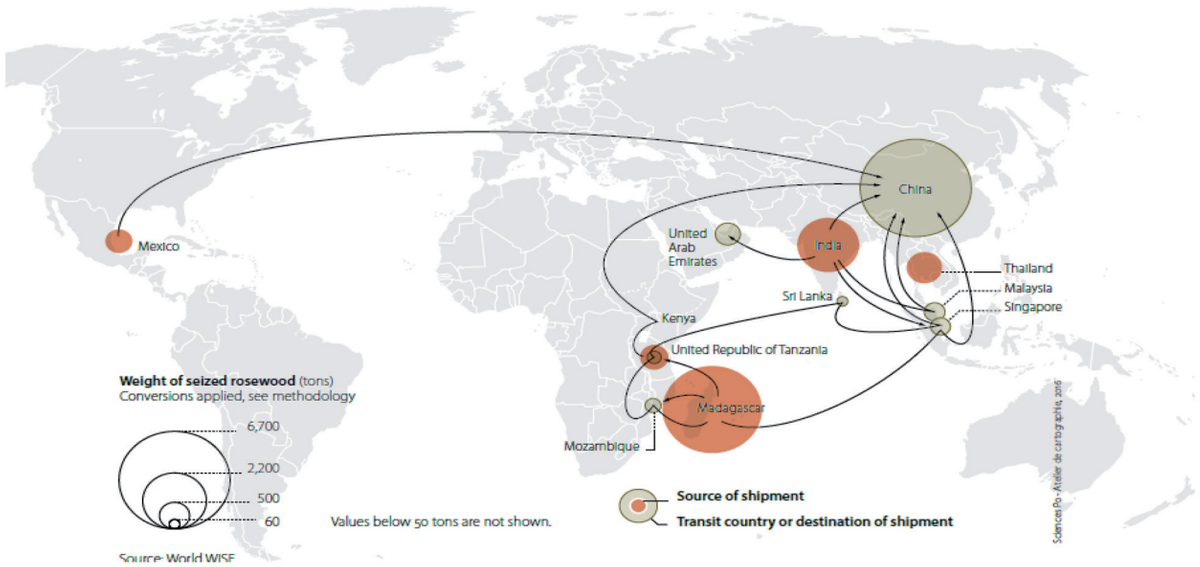
### 3.2.3. Red Alert: Siamese Rosewood

A new report (Red Alert) on Siam rosewood has been released by Environmental Investigation Agency (EIA) on 24th June 2016 (*https://eia-international.org/wp-content/uploads/EIA-Red-Alert-FINAL.pdf*). EIA collects, analyses and shares intelligence to protect the environment based on: desk-based research, field investigations, historical and contemporary.
In the report, corruption is commonly cited as a key component in the facilitation and indeed growth of wildlife and forest crimes, especially the trade in high value species, and is an essential component aiding many of the crimes required along the illicit trade routes for the trafficking of fauna and flora to reach end consumers. Corruption is especially present within the illegal timber due to the inherently high value of not only individual species such as Siamese rosewood (Fig. 21) but also the international scale of consumption and the level of industry required to meet legal demand enabling the laundering of illegal products on a vast and highly profitable scale.
The report analyses the exports from Laos and Cambodia are analysed; especially Laos is under EIA investigations since 2007, while log export ban have been instituted in 1999. Nevertheless well-connected, "untouchable" companies log with impunity and deliver raw material to processing hubs in Vietnam and China using industrial scale concessions granted for 'special projects' – usually related to hydro concessions to cover illegal harvest of timber.
The issues related with the rosewood illegal market in Laos are the following:

- Siam rosewood logs for sale in military auction;
- illegally harvested timber seized in enforcement activities;
- sold-on through rigged Government auctions;
- paperwork for 'legal' stock used to launder significantly higher quantities;
- nepotism of officials involved – controlled by a few powerful people.

The 2013 listing of Siamese rosewood on Ap-

*Fig. 21 - Main flows of rosewood logs and timber seizures (tons), 2005-2015*



pendix II of the convention on International Trade in endangered species (CITES) has failed to protect the species from levels of trade detrimental to its survival in the wild. In the first 18 months of the CITES listing, Laos and Cambodia exported a combined volume of Siamese rosewood equivalent to 120 per cent of the largest known remaining populations of the species, those estimated to exist in Thailand in 2011. In 2014 alone, the two countries exported a combined volume equivalent to 98 per cent of known global wild stocks (Fig. 22).

*Fig. 22 - CITES permitted trade in Siamese rosewood*


EIA believes none of the trade in Siamese rosewood reported to CITES to date was justified by Non-Detriment Findings (NDFs) and that this situation persisted throughout 2015 and 2016 in what constitutes a fundamental violation of CITES. The lack of any credible inventory or survey data on populations or stocks in Laos excludes the possibility that an NDF system could have been devised in the country. Following interventions by EIA, it was formally recommended that Laos must develop an NDF system during 2015.

### 3.2.4. ICCWC's other material

Another new tool that deserves to be mentioned is the ICCWC indicator framework for wildlife and forest crime (lead by CITES) (*https://cites.org/sites/default/files/eng/prog/iccwc/E-ICCWC-Ind-FW-Assessment_guidelines_and_template.pdf*), a national self-assessment to measure and monitor the effectiveness of law enforcement responses to wildlife and forest crime.

ICCWC indicator framework for wildlife and forest crime has been developed to work alongside the ICCWC Toolkit and provides an additional assessment tool for use at a national level. While the ICCWC Toolkit provides the means for a comprehensive analysis, the ICCWC Indicator Framework allows for a more rapid assessment of a national law enforcement response to wildlife crime. It also provides a standardised framework to monitor any changes in national law enforcement capacity and effectiveness over time. The ICCWC Indicator Framework is a comprehensive set of 50 indicators arranged against eight desired outcomes of effective law enforcement to combat wildlife crime. It is in the form of a self-assessment framework, which is best completed through a collaborative process involving all relevant national law enforcement agencies.

The framework has been developed with the input of global experts in wildlife crime law enforcement and in the development and application of indicator frameworks.

These Assessment Guidelines are organised in three parts: part 1 provides an overview of the ICCWC Indicator Framework, and introduces the 50 indicators and the eight enforcement outcomes they are grouped under; part 2 lists practical guidance on completing an assessment using the ICCWC Indicator Framework; part 3 discusses the analysis of results including the more detailed exploration of results using the ICCWC Toolkit.

A document that provides data on illegal trade in wildlife - World Wildlife Crime Report, Trafficking in protected species - is available at *https://www.unodc.org/documents/data-and-analysis/wildlife/World_Wildlife_Crime_Report_2016_final.pdf*. The report will greatly assist to further inform decisions on measures to be implemented to fight wildlife crime.

Other tools available from the Consortium are:

- CITES Enforcement Authorities Forum: Place to post or seek information and/or assistance. The access is restricted to officials from CITES Management Authorities (in all Parties), Customs, Police and Environmental Enforcement Authorities;
- INTERPOL I-24/7 Secure Global Police Com-

munication System;
- INTERPOL Databases;
- INTERPOL Command and Coordination Centre (CCC);
- INTERPOL Notices and Diffusions;
- Wildlife Investigation Support Teams which can be deployed to support countries following a seizure;
- Numerous manuals and handbooks on investigations, controlled deliveries, concealment methods, questioning methods, analysis, etc.;
- Training modules as well as trained staff to deliver these modules.

CITES has also a CITES Enforcement Authorities Forum to be integrated with ENVIRONET, recently integrated with the WCO's CENcomm ENVIRONET to facilitate communication between enforcement officers. This is an online tool that can be used by registered enforcement officers to post messages or seek information and assistance from their counterparts around the world. ENVIRONET contains CITES Alerts, templates of CITES permits, manuals, handbooks, identification materials and enforcement-related messages, etc.

## 3.3. Technologies

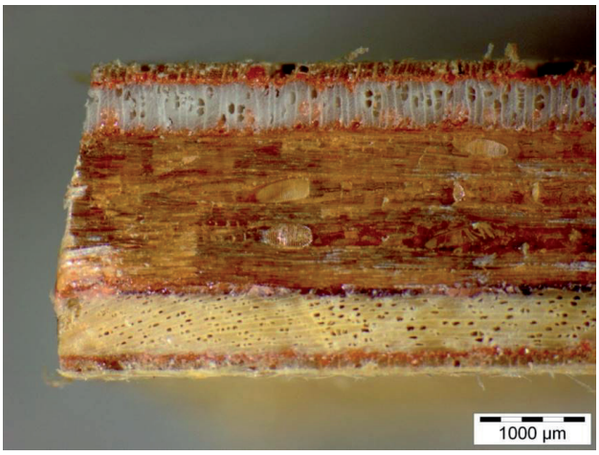
### *3.3.1. Methods to determine type and origin of wood*

The Thünen Centre of Competence on the Origin of Timber is the central contact facility for government agencies, timber trade, consumers and associations to verify the species of wood and/or wood products and its origin. The Centre of Competence combines the expertise of the three Thünen Institutes of Wood Research, Forest Genetics, and International Forestry and Forest Economics, responsible for wood identification, proof of origin, certification and timber trade structures. To enable reliable wood identification, the Centre of Competence maintains one of the world's largest scientific wood collections comprising over 37.000 specimens representing 12.000 species. These serve as reference material for the macroscopic and microscopic identification of trade timbers.

Some examples of task are to identify: false declaration; CITES protected species; geographic origin, etc. The methods applied for wood identification of internationally traded timber are:

1. Macroscopic wood identification: this method is suitable for a first reliable determination of the declared species. For the wood identification, the transverse planes of the submitted specimens are cut (using a cutter or carpet knife) and macroscopically observed with a hand lens (optimal magnification 10 to 12x). Important trade woods can be identified with certainty to the species and genus level;
2. Microscopic wood identification (Fig. 23): for official/judicable reports on wood identification, microscopic analyses were routinely carried out applying the light microscopic techniques, up to 100 structural-anatomical characters can be used for a definitive wood identification. The microscopic analyses enable the wood identification of all solid wood specimens including very thin veneer layers (thickness lesser than 0.20 mm) also individual wood strands and chips;
3. Genetic wood types and wood origin determination: for a species-specific identification of the woods, practice-feasible test processes on the basis of molecular markers are performed. With the help of these genetic barcodes, some species can be identified even when it is difficult to identify with other methods. Depending on the available data material, it should

*Fig. 23 - Example of microscopic wood identification: Identification of individual veneer layers (thickness < 0,2 mm) of plywood*



be possible to determine the origin of a wood up to 30 km exactness. The scientists collect samples for each tree type in each target region and study them with modern genetic markers. The data gathered in this manner on the geographic genetic structure serves as reference data for the classification of wood samples. With this information it can be verified whether information on the land of origin and region are correct.

Recently, Thünen Centre of Competence on the Origin of Timber are developing application o of computer-assisted wood identification systems. Actually there are three programs: Commercial timbers, macroHOLZdata and CITESwoodID in the DELTA-INTKEY-System. The databases contains descriptions and an interactive identification system for softwood and hardwood taxa common in the international trade.

### 3.3.2. Stable Isotope Analysis (SIA)

To combat the illegal trade in timber an end-product test is necessary to show analytically whether timber is or isn't from its declared origin. In this perspective, SIRA (Stable Isotope Ratio Analysis) is one of the only technologies that can reliably authenticate the origin of product. From agro-chemicals to food and timber, Stable Isotope Analysis (SIA) provides powerful verification of traceability ensuring that what is purchased is from its declared source.

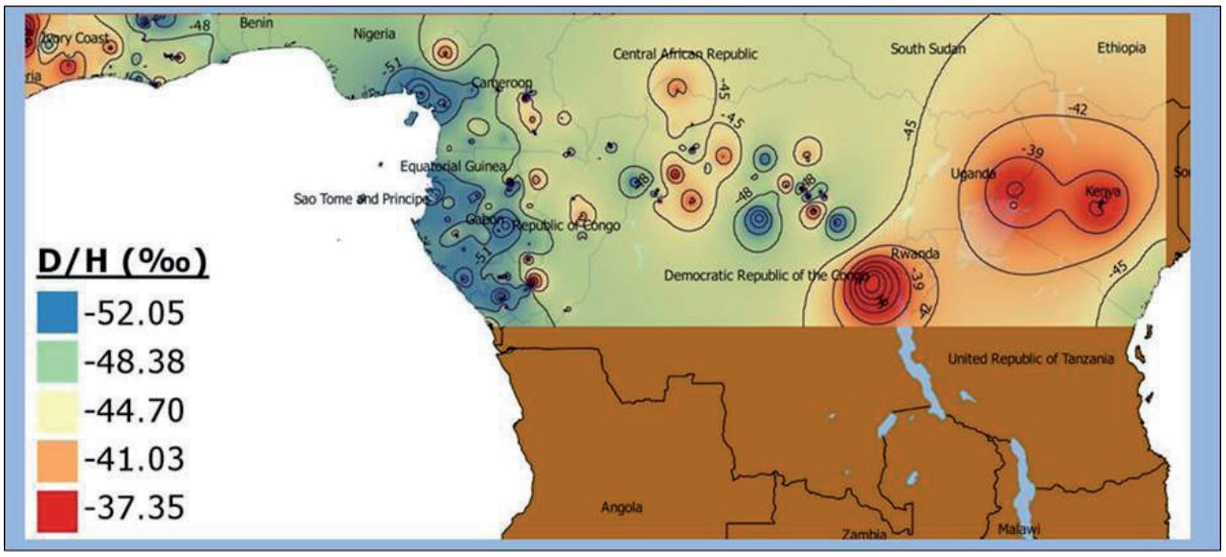
Isotope testing was recognised by WWF as an important tool to fight the illegal timber trade and provide supporting evidence of legitimate trade and included in EUTR among timber tracking technologies.

Stable Isotope Analysis is an investigation into the origins of the elements that make up the timber. The stable isotope ratios in a piece of timber are directly related to where the piece of timber originated from. Practically speaking, isotopic fingerprint is a physical marking and therefore not directly depending on the species.

SIA is a universal analytical tool for authenticating the origin of biological material to a location, and was recently used in several projects, f.i. the GTZ-project: Differentiation of timber from concession to map timber; or the ITTO (International Tropical Timber Organisation) Project to evaluate the timber harvested from Iroko in 8 different African Countries for (Fig. 24).

As part of the project, an assessment of stable isotope analysis and genomic (DNA) was performed as a blind test. Samples were submitted to each participating laboratory, the task was to identify whether any of the blind samples were likely to be 'fraud' samples (samples not from their declared country of origin). The results clearly demonstrated that stable isotope analysis currently offers the best solution to determine the origin of timber as it was able to identify more of the 'fraud' samples than genomic analyses.

*Fig. 24 - ITTO Project: hydrogen and oxygen ratio in Iroko*



## 3.4. Traceability systems

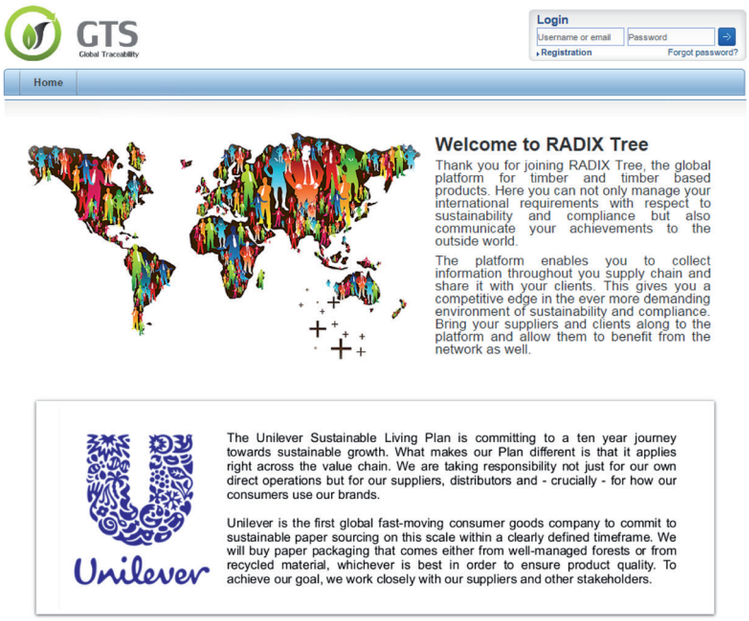
### 3.4.1. GTS' Radix Tree

The EUTR requires operators to exercise due diligence and requires operators to have systems in place that assure that the timber is from legal origin. So there is a need to facilitate traceability of wood products. Traceability allows to distinguish products of known origin and known conditions of production and transformation from products of unknown origin and production conditions.

But traceability has some challenges to face: large number of types of information and documents; mapping of the supply chain; manual processes still common (email, telephone, paper documents, etc.); lack of information availability and willingness to share; time and costs; corruption; governance and education; infrastructure (Internet, computer, etc.); complexity of supply chains, variable data requirements.

In order to solve this problem, Global Traceability Solution (GTS) (*http://www.global-traceability.com/*) has developed a collaborative platform called RADIX Tree (Fig. 25).

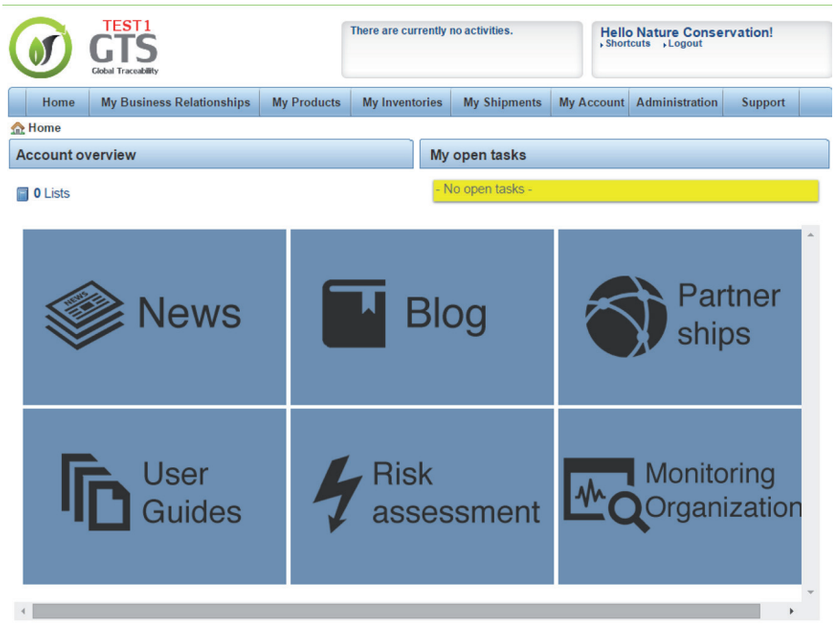
*Fig. 25 - Global Traceability Solution's platform*




The platform is simple to use thanks to an user interface designed with industry professionals to provide both simplicity and targeted functionality and enables to collect information throughout a supply chain and share it with clients. This gives a competitive edge in ever more demanding environment of sustainability and compliance. Bring suppliers and clients of a company along to the platform and allow them to benefit from the network as well. It also covers requirements such as PEFC and FSC certification compliance.

The software (Fig. 26) provides a detailed tracking service ensuring that all traded products are recorded allowing you to see the entire supply chain for each product at a glance and allows to perform risk assessment service that ensures complete EUTR compliance and demonstrates full commitment to eradicating illegal timber from the supply chain: it

*Fig. 26 - The main of the GTS' software*

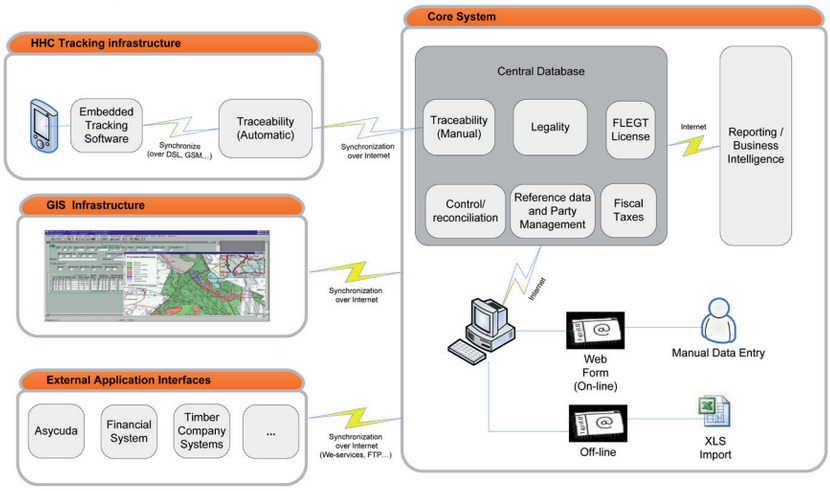


is possible to enter the species, the country of origin, etc. In the top bar is possible to monitor business relationships, to invite new peoples, to follow the product with the opposite section, to have any kind of information about inventory section, shipment, account, etc.
It is also possible to upload any time of document, or certification (with a new attachment information section). In the "feature list" is possible to ask any information and make any question about a supplier such as detailed geographic source information about where the timber was harvested, from which concession comes the imported wood, year in which the exported timber has been harvested and so on. The software has also a trace and track function to check the chain of custody through a traffic light warning system.
GTS' successful response to traceability challenges provides some benefits for importers because: it gets an immediate overview on mandatory (and voluntary) information and documentation; allows data collection and storage tool (current and past consignments), provides reporting and analysis tools and all information and documentation through one channel to the respective authorities.
Moreover it is also helpful for Competent Authorities to check due diligence and legality and for Other authorities (LEAs, CITES, customs,...) to access information and undertake plausibility checks cause it allows to receive and review all information and documentation through one interface and has a consolidated view on all import applications.
The system does not make fraud impossible but significantly more difficult because technologies/services are not vulnerable to corruption through distributed data collection and validation. Nevertheless, some risks and limitations are to be taken into account, such as: disability to actually identify the supply chain if it is broken somewhere; lack of quality and quantity of data entered; lack of knowledge, education, of users; country context, etc.

### 3.4.2. SGS Legal Trace

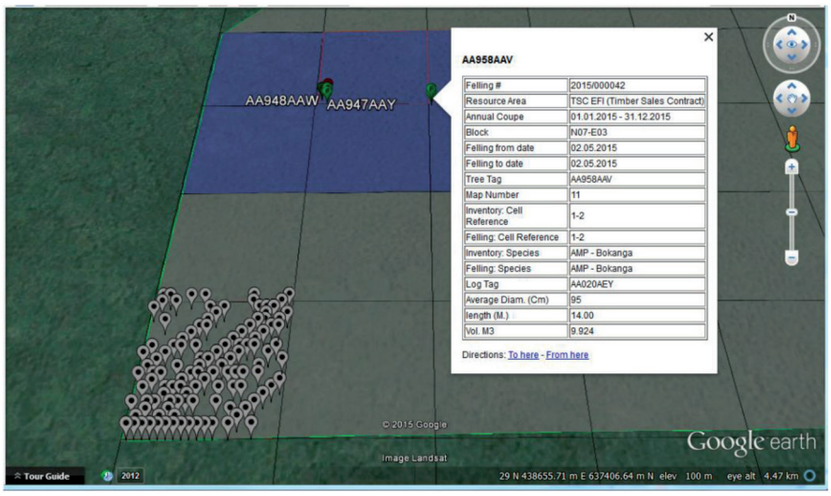
SGS has developed internally its generic timber traceability and legality verification system called SGS LegalTrace (Fig. 27).
The system has been designed to comply with national regulations and international initiatives such as the Forest Law Enforcement, FLEGT, etc. LegalTrace is a web application in which: operators declare their activities; Forest Officials verify and approve these activities, issue certificates; independent auditors review the historical data; general public can access to public news, reports and certificates.

*Fig. 27 - The SGS LegalTrace web application*




It is a centralised system registering any available information. The users interact with it through a website where they can register information through on-line web forms or by completing off-line Excel templates and uploading them on the server whenever connection is available. Data can also be captured through tablets and exported/imported to/from GIS or any third party system.
One of the key functions offered by SGS LegalTrace is the traceability of wood along the supply chain from its origin to the final point of sale. At each step, operators shall declare trees inventoried and felled, cross-cut logs, imported logs, transport waybills, processing, and sales (local or export). Bar-coded tags enable the monitoring of timber products along the

*Fig. 28 - Example of data exported by SGS LegalTrace in GIS platform*




supply chain and consequently determine the origin of all the products exiting the chain. Moreover, the GPS coordinates of all assets can be registered to allow the export of data to GIS software for mapping purposes (Fig. 28).
At each step of the supply chain, SGS LegalTrace can require an approval of the Forestry Authority before allowing moving to the next step. The verification can be documentary or physical. Forest Authority inspectors can perform on-site inspections to verify the accuracy of the data declared by operators. In this case the system will automatically reconcile the declared data with the data recorded during the inspection. Even if no approval is required, the Forestry Authority can verify the consistency of the data at any step of the supply chain.

## 3.5. Smartphone applications

### *3.5.1. Earth Observation*

Earth Observation works to help legitimate forest communities distinguish their sustainably harvested tropical hardwood from the unsustainable black market timber that is flooding the market, depressing global prices and fuelling illegal deforestation. As a consequence it is possible to support industry as they seek to channel their purchasing dollars towards these communities and help them secure a fairer price and the income they require to maintain and protect their forests for future generation.
In countries around the world in remote regions, government authorities are severely challenged in trying to constrain a thriving black market for illegally cut timber, mainly cause traceability systems are not available where there is no telecommunication and no power infrastructure. But people in these emerging economies possess smartphones, so it is possible to download an app created exactly at this purpose that does not require an Internet connection to generate codes that track the logged trees (Fig. 29). This is possible cause smartphones work offline using live phone tracking feature facility.

*Fig. 29 - "Live" smartphones position tracking*

Internet connectivity is needed only for periodic uploading of the information to the servers. The app generates a one-time code that captures precise data on time, date, and exact location where each tree is felled. If a tree is cut outside of a government-authorized logging concession, the system will point out it.
The technology will enable manufacturers to track the wood they buy from 'forest to factory'. The system is designed to circumvent opportunities for bribes and falsification of data

that allow the trade in illegally cut timber to flourish. As each tree moves along this digitally secure supply chain, it passes multiple points (such as bark removal and preliminary milling of wood) where the "tagging" of the logs must be verified. Each step involves a maximum specified range of change in volume tied to the maximum potential yield of the tree and its component parts.

### 3.5.2. "Mjedisi Im"

"Mjedisi Im" is a mobile application used to fight illegal activities and corruption in Albania in environment and in forest (Fig. 30). The application can be downloaded by every smartphone and used by broad public.

In 2015 the State Inspectorate of Environment and Forest (The Ministry of Environment) created this mobile application in order to inform the broader public on illegal activities in forest and environment in Albania. The name of the application is "Mjedisi im" that literally means "My Environment". Aims of the application are:

- encourage public participation for protection of environment;
- reporting in real time of illegal activities;
- intervention in time of State Inspectorate to prevent illegal activities;
- identification of offences;
- effective control of state structures;
- develop anti corruption measures.

The application is very easy to use and contains six options for reporting illegal activities: 1) forest fires, 2) illegal cuttings in forest, illegal activities in environment: 3) garbage, 4) construction, 5) noises and 6) others illegal activities.

If somebody wants to report illegal logging, has only to click on the correct choice and the person has the opportunity to write some information about the illegal activity (such as place, time, date, other notes, telephone and e mail address - the last two information are not mandatory). Through the application photo and/or video can be upload and then send to the State Inspectorate server.

The application was done to create opportunity for everybody to report illegal activities in forest and environment. It creates opportunities for broad public to use and report illegal activities and help the State Inspectorate to conduct fast detecting for the illegal activities in forestry and environment as well as forest fires.

*Fig. 30 - "Mjedisi Im" application for smartphone*

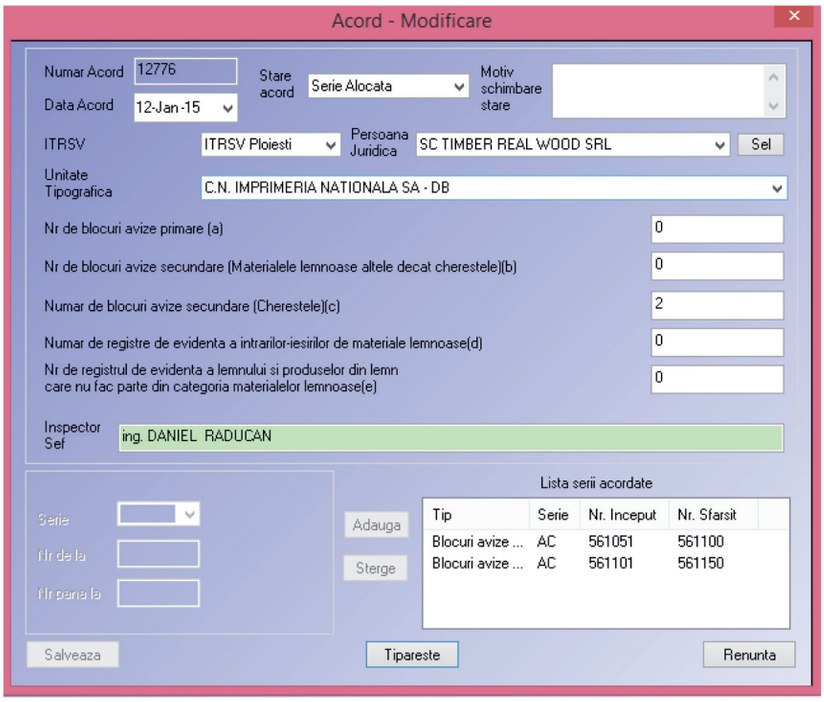

### 3.5.3. "Sumal" and "Woodtracking"

Romania has developed a technological approach to illegal logging through an integrated tracking system that relies on a Central database where are stored information provided through several applications named: Sumal Ocal; Sumal Agent; Sumal Acord and Woodtracking. Based on this information the State authorities for decision and control can obtain reports, statistics and information on the provenance and traceability of wood materials, using other two applications named Oracle Business Intelligence (BI) and Iwoodtracking.

Through Sumal Ocal, forest managers and foresters put into practice the provisions of the management plans and insert information about trees (diameter, heights, quality class) in the inventory of the program. The program generates "logging permit" containing information about the holder of the permit (which is a certified operator for forestry activities); the period of validity of the permit, the buyer and the issuer transport documents.

Sumal Acord (Fig. 31) is an application developed by

*Fig. 31 - Sumal Acord - the program for managing documents*




Romanian Authorities, along with the National Printing Office, useful to manage the transportation documents which have special security elements. Deposits and the final users of the timber are required to score entries and exits of timber in a single register that also has security elements.

Woodtracking is a free application available for «client» forest management structures/forest districts and the operators involved in wood logging, processing, stocking and trading wood products. Its use is mandatory (since 2014) for the economic operators who place on the market, sells or transports timber. Through Woodtracking (Fig. 32) is possible to insert every data concerning transportation: series and the number of transport document, registration number of vehicle, the place of unloading, species, assortment, volume, etc. The information shall be transmitted to the central server that generates a unique code associated with the data entered, as well as the timing and geographic coordinates where it was obtained. Wood tracking is carried out from harvesting and transportation to end users through this unique numbering system that shall be written on the transport document and has limited validity in time, depending on the transportation distance.

Iwoodtracking is a free application designed for LEAs having legal powers to control the movement of timber. It is also used by the Emergency Service 112 (any citizen can call this number to verify the legality of a timber transport). Using the application it is possible to verify the legality of timber; when the elements checked are not conform, the application displays the message of "invalid code", in which case the material are retained or confiscated, and the driver is fined. The application allows to display in Google Maps possible routes to destination of the timber tracked (Fig. 33). If transportation does not occur using these routes, authorities can carry out additional checks on controllers with suspicion of an illegal transport.

*Fig. 32 - Woodtracking application*

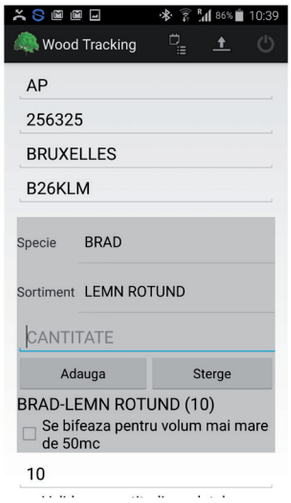
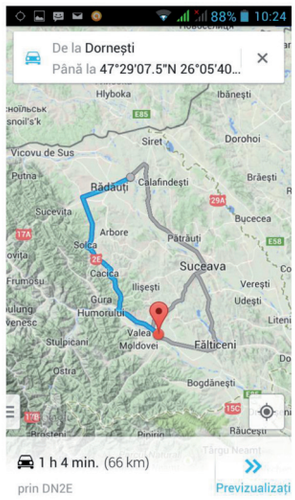



*Fig. 33 - Transportation routes displayed on Google Maps*



# 4. CONCLUSIONS

Despite the growing attention to forestry crimes and illegal logging, corruption still deserves too little attention in the analyses and strategies at EU level. Most of the high value timber imported and traded in Europe origins from Countries with high levels of grand and petty corruption.

The European Commission is committed to achieve an effective enforcement of the EUTR, but the anti-corruption potential of the EUTR needs to be exploited. The risk of corruption in the timber trade exists at any stage, particularly in the international trade and in longer supply chains, and it is a predicate offence for illegal logging, organized crime, money laundering, and other serious offences against local communities and natural commodities. The role and responsibilities of different stakeholders (companies) in fighting those crimes in the timber sector should be clarified.

Information on the cases of corruption collected for the TREES project, shows that corruption is much higher in the international trade (origin countries) rather that in the domestic market, therefore involving origin countries governments and local authorities, and custom police along the supply chain, remains an issue. Corruption is rooted in the social, cultural, and economic mechanisms of the countries, and its fight - especially in origin countries - is not part of companies' business. Their main concerns are about liability, reputation and costs of compliance. Timber traders and operators have no incentives in tackling corruption, or in performing in depth risk assessment and mitigation procedures. On the contrary, companies risk to place themselves out of the market, not buying timber at risk or increasing their costs by setting up expensive countermeasures.

The growing interests of European Companies on Balkan timber, the accession process of some Countries, the post conflict context, and the historical presence of criminal groups and illicit corridors suggests to focus more studies and analyses on the Balkans. The Balkan area is exposed to corruption and is a traditional corridor for illegal traffics (the Balkan route), especially by truck, and the knowledge of EUTR and DDS is very limited, and such rules are not always perceives in a positive way.

The use of technologies for tracking the timber, tracing its origins, and monitor financial flow can increase transparency in the forest sector. Ensuring efficient control on timber movements guarantees the legality of exported or locally distributed timber, and enhanced traceability ensures that the supply chain data are accurate from the forest to the point of export. Most of existing technologies can impact on illegal logging, by increasing the risks of detecting timber of illegal origin, or by increasing the capacity of stakeholders to monitor the use of forest, or by making the supply chain more transparent and clear. The reduction of corruption can be an indirect effect of the initiatives here described:

- websites and on line platforms can help investigations or audits by law enforcement, NGOs, to demonstrate grand corruption or state capture, by providing updated, reliable information on the use of forest resources;
- manuals and other documents provided by international organisations and consortia can support the capacity building and reduce the attitude of civil servants to accept corruption, in particular through training initiatives. They contributes to the standardisation and the safe circulation of information, relevant for cross country investigations;
- analyses of timber origin can provide evidence to law enforcement to prove the document fraud, and the eventual corruption behind;
- traceability systems increase the capacity of companies and law enforcement to collect and circulate information on the whole supply chain, and to carry out more reliable due diligence. They reduce human interaction and manipulation of data;
- apps and other smartphone technologies can reduce human factor, in particular collecting information directly through the devices with no input from the operators, that can be bribed.

# 5. ONLINE MATERIALS

## 5.1. Documents and reports

Controlled Deliveries – A Technique For Investigating Wildlife Crime (*http://www.nre.gov.my/ms-my/Biodiversiti/Publication/CITES_Controlled%20Deliveries(Enforcement)-English.pdf*)

Green carbon, black trade: Illegal logging, tax fraud and laundering in the worlds tropical forests (*http://www.unep.org/pdf/RRAlogging_english_scr.pdf*)

ICCWC indicator framework for wildlife and forest crime (*https://cites.org/sites/default/files/eng/prog/iccwc/E-ICCWC-Ind-FW-Assessment_guidelines_and_template.pdf*)

Practical guidelines for sharing information with Law Enforcement (*http://www.interpol.int/Media/Files/Crime-areas/Environmental-crime/Practical-Guidelines-for-sharing-Information-with-Law-Enforcement*)

Red Alert Siamese Rosewood (*https://eia-international.org/wp-content/uploads/EIA-Red-Alert-FINAL.pdf*)

Report on timber tracking sustainability (*https://cites.org/eng/prog/itto/tracking_sustainability.pdf*)

The rise of environmental crimes (*http://unep.org/documents/itw/environmental_crimes.pdf*)

Wildlife and Forest Crime Analytical Toolkit (*https://www.unodc.org/documents/Wildlife/Toolkit_e.pdf*)

World Wildlife Crime Report (*https://www.unodc.org/documents/data-and-analysis/wildlife/World_Wildlife_Crime_Report_2016_final.pdf*)

## 5.2. Websites

Agroisolab UK (*http://www.agroisolab.com/*)

CITES Virtual College (*http://campusvirtual.unia.es/cites/*)

CITES Website – Appendices page (*cites.org/eng/app/appendices.php*)

CITES Checklist (*checklist.cites.org*)

Earth Observation (*http://www.earthobservation.com/*)

Global Forest Watch (GFW) (*http://www.globalforestwatch.org/*)

Global Traceability Solution (GTS) (*http://www.global-traceability.com/*)

ICCWC (*https://cites.org/eng/prog/iccwc.php*)

INTERPOL National Environmental Security Task Forces (*http://www.interpol.int/Crime-areas/Environmental-crime/Task-forces*)

INTERPOL Resources (*http://www.interpol.int/Crime-areas/Environmental-crime/Resources*)

SGS Timber Traceability and legality (*http://www.sgs.com/en/public-sector/monitoring-services/timber-traceability-and-legality*)

Species+ (*www.speciesplus.net/*)

The Forest Transparency Initiative (FTI) (*http://alpha.foresttransparency.org/en/home*)

The Thünen Centre of Competence on the Origin of Timber (*https://www.thuenen.de/en/infrastructure/the-thuenen-centre-of-competence-on-the-origin-of-timber/*)

TRAFFIC (*http://www.traffic.org/*)

Wildlife and forest crime forensic guidelines (*https://www.unodc.org/unodc/en/wildlife-and-forest-crime/forensic-guidelines.html*)

## Notes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